PAINWEEK®

The Perseverance Loop: Inside the Psychology of Pain and Factors in Pain Perception

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Biography

David Cosio, PhD, ABPP, is the psychologist in the Pain Clinic and the CARF-accredited, interdisciplinary pain program at the Jesse Brown VA Medical Center, in Chicago. He received his PhD from Ohio University with a specialization in Health Psychology in 2008. He completed a behavioral medicine internship at the University of Massachusetts-Amherst Mental Health Services and a Primary Care/Specialty Clinic Post-doctoral Fellowship at the Edward Hines Jr. VA Hospital in 2009. Dr. Cosio has done several presentations in health psychology at the regional and national level. He also has published several articles on health psychology, specifically in the area of patient pain education. He achieved specialist certification in Clinical Health Psychology by the American Board of Professional Psychology in 2017.

There is no conflict of interest and nothing to disclose.

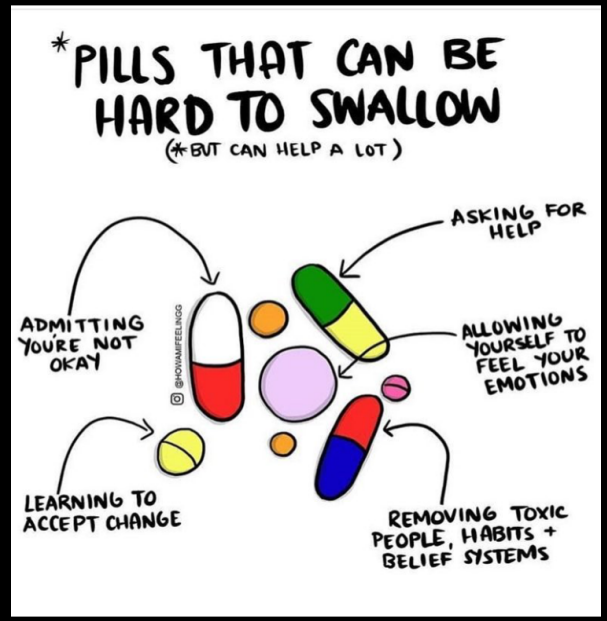
Disclosure

Dr. Cosio is speaking today based on his experiences as a psychologist employed by the Veterans Administration. He is not speaking as a representatives of or as an agent of the VA, and the views expressed are his own.

Learning Objectives

- Describe a model of analgesic problem-solving.
- Discuss the non-physiological factors that contribute to the perception of pain.
- Cite the aims of different psychological interventions, including sensory, affective, cognitive, and behavioral.
- Describe the transactional model of stress and coping and the goodness-of-fit theory.

Why Consider Psychotherapy?



PAIN

Normal Psychology of Pain

- Pain is a normal feature of human experience
- Commonplace pain has particular psychology that provides foundation for all pain management behavior
- A normal psychology of pain explains shared experience of pain that is uncomplicated & short-lived
- It is straightforward: it is diagnostically minor (such as headaches) or related to slight trauma that does not require clinical intervention (such as bruises)
- There are two core aspects beyond sensory features of normal pain:
  - Social or communicative function
  - Interruption of mental preoccupations or escape/avoidance

Eccleston, C. (2012). A normal psychology of everyday pain. Int J Clin Pract, 67, 47-50.
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Normal Psychology of Pain

- Pain is hard-wired as a social alarm of a threat that is then selected over other competing demands
- It triggers behaviors that interfere with normal life functioning
- Each individual's experience of pain and its expression is a product of:
  - Their sensory experience
  - Person's personal background
  - Interpersonal context
  - Meaning it has for individual

Eccleston, C. (2012). A normal psychology of everyday pain. Int J Clin Pract, 67, 47-50.
Craig, K. (1984). Psychology of pain. Postgraduate Medical Journal, 60, 835-840.

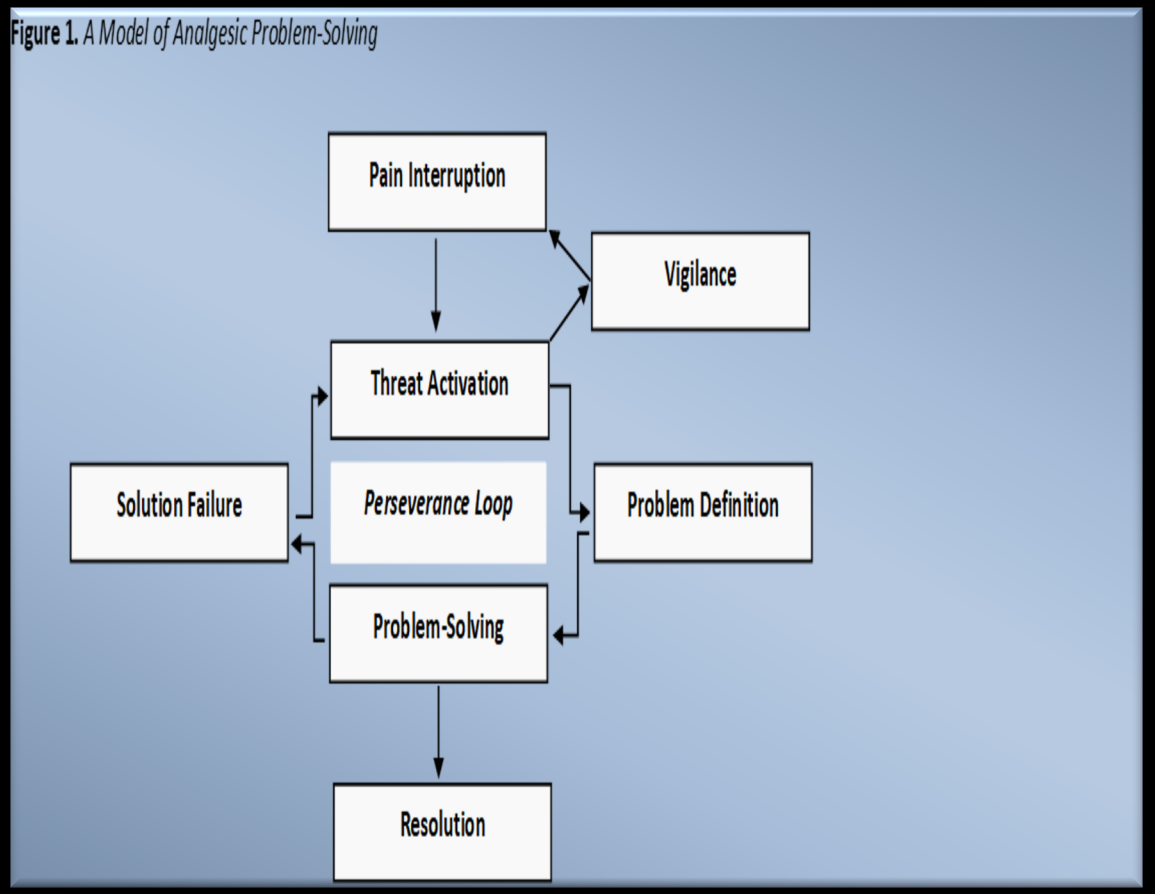
Model of Analgesic Problem-Solving

- In 2007, an exploratory model of analgesic problem-solving was proposed
- This model helps to capture how normal pain operates to interrupt attention and promote problem-solving behaviors
- Behaviors range from impassive and persevering to highly dramatic and panic-stricken
- First, pain interrupts person's attention and forces them into an unwanted and unwelcome focus on body
- Then pain is appraised as threat and makes them more vigilant to and drives them towards problem-solving behaviors
- Often, patients are faced with no options, techniques, or methods at their disposal to achieve escape
- Whichever solution person follows will then either be effective or ineffective
    - If effective, then they return to a pre-interruption state
    - If ineffective, person can become static in perseverance loop—actively and repeatedly engaged in effortful attempts to solve wrong problem

Craig, K. (1984). Psychology of pain. Postgraduate Medical Journal, 60, 835-840.
Eccleston, C. & Crombez, G. (2007). Worry and chronic pain: A misdirected problem solving model. Pain, 132, 233-236.

Model of Analgesic Problem-Solving

- These effortful attempts will then fail because:
  - Pain falls outside of individual's expectations
  - Lasts too long
  - Does not respond to treatment
  - Impairs their social function



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Perception of Pain

- Experience of pain has two distinct neural pathways:
  - When a pain signal comes from any part of body to brain, anterior cingulate cortex is activated which is associated with perception of pain
  - People react differently to this stimulation because feeling is determined by activation of medial prefrontal cortex and nucleus accumbens, which are associated with motivation and emotion
  - Non-physiological factors contribute to perception of pain, including:
    - Personality
    - Cognitions
    - Beliefs
    - Socio-cultural variables
    - Learning
    - Emotional reactivity

Wlassoff, V. (2015). The physiology and psychology of pain. Neuroscience & Neurology. Available at: http://www.brainblogger.com/2015/03/19/the-physiology-and-psychology-of-pain/. Accessed 05/22/19.

Cianfrini, L. & Doleys, D. (2017). The role of psychology in pain management. Practical Pain Management, 6 (1), May.

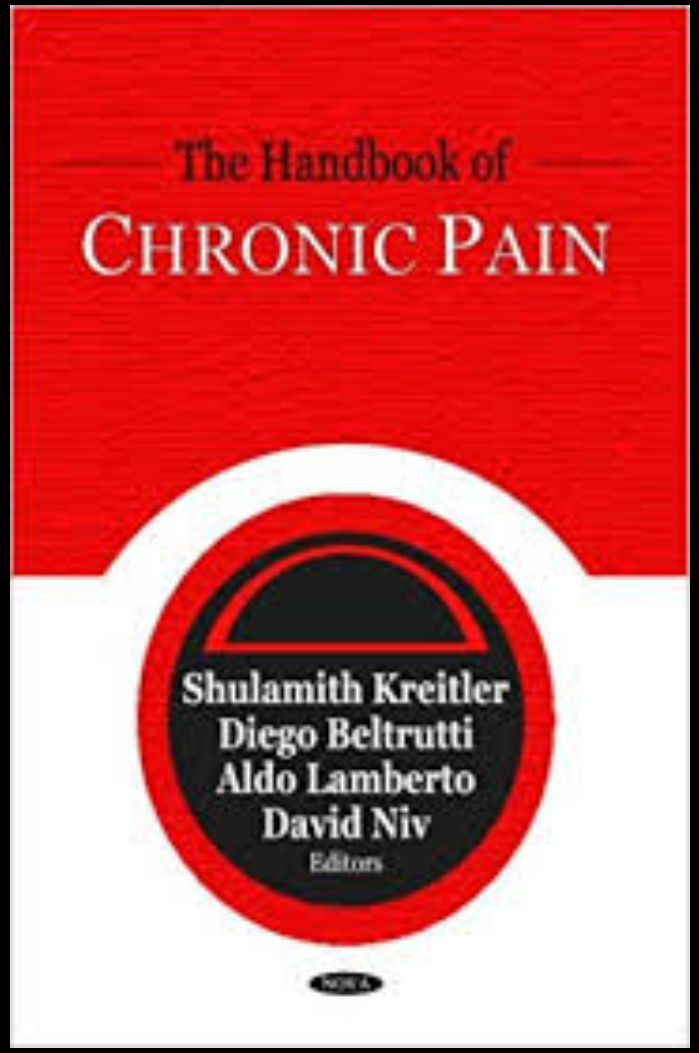
Psychological Interventions

- Interventions aimed at enabling patients to break out of perseverance loop and change their perception of pain may be more effective than interventions that appear to endorse patient's view of problem as one that can only be solved by pain relief
- Psychotherapy produces long-term changes in behavior through learning which generates changes in gene expression that alter anatomical pattern of interconnections between nerve cells of brain
- Regulation of gene expression by psychosocial factors makes all bodily functions, including brain, susceptible to psychosocial influences
- Mechanisms of change involved in psychotherapy:
  - Physiological processes: musculoskeletal activity, heart rate, blood pressure, EEG patterns, sympathetic arousal, production of endogenous opioids, production of neurotransmitters, neurohormonal activity, and cortical functioning
  - Cognitions: patient's covert self-talk, thoughts, and beliefs
  - Behaviors: way one acts and talks
  - Emotional reactivity: full accommodation of life

Cianfrini, L. & Doleys, D. (2017). The role of psychology in pain management. Practical Pain Management, 6 (1), May.

Classification System

- In 2007, a classification of psychological techniques was developed by Kreitler & Kreitler based on which component of pain is in focus of treatment:
  - Sensory
  - Affective
  - Cognitive
  - Behavioral



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Sensory Component of Pain

- Mainly target to attain a change in sensation of pain by modifying its emotional and cognitive meaning
- Interventions based only on biomedical approach may appease patient who is focused on solving their pain by relief
- Psychological techniques that fall under this category:
  - Guided imagery
  - Hypnosis
  - Auto-suggestion
  - Relaxation
  - Biofeedback
  - Distraction/displacement of attention
  - Music therapy
  - Meditation

Csaszar, N., Bagdi, P., Stoll, D., & Szoke, H. (2014). Pain and Psychotherapy, in the Light of Evidence of Psychological Treatment Methods of Chronic Pain Based on Evidence. Journal of Psychology & Psychotherapy, 4(3), 1-6.

Sensory Component of Pain

Guided Imagery

- Therapeutic technique in which a facilitator uses descriptive language intended to psychologically benefit mental imagery
- Evidence of a positive effect on arthritis or rheumatic diseases, and potential positive effects on secondary outcomes of anxiety, mobility, and quality of life
- Patients with fibromyalgia experienced no effect on pain, but potential positive effects on secondary outcomes including psychological distress and coping with pain

Giacobbi, P., Stabler, M., Stewart, J., et al. (2015). Guided Imagery for Arthritis and Other Rheumatic Diseases: A Systematic Review of Randomized Controlled Trials. Pain management Nursing: Official journal of the American Society of Pain Management Nurses, 16(5), 792-803.

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Sensory Component of Pain

Hypnosis

- Procedure involving cognitive processes, like imagination, in which a patient is guided by professional to respond to suggestions for changes in perceptions, sensations, thoughts, feelings, and behaviors
- Generally more effective than non-pharmacological interventions, such as physical therapy and education
- Growing evidence to suggest that has greater influence on affects rather than sensation of pain
- Provides symptom relief and improved overall gastrointestinal functioning for patients with IBS, but no effect on secondary outcomes including pain
- Reduces stress, relieves anxiety, improves sleep, improves mood, and reduces need for opioids
- Enhances efficacy of other well-established treatments for pain

Auto-Suggestion

- Past research has shown that hypnosis interventions that included an auto-suggestion component evidenced significantly greater weight loss

Jensen, M., Ehde, D., Gertz, K., et al. (2011). Effect of self-hypnosis training and cognitive restructuring on daily pain intensity and catastrophizing in individuals with multiple sclerosis and chronic pain. Int J Clin Exp Hypnosis, 59 (1), 45–64. Jensen, M. (2009). Hypnosis for chronic pain management: A new hope. Pain, 146 (3), 235–237. Schaefert, R., Klose, P., Moser, G., & Hauser, W. (2014). Efficacy, tolerability, and safety of hypnosis in adult irritable bowel syndrome: systematic review and meta-analysis. Psychosomatic Medicine, 76(5), 389-398. Milling, L., Gover, M., & Moriarty, C. (2018). The effectiveness of hypnosis as an intervention for obesity: A meta-analytic review. Psychology of Consciousness: Theory, Research, Practice, 5(1), 29-45.

Sensory Component of Pain

Relaxation Techniques

- Different types:
  - Diaphragmatic breathing
  - Progressive muscle relaxation (PMR)
  - Autogenic training
- Research indicates it can reduce pain outcomes in both acute and chronic pain; however, not maintained over time

Dunford, E., Thompson, M., & Dclinpsy, M. (2010). Reviews in Pain Relaxation and Mindfulness in Pain : A Review. British Journal of Pain, 4, 18-22.

Sensory Component of Pain

Biofeedback

- Use of instrumentation to mirror psychophysiological processes of which one is not aware and brought under voluntary control
- Different types:
  - Thermistor (temperature)
  - Photoplethysmography (heart rate variability)
  - Pneumograph (respiration)
  - Electrodermograph (sweat gland activity)
  - Electromyograph (muscle tension)
  - Electroencephalograph (electrical activity in the brain)
- Effective for reducing frequency, duration, and intensity of headaches
- Potential benefit for pain when using electromyograph among patients with fibromyalgia

Schwartz, M. & Andrasik, F. (2005). Biofeedback: A practitioner's guide (Third edition). Guilford Press.

Nestoriuc, Y., Martin, A., Rief, W., & Andrasik, F. (2008). Biofeedback treatment for headache disorders: A comprehensive efficacy review. Applied psychophysiology and biofeedback, 33(3), 125-140.

Glombiewski, J., Bernardy, K., & Hauser, W. (2013). Efficacy of EMG- and EEG-Biofeedback in Fibromyalgia Syndrome: A Meta-Analysis and a Systematic Review of Randomized Controlled Trials. Evidence-based complementary and alternative medicine : eCAM, 2013, 962741.

Sensory Component of Pain

Distraction

- Process of diverting attention of individual or group from a desired area of focus, thereby blocking or diminishing reception of undesired information, or pain signals
- Several examples of activities:
  - Humor
  - Crafts
  - Tapping
  - Gaming
  - Reading
  - Writing
  - Drawing
- Little examination of use of distraction in chronic pain, but some ancillary evidence suggests that it should be used with caution

Johnson, M. (2005). How does distraction work in the management of pain? Current Pain and Headache Reports, 9, 90–95.

Music Therapy

- Help patients improve their health by using music experiences such as free improvisation and singing
- Drumming serves as a distraction from pain, promotes production of endorphins and endogenous opiates
- Active singing may have some benefits in terms of active coping, but further research is required to fully explore such effects
- Music can increase effectiveness of medical therapies and can be used as adjuvant with other pain-management programs

Winkelman, M. (2000). Shamanism: The neural ecology of consciousness and healing. Westport, Connecticut: Bergin & Garvey.

Kenny, D. & Faunce, G. (2004). The impact of group singing on mood, coping and perceived
pain in chronic pain patients attending a multidisciplinary pain clinic. Journal of Music Therapy, 41, 241-258.

Bernatzkya, G., Prescha, M., Anderson, M., et al. (2011). Emotional foundations of music as a non-pharmacological pain management tool in modern medicine. Neuroscience and Biobehavioral Reviews, 35, 1989–1999.

Sensory Component of Pain

Meditation

- Devotional exercise of or leading to observation
- Umbrella term that encompasses practice of reaching ultimate consciousness and concentration to acknowledge mind and regulate individual's attention
- Mindfulness is a type of meditation commonly used in pain management. Mindfulness is an exercise in just noticing, or awareness
- Yoga is an ancient Indian philosophical practice that pairs physical postures with breath awareness and meditation to bring a sense of contentment to existential human condition

Sensory Component of Pain

Mindfulness

- Several types of mindfulness-based interventions:
  - Mindfulness-Based Stress Reduction (MBSR)
- Practicing short meditation exercises is a great way to break away from pain, and it may also reduce anxiety, depression, and sleep trouble
- Evidence of improved pain associated with mindfulness interventions
- May be effective in treating at least some aspects of somatization disorders, including fibromyalgia

Schatz, C. (2011). Mindfulness meditation improves connections in the brain. Harvard Women's Health Watch, April 08, 2011.

Goyal, M., Singh, S., Sibinga, E., et al. (2014). Meditation Programs for Psychological Stress and Well-being: A Systematic Review and Meta-analysis. JAMA internal medicine. Jan 6 2014.

Lakhan, S. & Schofield, K. (2013). Mindfulness-based therapies in the treatment of somatization disorders: A systematic review and meta-analysis. PloS one, 8(8), e71834.

Yoga

- Thought to work by increasing embodiment through exposure to bodily sensations
- 2012 national U.S. health survey found that over 13% of the US population practiced yoga
- Musculoskeletal conditions and stress were top health reasons cited for starting yoga
- Decreases low back pain, neck pain, knee osteoarthritis pain, migraines, and pain in patients with fibromyalgia
- May be more effective than traditional exercise at decreasing physical pain

Cramer, H., Ward, L., Steel, A., et al. (2016). Prevalence, patterns, and predictors of yoga use: Results of a U.S. nationally representative survey. Am J Preventative Med, 50, 230-235. Holtzman, S. & Beggs, T. (2013). Yoga for chronic low back pain: A meta-analysis of randomized controlled trials. Pain Res Manage, 18, 267-272. Ebnezar, J., Nagarathna, R., Yogutha, B., & Nagendra, H. (2012). Effects of an Integrated Approach of Hatha Yoga Therapy on Functional Disability, Pain, and Flexibility in Osteoarthritis of the Knee Joint: A Randomized Controlled Study. The Journal of Alternative and Complementary Medicine, 18. Kisan, R., Sujan, M., Adoor, M., et al. (2014). Effect of yoga on migraine: A comprehensive study using clinical profile and cardiac autonomic functions. International Journal of Yoga, 7, 1236-132.

Affective Component of Pain

- Numerous studies have been conducted in area of pain and emotion:
  - Stress and pain
  - Negative emotional states and pain
  - Emotional regulation processes and pain
  - Effects of enhancing emotional regulation on pain
  - Relation of emotional distress to treatment seeking in persons having pain
- There are treatments focusing on these effects that alleviate pain, but they seem to have limited effect on pain management
- Notion that accessing and exploring painful emotions in a therapeutic relationship makes one better is a widely held belief among several schools of psychotherapy
- Focus of treatment may be more of a full accommodation of life, which is changed to one in which pain is a feature and not center

Keefe, F., Lumley, M., Anderson, T., et al. (2001). Pain and emotion: New research directions. Journal of Clinical Psychology, 57, 587-607.

Csaszar, N., Bagdi, P., Stoll, D., & Szoke, H. (2014). Pain and Psychotherapy, in the Light of Evidence of Psychological Treatment Methods of Chronic Pain Based on Evidence. Journal of Psychology & Psychotherapy, 4(3), 1-6. Greenberg, L. & Pascual-Leone, A. (2006). Emotion in psychotherapy: A practice-friendly research review. Journal of Clinical Psychology, 62, 611-630.

Affective Component of Pain

Supportive Therapy

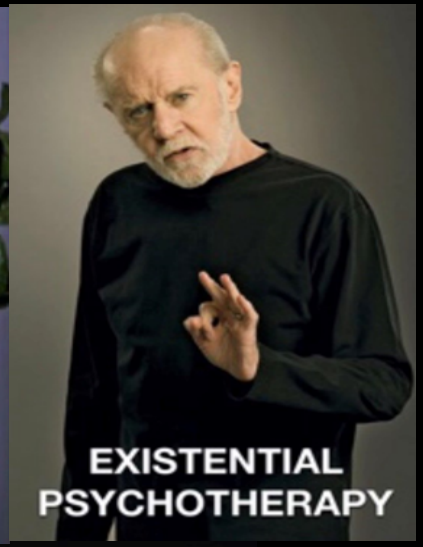
- A practical approach to treatment that aims to help patients cope with their emotional distress and problems of living using techniques:
  - Comforting
  - Advising
  - Encouraging
  - Reassuring
  - Listening attentively and sympathetically
- Offers an emotional catharsis for patient
- Therapist appeals to patient's conscious mind rather than interpreting their unconscious; serves as a role model of appropriate behavior, including healthy emotional regulation
- Often included as a condition in clinical trials to provide a rigorous comparison group that controls for nonspecific factors in therapy in order to evaluate any unique benefits of other psychotherapies

Neuman, F. (2019). Supportive psychotherapy: Helping those who have emotional problems. Psychology Today. Available at: https://www.psychologytoday.com/us/blog/fighting-fear/201306/supportive-psychotherapy. Accessed 11/27/19.

Affective Component of Pain

Humanistic Psychotherapy

- These approaches are phenomenological, in that they are interested in patient's subjective report of their life experiences
- Emphasize therapeutic relationship and see nonjudgmental regard as a curative factor
- Therapist uses their whole, authentic self to role model healthy interpersonal relationships with patient, including healthy boundaries, distress tolerance, and emotional regulation
- Includes the following psychotherapies:
  - Person-centered
  - Existential
  - Gestalt
  - Emotional Awareness & Expression Therapy



Affective Component of Pain

Person-Centered Therapy

- This process-oriented approach was developed by psychologist Carl Rogers in 1940s
- Carl Rogers believed that three core conditions (acceptance-unconditional positive regard, therapist congruence-genuineness, and empathic understanding) help liberate their patient so they may confidently express their true feelings without fear of judgment.

Existential Therapy

- This therapy is informed by existential tradition of European philosophers, such as Kierkegaard & Nietzsche
- Rollo May, a psychologist, brought existential therapy into mainstream in middle of 20th century
- Goal of therapy is to promote responsibility in patient through awareness of thoughts, feelings, and choices in order to live an aware, authentic life

Gestalt Therapy

- This therapy was developed by Fritz Perls and his wife, Laura Perls, in the mid-1900s
- Promotes relationship between patient and therapist as its most vital intervention
- Focuses on physical body awareness to access patterns of feelings, thoughts, and ultimately behaviors
- Objective is to enable patient to shed incongruent values of others while integrating parts of self cut off

Rogers, C. (1966). Client-Centered Therapy. In Arieti, S. (ed.). American Handbook of Psychiatry. New York City: Basic Books; 183–200.

Affective Component of Pain

Emotional Awareness and Expression Therapy (EAET)

- This intervention is based on principle that life stress accompanied by emotional suppression can lead to chronic over-arousal, dysregulate brain, and trigger or exacerbate pain symptoms related to fibromyalgia
- Helps patients recognize their own stress-pain links and recognize that avoidance of emotionally difficult interpersonal experiences is a key stressor

Research Results

- Telephone-delivered person-centered therapy performed as well as cognitive-behavioral treatments for back pain severity and disability
- While existential therapy outcomes have been investigated, these investigations have been predominantly with oncology patients
- More research is needed on the impact of existential and gestalt therapies on well-being and pain experiences in more diverse pain patient populations

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Rutledge, T., Atkinson, J., Chircop-Rollick, T., et al. (2018). Randomized Controlled Trial of Telephone-delivered Cognitive Behavioral Therapy Versus Supportive Care for Chronic Back Pain. The Clinical Journal of Pain, 34, 322–327.

Gannon, J., Atkinson, J., Chircop-Rollick, T., et al., (2019). Telehealth Therapy Effects of Nurses and Mental Health Professionals From 2 Randomized Controlled Trials for Chronic Back Pain. The Clinical Journal of Pain, 35, 295–303.

Affective Component of Pain

Dynamic Psychotherapy

- Goals include long-term adaptation to pain and relief of symptoms
- Used when emotional factors, defense mechanisms, and personality traits modulate subjective experience of pain
- Aims to enable insight into unconscious processes as liberation from emotional suffering impacts pain and its psychological components
- Treatments that operate on interpretive/ expressive-supportive continuum:
  - Psychoanalysis
  - Adlerian
  - Interpersonal psychotherapy

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Horn, S. & Munafo, M. (1998). Pain: Theory, research and intervention. Philadelphia: Open University Press.

Affective Component of Pain

Psychoanalysis

- Rooted in theory of evolution, this approach was established in early 1890s by Sigmund Freud
- Emphasize early childhood experiences and caregiver relationships
- Explore unconscious mind and bring repressed fears and conflicts from infancy and childhood into conscious mind
- Uses dream interpretation and free association
- Traditional psychoanalysis is a lengthy process which involves many sessions with a psychoanalyst

Interpersonal Psychotherapy

- Examines current relationships and recognizes internal conflicts without focusing on them
- Main goal is to improve quality of a patient's interpersonal relationships and social functioning to help reduce their distress
- Provides strategies to resolve problems within four key areas:
  - Interpersonal deficits
  - Unresolved grief
  - Difficult life transitions
  - Interpersonal disputes

Affective Component of Pain

Adlerian therapy

- Alfred Adler, a contemporary of Freud, developed this approach during early 20th century
- Different from Freud, who emphasized sex and aggression instincts, Adler emphasized importance of social interest and belonging
- Explore factors such as sibling birth order, lifestyle, and parenting
- Objective is to identify and reframe basic mistakes and private logic across four phases of treatment:
  - Engagement
  - Assessment
  - Insight
  - Reorientation

Affective Component of Pain

Research Results

- Short-term dynamic psychotherapy indicated for patients with psychiatric comorbidity and those with somatoform pain including idiopathic, chronic pain conditions, severely physically ill with mostly chronic pain, chronic headaches, rheumatoid arthritis, chronic back pain, & pelvic pain or urethral syndrome
- Dynamic psychotherapy reported to outperform mindfulness-based stress reduction and cognitive behavioral therapy on measures of chronic pain
- Interpersonal psychotherapy as a treatment for patients with chronic pain and depression
- Adlerian therapy has been supported by some research; more testing will likely provide more extensive evidence backing benefits of approach

Leichsenring, F., Hiller, W., Weissberg, M., & Leibing, E. (2006). Cognitive-behavioral therapy and psychodynamic psychotherapy: Techniques, efficacy, and indications. American Journal of Psychotherapy, 60, 233-259.

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Monsen, K. & Monsen, J. (2000). Chronic pain and psychodynamic body therapy: A controlled outcome study. Psychother, 37, 257-269.

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Hawkins, J . (2003). The role of emotional repression in chronic back pain: A study of chronic back pain patients undergoing group psychodynamic psychotherapy as treatment for their pain. Published PhD Dissertation. New York: New York University.

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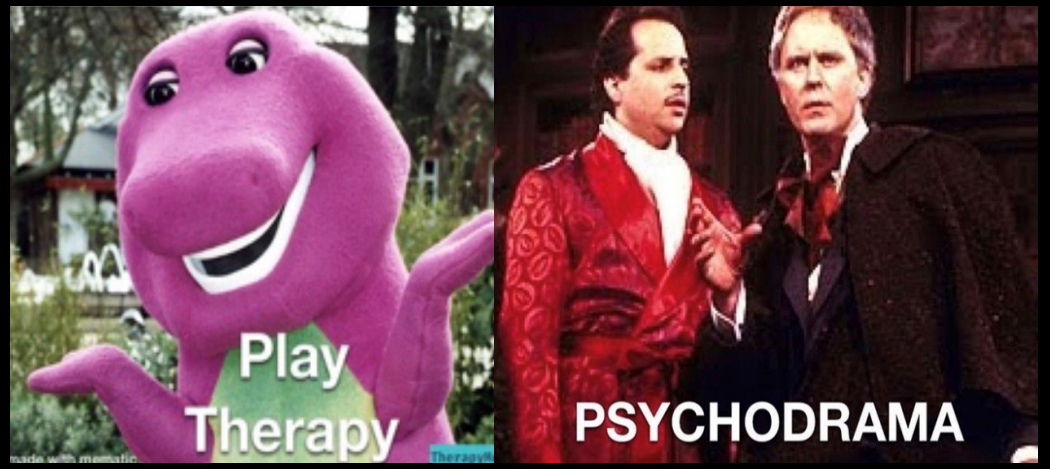
Affective Component of Pain

Creative Arts Therapy

- Includes dance or movement-based expression, story and poetry writing, acting, and visual arts in the therapeutic process
- Found to be therapeutic as a stand-alone treatment, it is more often used as a complementary alternative intervention

Visual Arts Therapy

- Any type of two- or three-dimensional visual art project is conceptualized and executed as a means to express oneself and gain insights into thoughts, feelings, and behaviors
- Includes painting, drawing, photography, sculpting, and/or digital art
- Stimulate a positive emotional experience
- Three ways facilitated: studio-based, group, and individual art therapy



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Affective Component of Pain

Psychodrama

- Originally developed by Jacob L. Moreno, and includes elements of theater
- Group psychotherapy where dramatic expression, theatric plays, or body movement are applied to re-enact real-life, past situations (or inner mental processes) by acting them out in present time
- Aims to improve patient's relationships with others and their self-confidence

Play Therapy

- Used primarily with children 3-12 years of age
- Helps patients explore their lives and freely express repressed thoughts and emotions through play
- Goal is to help children learn to express themselves in healthier ways, become more self-compassionate and empathic, and discover new and more positive ways to solve problems

Research Results

- More studies are needed to better understand the effectiveness of creative art therapy in chronic pain patients
- Patients reported greater introspection, and, as a result, a greater understanding of their patterns of thoughts, feelings, and behaviors using visual art
- Psychodrama is effective to help with expression of suppressed feelings in a sample of cancer patients
- Play therapy has been shown to help buffer pain experiences in pediatric cancer patients

Cognitive Component of Pain

- Aim to improve pain control by facilitating a change in patients' attitudes toward their pain
- Underlying assumption is that cognitions, or thoughts, and beliefs impact experience of pain
- Reduce rigidity of belief in pain as requiring a biomedical approach and in changing problem frame from one of needing a cure to one of managing a chronic illness
- Expansion of cognitive-informed approaches into pain management helps to evolve and therefore improve upon traditional cognitive approaches
- Expands therapeutic tool belt for health providers working with pain patients

Cognitive Component of Pain-ORIGINAL CLASS

- **Psychoeducation**
  - Didactic information, or health education, versus psychoeducation
  - Improve pain knowledge and change beliefs about pain
  - Make minimal changes in subjective pain experiences
  - Create positive changes on depression measures
- **Therapeutic Neuroscience**
  - Education programs on neurophysiology and biology of pain
  - Decrease pain
  - Improve pain beliefs
  - Improve cognitions, pain thresholds, and movement performance

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Cognitive Component of Pain-ORIGINAL CLASS

- **Cognitive attitude-based therapy (CABT)**
  - Underlying change mechanism asserts that enhancing positive attitudes or weakening dysfunctional beliefs can promote pain management
  - Use different inventories, group discussions, supplemental support materials, and explanatory models
- **Cognitive coping therapy**
  - Promotes patient acquisition of adequate and forfeiture of inadequate cognitive skills
  - Provide information, discussion, modeling, reinforcement, rehearsal, generalization to everyday life, and support for maintenance
- **Cognitive therapy (CT)**
  - Focuses on impact of negative cognitive triad–negative thoughts about self, future, and world at large
  - Help patients identify maladaptive patterns in thinking, including defining and labeling patterns
  - Demonstrate an increase in reported self-efficacy and a decrease in pain catastrophizing

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Cognitive Component of Pain-SECOND WAVE

- Expanded to include integrated cognitive therapy and behaviorism
- **Cognitive-behavioral therapy (CBT)**
  - Helps patients engage in active coping process aimed at changing maladaptive thoughts & behaviors that serve to maintain and exacerbate experience of chronic pain
  - Three components: a treatment rationale, training, and application and maintenance of learned coping skills
  - Highly efficacious in treatment of fibromyalgia, headaches, low back, osteoarthritic knee, and rheumatoid arthritis
- **Rational emotive behavioral therapy (REBT)**
  - Bridges gap between CT and behavioral therapy
  - Used to treat rage, anxiety, frustrations, social phobia, shyness, and sexual dysfunctions
  - Aims to modify irrational thoughts and uses A-B-C model as its predominate assessment and intervention tool

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Lamb, S., Hansen, Z., Lall, R., et al. (2010). Group cognitive behavioral treatment for low-back pain in primary care: A randomized controlled trial and cost-effectiveness analysis. Lancet, 375, 916-923.

Keefe, F., Caldwell, D., Williams, D., et al. (1990). Pain coping skills training in the management of osteoarthritic knee pain: A comparative study. Behavior Therapy, 21, 49-62.

Bradley, L., Young, L., Anderson, J., et al. (1987). Effects of psychological therapy on pain behavior of rheumatoid arthritis patients: Treatment outcome and six-month follow-up. Arthritis & Rheumatism, 30, 1105-1114.

Cognitive Component of Pain-SECOND WAVE

- **Cognitive processing therapy (CPT)**
  - Teaches set of skills that challenge negative thoughts and gain control over impact have on their life
  - Benefit from receiving an integrated (CPT and CBT) treatment for pain and trauma symptoms

Otis, J., Keane, T., Kerns, R., et al. (2009). The Development of an Integrated Treatment for Veterans with Comorbid Chronic Pain and Posttraumatic Stress Disorder. Pain Medicine, 10, 1300–1311.

Cognitive Component of Pain-THIRD WAVE

- Expanded to include integrated cognitive therapy and mindfulness
- **Acceptance & commitment therapy (ACT)**
  - A form of clinical behavior analysis that uses acceptance and mindfulness strategies mixed with commitment and behavior-change strategies
  - Goal is to shift patients' primary focus from reducing or eliminating pain to a focus on fully engaging in life, while accompanied by pain
  - Decrease pain intensity, functional disability, psychological distress, and have shown improvements in pain interference among individuals with chronic pain

Johnston, M., Foster, M., Shennan, J., et al. (2010). The effectiveness of an acceptance and commitment therapy self-help intervention for chronic pain. Clinical Journal of Pain, 26, 393-402.

Vowles, K., Wetherell, J., & Sorrell, J. (2009). Targeting acceptance, mindfulness, and values-based action in chronic pain: Findings of two preliminary trials of an outpatient group-based intervention. Cognitive and Behavioral Practice, 16, 49-58.

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Wetherell, J., Afari, N., Rutledge, T., et al. (2011). A randomized, controlled trial of acceptance and commitment therapy and cognitive-behavioral therapy for chronic pain. Pain, 152, 2098–2107.

Cognitive Component of Pain-THIRD WAVE

- **Dialectical behavior therapy (DBT)**
  - Structured to help clients develop insight and skills to manage their thoughts, emotions, and behaviors
  - Four modules, including mindfulness, emotional regulation, distress tolerance, and interpersonal effectiveness
  - Offers a theoretically feasible effective psychotherapeutic approach for pain management
  - Very little research on effectiveness of DBT with chronic pain patients
  - Improvements in pain intensity, catastrophizing, fear, depression, sleep, and acceptance of pain
  - More research is needed on effectiveness on chronic pain patients, specifically those who report high interpersonal distress and less treatment gains with traditional CBT

Linehan, M. M. (1993). Diagnosis and treatment of mental disorders. Skills training manual for treating borderline personality disorder. Guilford Press.

McCracken, L.M., & Vowels, K.E. (2014). Acceptance and commitment therapy and mindfulness for chronic pain: Model, process, and progress. American Psychologist, 69(2), 178-187.

Linton, S.J. (2010). Applying dialectical behavioral therapy to chronic pain: A case study. Scandinavian Journal of Pain, 1(1), 50-54.

Broderick, J.E., Keefe, F.J., Schneider, S., Junghaenel, D.U., Bruckenthal, P., Schwartz, J.E., Kaell, A.T., Caldwell, D.S., McKee, D., & Gould, E. (2016). Cognitive behavioral therapy for chronic pain is effective, but for whom? Pain, 157(9), 2115-2123.

Cognitive Component of Pain-THIRD WAVE

- **Mindfulness-based cognitive therapy (MBCT)**
  - Informed from both CBT and mindfulness approaches, specifically MBSR
  - Intended to be used to treat depression and found to be effective with pain management
  - Aims to increase bodily awareness and acceptance of sensory experiences
  - Performs similarly to psychoeducation for pain interference, acceptance, and catastrophizing
  - Performed better than treatment as usual in patients' ability to self-regulate and tolerate uncomfortable bodily sensations
  - Effective in individuals with severe headache and in persons who accept their pain

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse. Guilford Press.

Dowd, H., Hogan, M., McGuire, B, E., Davis, M.C., Sarma, K.M., Fish, R., & Zautra, A.J. (2015). Comparison of an online mindfulness-based cognitive therapy intervention with online pain management psychoeducation. The Clinical Journal of Pain, 31(6), 517-527.

de Jong Lazer et al. M. (2016). Effects of mindfulness-based cognitive therapy on body awareness in patients with chronic pain and comorbid depression. Frontiers in Psychology, 7, 967.

Day, M.A., Thorn, B.E., & Rubin, N.J. (2014). Mindfulness-based cognitive therapy for the treatment of headache pain: A mixed-methods analysis comparing treatment responders and treatment nonresponders. Complementary Therapies in Medicine, 22, 278-285.

Moore, K.M. & Martin, M.E. (2014). Using MBCT in a chronic pain setting: A qualitative analysis of participants' experiences. Mindfulness, 6(5), 1129-1136.

Behavioral Component of Pain

- Two broad categories of theory:
  - Operant learning model
  - Pavlovian conditional model
- Focused on addressing the anxiety and hypervigilance for signals of possible pain with heightened fear of possible consequences of pain
- Goal of treatment across behavioral approaches is to increase daily lifestyle functioning as opposed to decreasing nociception
- Appear to work best with patients who understand that concept and therefore accepted their pain condition

Behavioral Component of Pain

- **Operant conditioning**
  - Informed by learning theory and aim to alter environmental contingencies to reinforce adaptive behavior
  - Found to be more effective than CBT at reducing pain behaviors
  - Shown to be more effective at reducing physical impairment compared to CBT
  - OBT and CBT performed similarly at reducing pain intensity at follow-up
- **Environmental therapy**
  - Based on conditioning
  - Remove the patient from regular environment
  - May be inpatient ward to replacing objects have contact with (chair, bed, sofa)

Thieme, K., Flor, H., & Turk, D. (2006). Psychological pain treatment in fibromyalgia syndrome: Efficacy of operant behavioral and cognitive behavioral treatments. Arthritis Res Ther,8, R121.

Kreitler, S. & Kreitler, M. (2007). Psychological Approaches to Treatment of Pain: Sensory, Affective, Cognitive and Behavioral. In: The Handbook of Chronic Pain, Kreitler, S. and Beltrutti, D. (Eds.), Nova Science Publishers.

Behavioral Component of Pain—THE FAMILY

Family therapy

- **Operant-behavioral treatment**
  - Proposes that pain behaviors are influenced by social responses of family members.
  - Shown to be effective when combined with family support and education about coping skills
- **Cognitive-behavioral treatment (CBT)**
  - Proposes that family develops a relatively stable set of beliefs about illness, pain, disability, and coping over time
  - Empirical support for effectiveness of CBT with spouses of chronic pain sufferers exists
- **Structural, Cognitive, and Strategic family therapy**
  - These therapies have scant research support for their effectiveness

Kerns, R., Otis, J., & Wise, E. (2002). Treating families of chronic pain patients: Application of a cognitive-behavioral transactional model. In D. Turk & R. Gatchel (Eds.), Psychological approaches to pain management. New York, NY: The Guilford Press.

Romano, J. & Schmaling, K. (2001). Assessment of couples and families with chronic pain. In D. Turk & R. Melzack (Eds.), Handbook of pain assessment. New York, NY: The Guilford Press.

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Otis, J., Cardella, L., & Kerns, R. (2004). The influence of family and culture on pain. In R. Dworkin & W. Breitbart (Eds.), Psychosocial aspects of pain: A handbook for health care providers. Seattle, WA: IASP Press.

Kerns, R. & Otis, J. (2003). Family therapy for persons experiencing pain: Evidence for its effectiveness. Seminars in Pain Medicine, 1, 79-89.

Behavioral Component of Pain

- **Behavioral therapy**
  - Setting specific goals, reinforcement, rehearsal, generalization of coping strategies
  - Practiced in form of groups
  - Often integrated into CBT
- **Behavioral analysis/Functional analytic programs**
  - Based on the principles of radical behaviorism
  - Requires health providers to have awareness about how their own reactions may have a reinforcing effect on patients' pain behaviors
  - Notice within the interpersonal interactions they have with patient to increase patient awareness of these patterns
  - Despite limited research, qualitative findings show promise for group therapy for treatment-resistant chronic pain patients

Kreitler, S. & Kreitler, M. (2007). Psychological Approaches to Treatment of Pain: Sensory, Affective, Cognitive and Behavioral. In: The Handbook of Chronic Pain, Kreitler, S. and Beltrutti, D. (Eds.), Nova Science Publishers.

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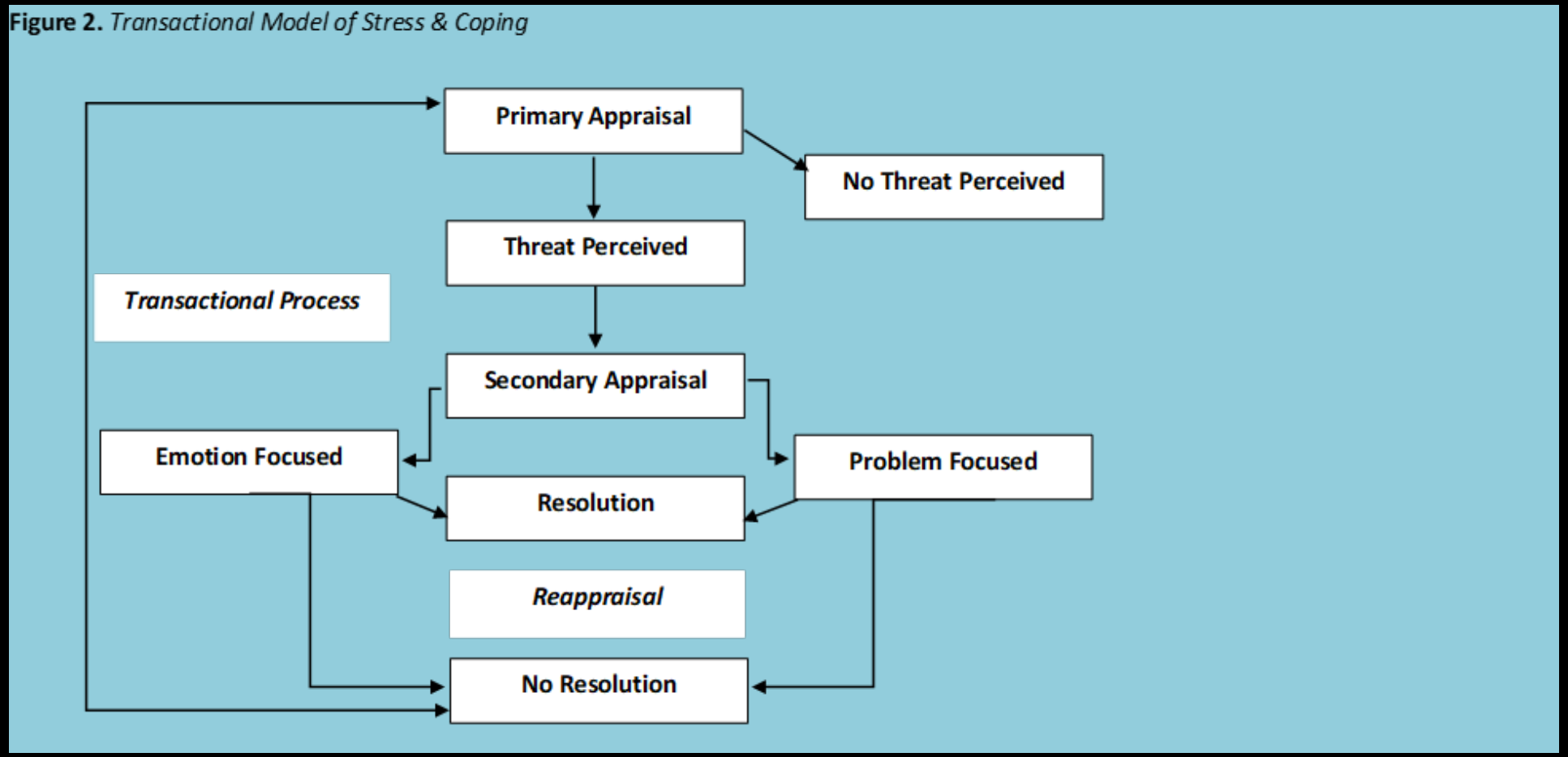
Behavioral Component of Pain

- **Solution focused therapy**
  - Assumes that solution is not necessarily related to the problem
  - Use techniques such as ‘miracle question’ to understand patient’s vision of their goals for treatment
  - *“What if a miracle happened in the middle of the night and the problems that brought you to treatment magically disappeared? But, because you were sleeping, you do not know that the miracle occurred. What will be different in your day to show you that the miracle happened? What will be the first thing you notice?”*
  - Patient identifies differences that would indicate improvement from perspective of patient
  - Effective at decreasing pain interference at follow-up
  - Showed a significant increase in both self-efficacy and well-being at follow-up
- **Reality therapy**
  - Maintains that patient is suffering from a socially universal human condition
  - Unsuccessful attainment of basic needs that a person's behavior moves away from norm
  - Goal is to find more effective ways of fulfilling needs (such as belonging, power, freedom, and fun)

Simm, R., & Barker, C. (2018). Five years of a community pain service solution-focused pain management program: Extended data and reflections. British Journal of Pain, 12, 113–121.

Transactional Model of Stress & Coping



Transactional Model of Stress & Coping

- Lazarus & Folkman's (1984) Transactional Model is one of most comprehensive theories of stress and coping in psychological literature
- Received little empirical attention in chronically ill populations
- Assumes a person-situation interaction, or transactional process, when a patient perceives a threat
- Threat level is dependent on initial subjective judgement of patient, or primary appraisal
- A secondary appraisal then occurs, which is a judgement concerning benefits and consequences of a particular coping style given person's goals and constraints
- Problem-focused coping-coping strategies aimed at solving or changing problem, such as obtaining information about pain or seeking medical attention
- Emotion-focused coping-used to manage or regulate emotional response to pain, such as exercising, meditating, or engaging in activity to help forget about pain
- Then there is a reappraisal, which determines effectiveness of coping strategy and patient's psychological adjustment
- According to this model's goodness-of-fit hypothesis, problem-focused coping is most appropriate when situations are appraised as changeable, while emotion-focused coping is most ideal when situations are less changeable
- If the wrong approach is used, stress remains unresolved and creates its own perseverance loop

Lazarus, R. & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer Publishing Company.