“The reign of pain lies mainly in the brain”
Clinical and research perspectives on chronic non-structural pain
Gold or Pyrite?

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A 52-year-old woman with neck and head pain for 37 years

What are your goals?

Realistic hopes to convey?

Having fun yet?

The state of pain therapy

Back surgery not better than conservative care in several studies

Injections not better than placebo in meta-analyses

Opioids can cause increased pain and can be dangerous

Psychological therapies have small to moderate effects on pain

None better than another, including Relaxation, CBT, Mindfulness and ACT

Why? Diagnosis, Coping model, Role of emotions

Hoffman, et. al. Health Psychology 2007, 26: 1–9. Chou, et. al., Spine, 2009, 34: 1078–1093. Brox, et. al. Spine, 2003, 28:1913–1921. Peul, et. al. N Engl J Med 2007;356:2245-56. Osterman, et. al. Spine, 2006, 31:2409–2414.

Prevalence estimates of degenerative spine imaging findings in asymptomatic patients, n=3300

Imaging Finding	Age (yr) 20	30	40	50	60	70	80
Disk degeneration	37%	52%	68%	80%	88%	93%	96%
Disk bulge	30%	40%	50%	60%	69%	77%	84%
Disk protrusion	29%	31%	33%	36%	38%	40%	43%
Annular fissure	19%	20%	22%	23%	25%	27%	29%
Facet degeneration	4%	9%	18%	32%	50%	69%	83%
Spondylolisthesis	3%	5%	8%	14%	23%	35%	50%

Brinjiki W, et. al. Am J Neuroradiol. 2015, 36:811-6.

Two things I've learned since medical school:

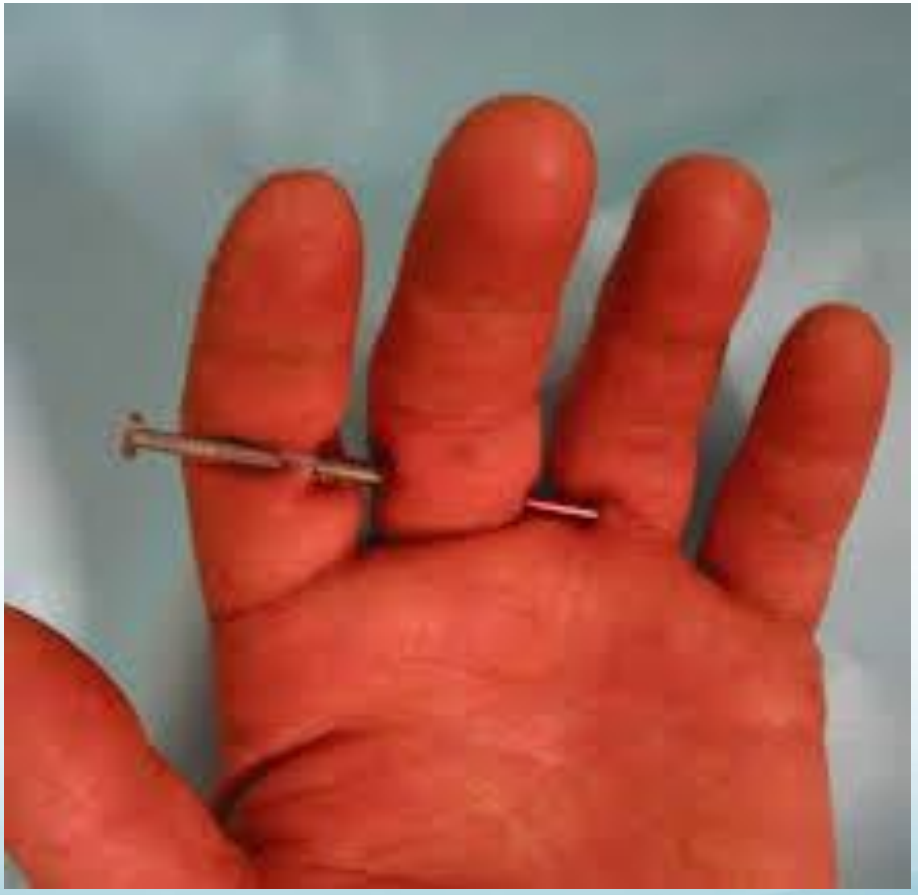
The power of the mind

The nature of pain

The power of the (subconscious) mind

- Conversion
- PNEA/PNES
- Death
- Contagious symptoms
- Stress-related symptoms
- Hallucinations

Canadian construction worker



UK construction worker

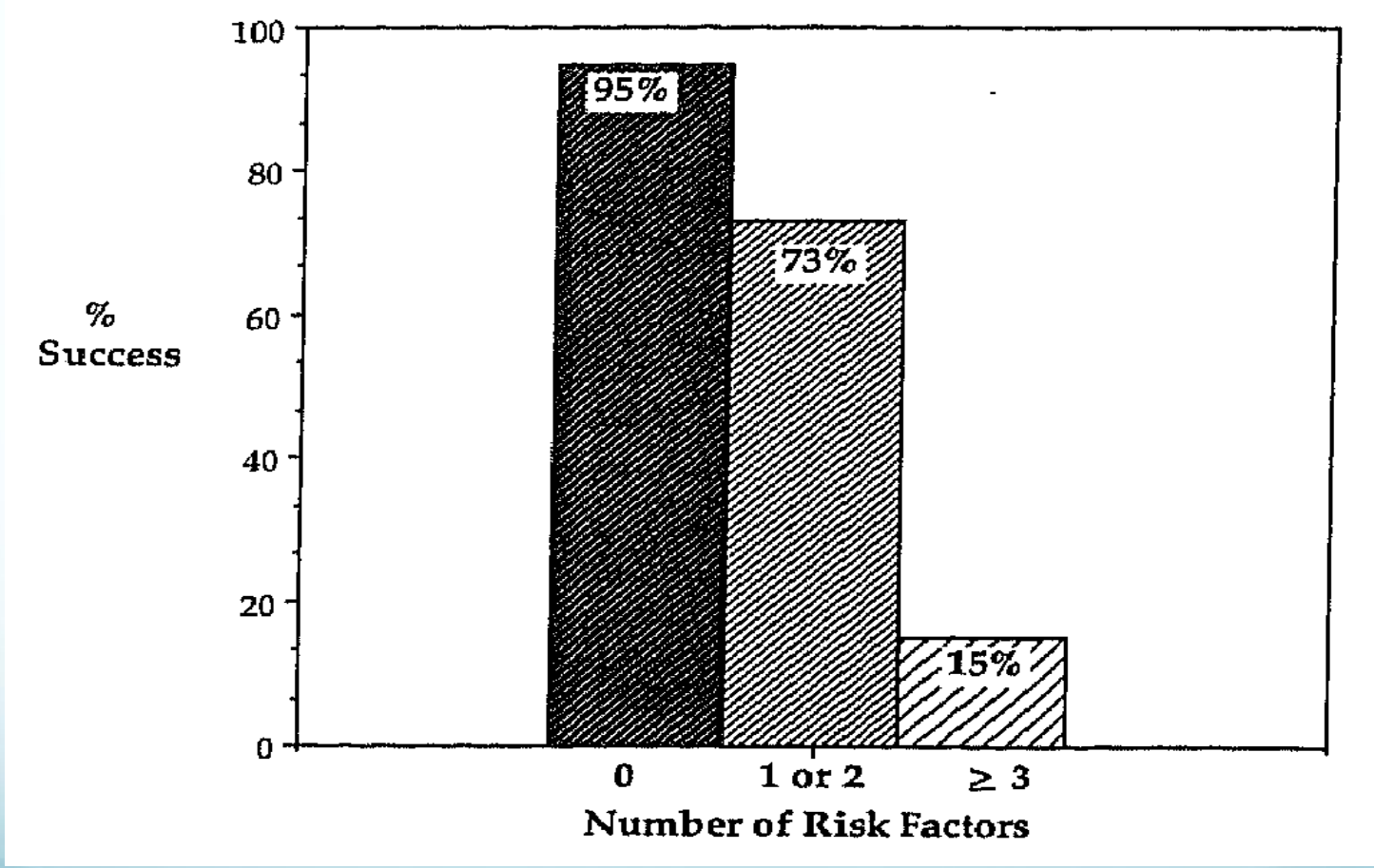
Fisher, et. al. British Medical Journal, January 7, 1995

Vietnam War Injury

Pain as a dynamic process

- All pain is real. There is not real pain and imaginary pain.
- All pain is activated by the danger/alarm mechanism in the brain.
- Pain can be triggered or generated by tissue damage and also by neural pathways (in the absence of tissue damage)
- Chronic activation of danger pathways can lead to chronic pain; Pain-Fear-Pain cycle

Success of lumbar surgery based upon degree of childhood trauma



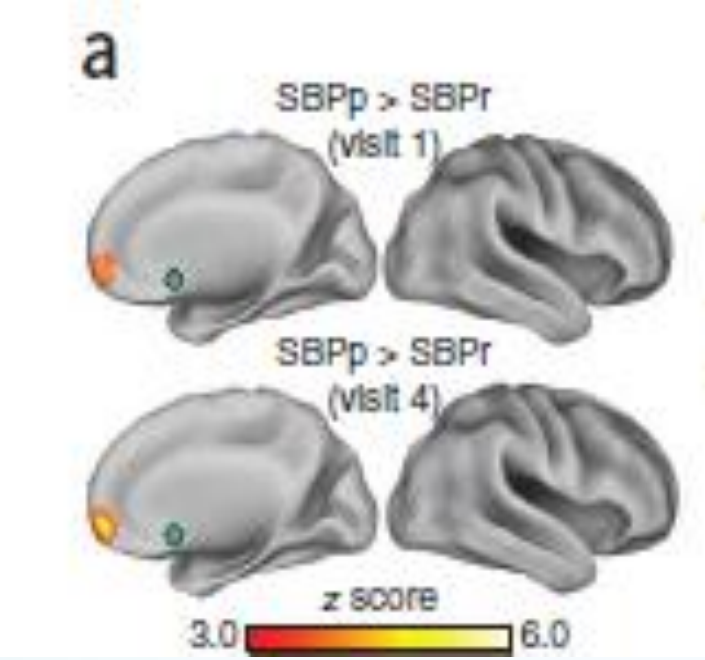
Schofferman, et. al. Spine, 1992, 17:S138-44.

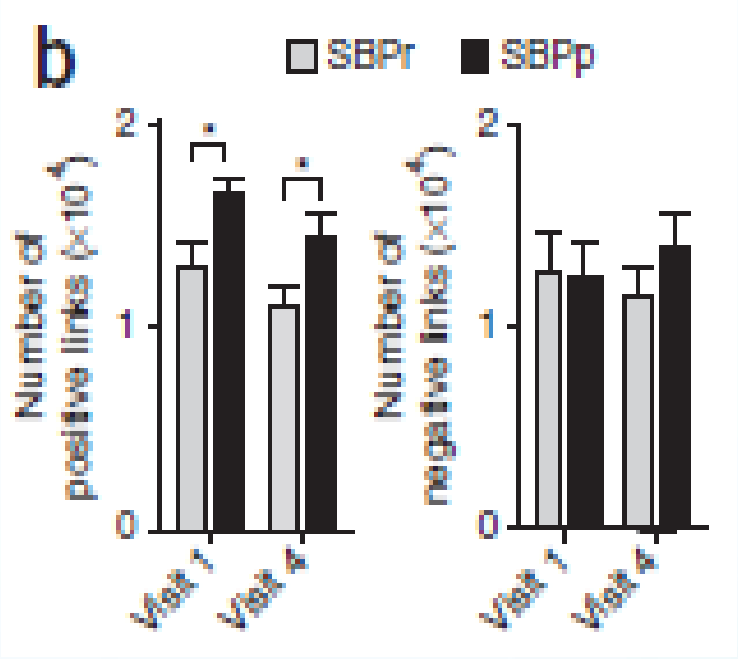
Association of victimization and pain

Childhood adversities (divorce, family conflict, sexual abuse, physical abuse, etc.) and adulthood experience of conflict and victimization are elevated in people with migraine headaches, interstitial cystitis or painful bladder), pelvic pain (and irritable bowel syndrome

Goodwin, et. al. 2003; Sumanen, et. al. 2007; Latthe, et. al. 2006;Meltzer-Brody et al., 2007; Mayer, et. al., 2001

Back pain chronification: Emotions at onset linked to lack of recovery

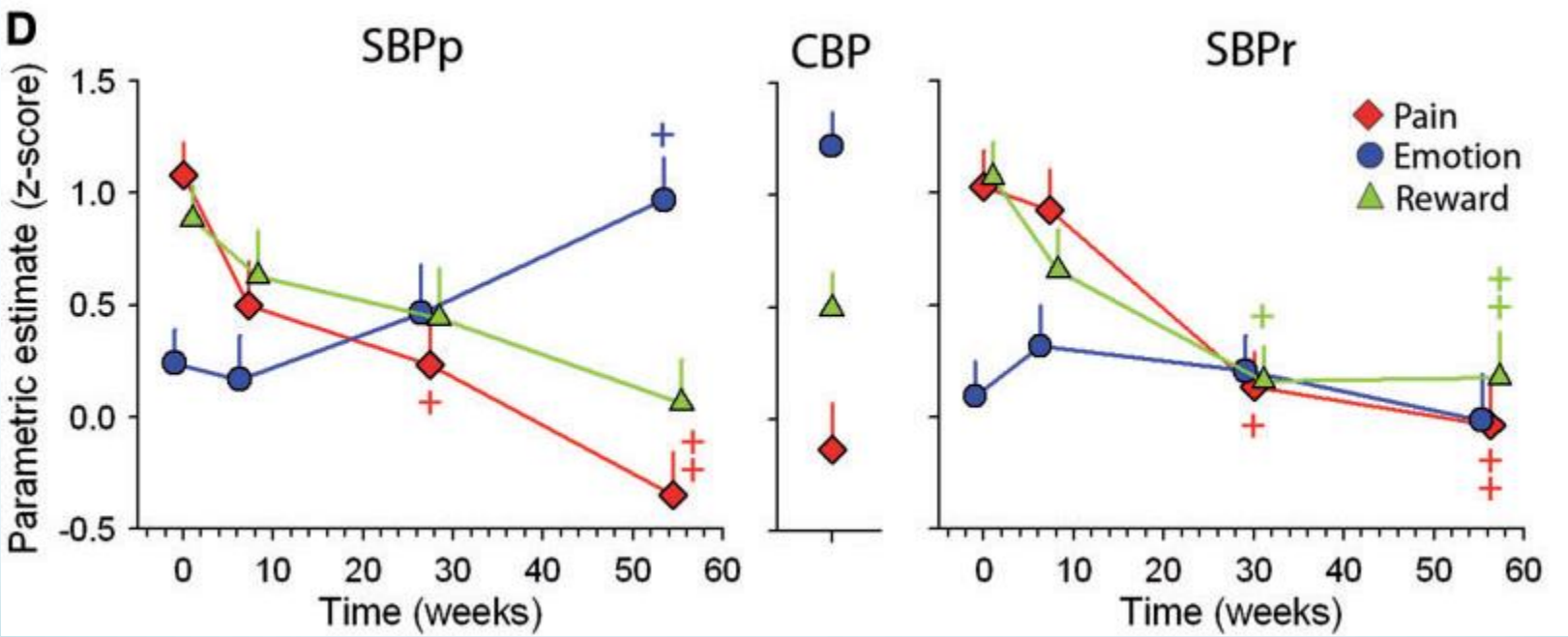




Functional connectivity between NAc and PFC predicts chronic back pain

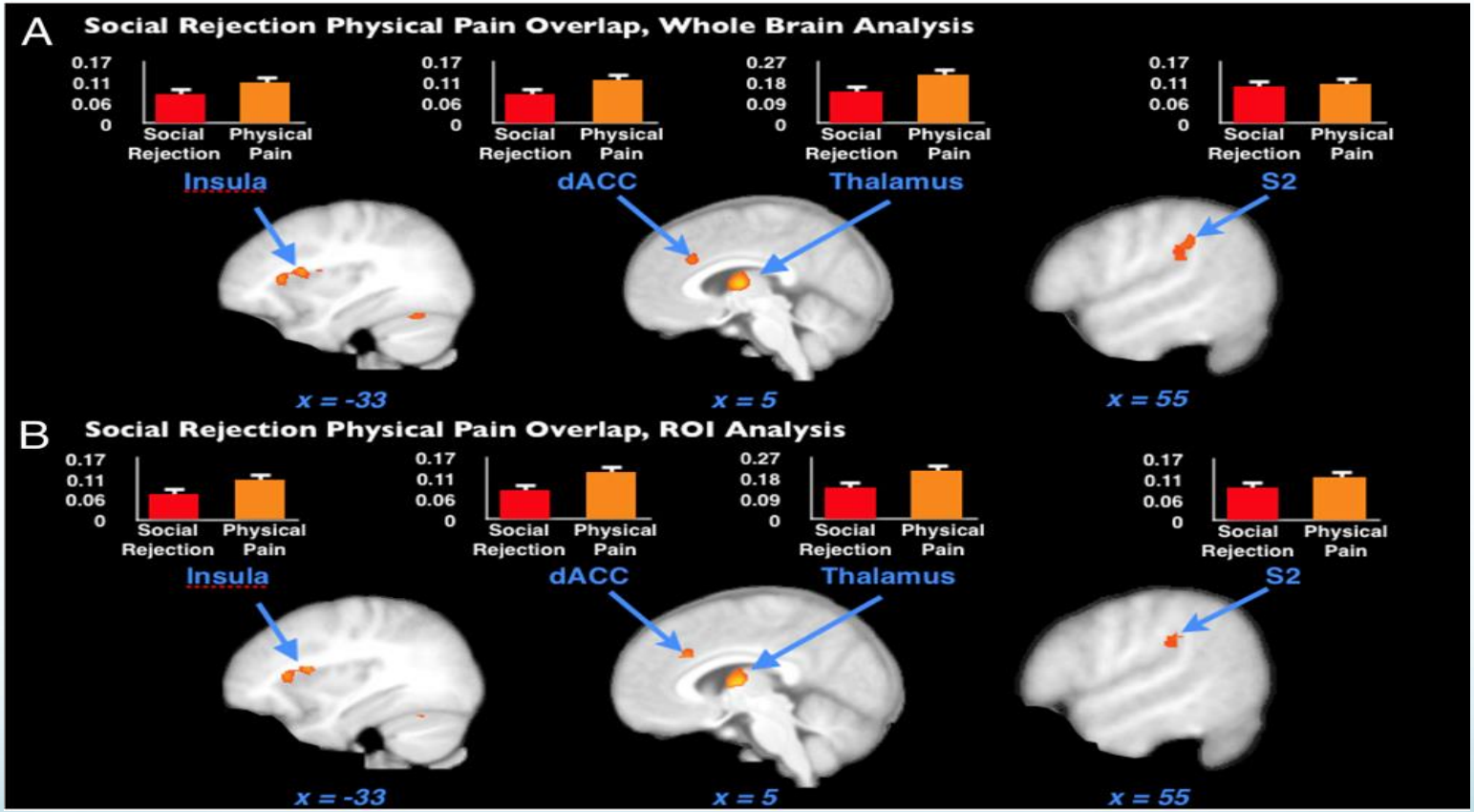
Baliki, et. al. Nature Neuroscience, 2012. 15: 1117-1119.

Emotion-related circuitry increases in persistent back pain



Hashmi, et. al., Brain 2013: 136; 2751–2768

Emotional pain equivalent to physical pain



Kross, et. al. PNAS. 2011, 108: 18244–18248.

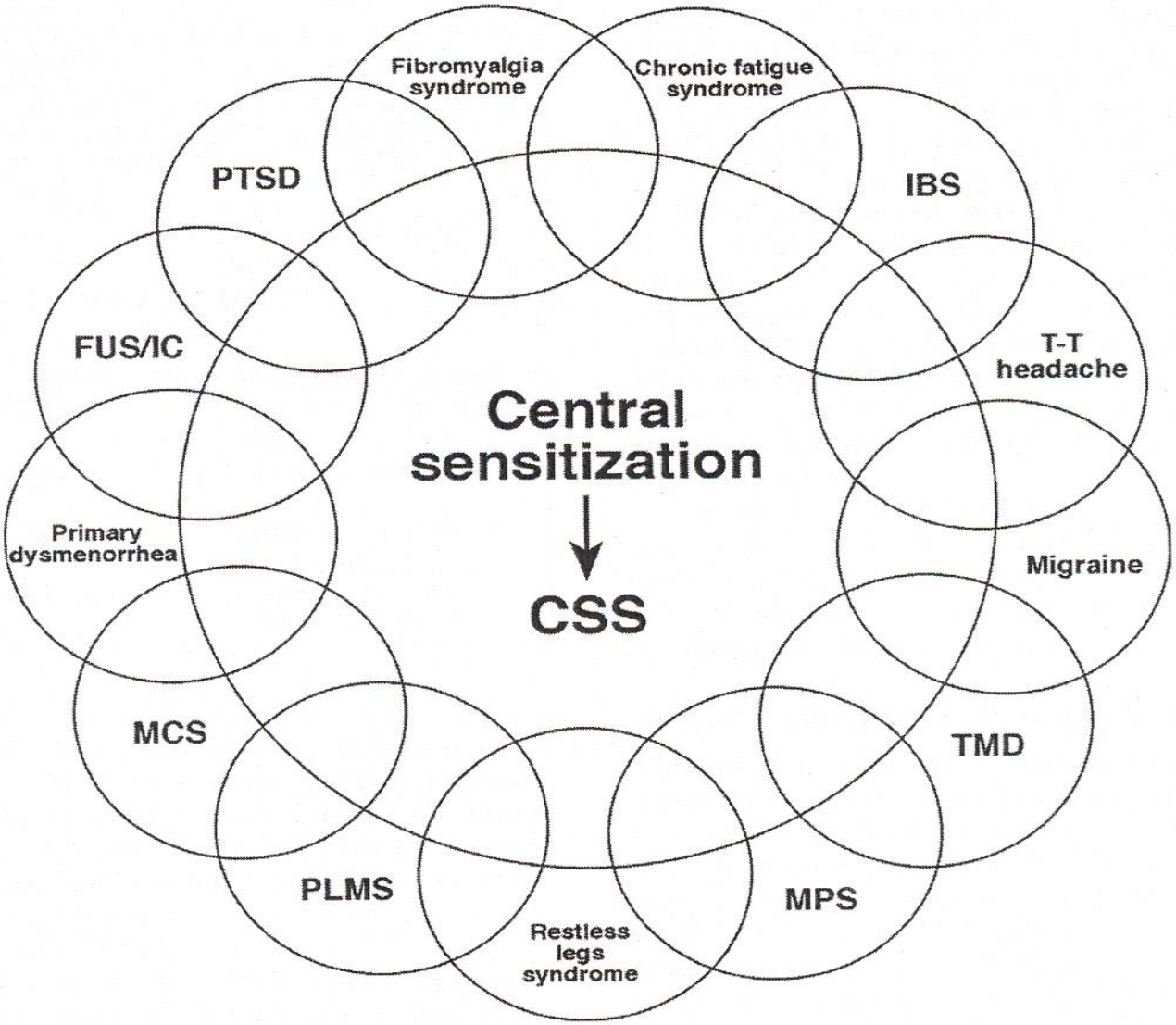
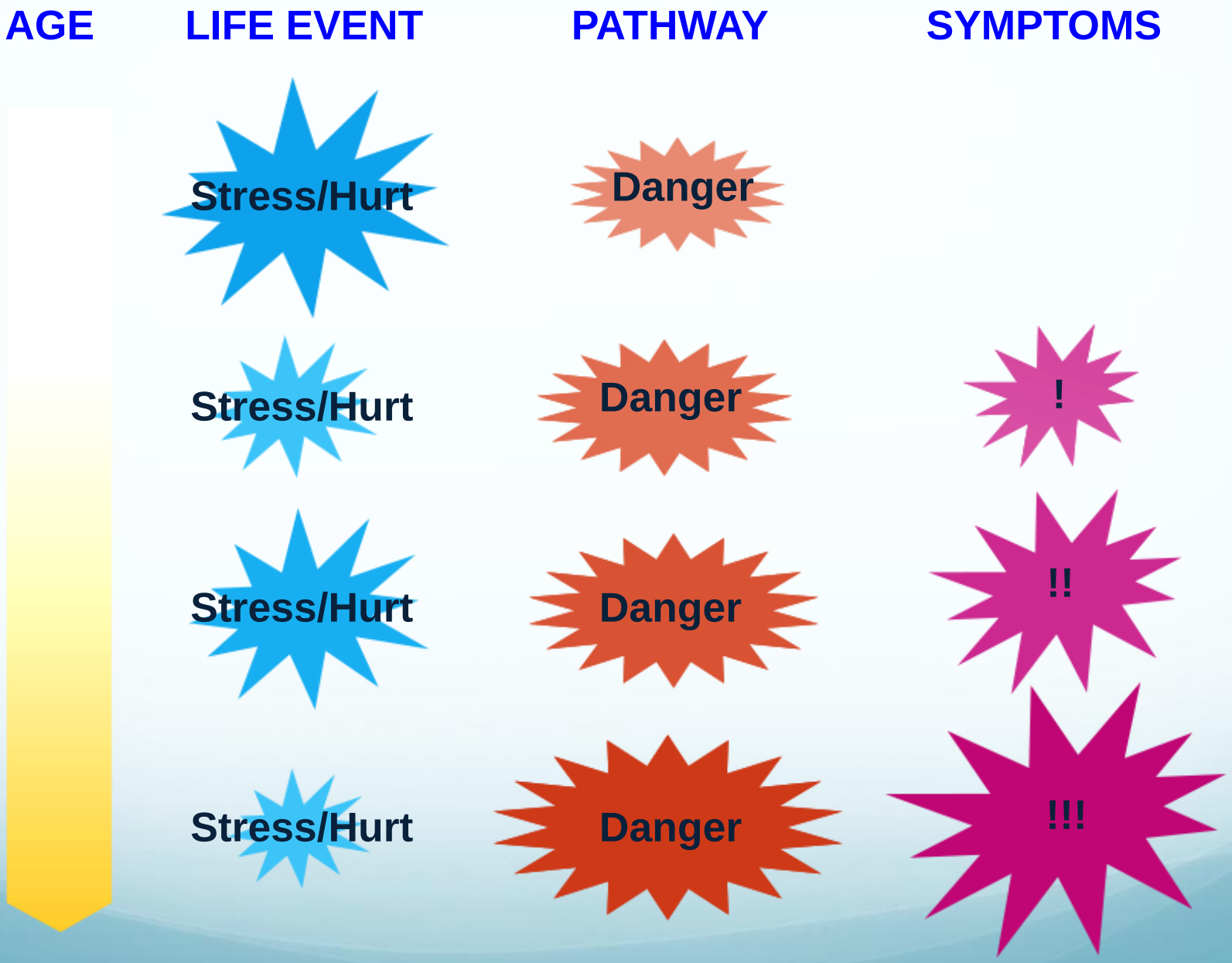


Figure 1 Currently proposed members of the CSS family with overlapping relationships and a common pathophysiological link of CS. IBS, irritable bowel syndrome; T-T headache, tension-type headache; TMD, temporomandibular disorders; MPS, myofascial pain syndrome; RSTPS, regional soft-tissue pain syndrome; PLMS, periodic limb movements in sleep; MCS, multiple chemical sensitivity; FUS, female urethral syndrome; IC, interstitial cystitis; PTSD, posttraumatic stress disorder. Depression may also be a member (see text). Modified from reference 198.


AGE
LIFE EVENT
PATHWAY
SYMPTOMS
Stress/Hurt
Danger
Stress/Hurt
Danger
!
Stress/Hurt
Danger
!!
Stress/Hurt
Danger
!!!

Review of systems

For each of the following, check yes if you have had this symptom or condition and indicate the year it began; check again if it is still present.

	Yes?	Began when	Still present?
1. Heartburn, acid reflux	X	Childhood	yes
2. Ulcer symptoms or stomach pains	X	↓	
3. Hiatal hernia	X		
4. Irritable bowel syndrome	X		
5. Colitis, spastic colon		n	n
6. Tension headache	X	Childhood	
7. Migraine headache			
8. Eczema			
9. Anxiety symptoms and/or panic attacks	X	Childhood	n
10. Depression	X	Childhood	
11. Obsessive-compulsive thought patterns			
12. Eating disorders			
13. Insomnia or trouble sleeping	X		yes
14. Fibromyalgia	X	2005	yes
15. Bell's palsy, facial paralysis			
16. Back pain	X	1981	
17. Neck pain	X	1981	
18. Shoulder pain	X	1981	
19. Repetitive stress injury			
20. Reflex sympathetic dystrophy (RSD)			
21. Temporo-mandibular joint syndrome (TMJ)	X	Teens	
22. Chronic tendonitis			
23. Carpal tunnel syndrome			
24. Trigeminal neuralgia, facial pain			
25. Numbness, paresthesias			
26. Fatigue or Chronic fatigue syndrome			
27. Palpitations	X	Teens	
28. Chest pain			
29. Hyperventilation	X	Teens	
30. Spastic bladder			
31. Interstitial cystitis			
32. Prostate problems			
33. Pelvic pain			
34. Muscle tenderness	X	2005	
35. Tachycardia or low blood pressure	X		
36. Tinnitus			
37. Dizziness			
38. Other symptoms (please list)			

Diagnosing Psycho-Physiologic Disorders: Looking for diagnostic certainty

- Difficult childhood—priming events
- Associated Central Sensitization symptoms—list all/any age
- Details of injury and healing process
- Symptoms inconsistent—triggers, anticipation, variable
- Onset/exacerbation marked by stress
- PE not significant, not matching imaging
- Tests normal or within “normal aging”
- Rule out a structural disorder/rule in PPD

Diagnosing Psycho-Physiologic Disorders: Common patterns

"I woke up with it"

"It shifts from one spot to another"

"It started here, but has now spread"

"It was on one side and now it's on the other as well"

"It went completely away when I was in _____"

"My doctor's don't understand it" or "They told me it's X, Y, Z, etc."

Great Rx for the Few Who “Get It”

What patients need to “get”

- Your symptoms are real, but they will not harm you
- Your brain has been sensitized and is creating symptoms
- Symptoms are due to neural pathways
- Most people have this, at least to some degree
- This is not your fault; You can get better

Psychophysiolgic Disorder (PPD) Interventions

Education—understanding PPD, believing in PPD, confidence in self

Behavioral interventions—stopping fear, taking control of symptoms, challenging triggers, meditation/visualization

Psychotherapy—uncovering and dealing with connections between life experiences/symptoms

Emotional interventions—ISTDP "styled" exercises, emotive writing, emotions underlying painful experiences

Life changes—acting with assertiveness/love/letting go/forgiveness, finding meaning/peace/joy

I am 21 months post-op (3rd back surgery, a 3-level fusion this time. 21 months spent trying every therapy in the book, anything and everything to get out of enormous unrelenting back pain. [On top of 22 years of constant chronic limiting back pain.] With no success.....
My doctor sent me the link to your website 6 days ago; I went to it the next day; *considered* the possibility that yes, maybe this could apply to me.....came back a day later to read all the material more seriously and realized: absolutely, this describes me to a "T." With that shift in belief the back pain subsided-----almost like "poof!"-----it went from like a 7 to a 1 on the pain scale, to off the pain scale onto a "discomfort" scale. I believe this was totally due to the complete shift in my belief system---no half way for me.....a total realization: this is me.

Behavioral interventions

- Affirmations to reduce fear/combine with pain inducing movements
- Activate power and separation/indifference and outcome independence: “genuine indifference”
- Move forward with movements, activities, work
- Meditate/visualize
- Calm the nervous system/affirm health

“I had a huge success today. I was in quite a bit of pain but super determined to walk in the neighborhood. I said to my subconscious mind: "I am walking today despite the pain. You can make it easy for me or you can make it difficult. But I am doing it!" I walked about a half an hour and my pain lessened considerably. This was a huge breakthrough for me and means the program is working! I am astonished. I cannot believe it.”

Meta-analysis: Intensive Short-Term Dynamic Psychotherapy for somatoform disorders

14 randomized, controlled studies, primarily European, 2 in the US

Effect sizes for psychological variables and somatic symptoms were moderate, 0.58-0.78

Studies which emphasized emotional experiencing and processing had higher effect sizes: 0.6-1.1 short term, 0.8-1.3 longer term (~0.3-0.5 for CBT, ACT)

Abbass A. et. al. Psychotherapy and Psychosomatics, 2009, 78:265-274.

E.S., 51, engineer with neck and thoracic pain for 5 years

Dx: DDD and ten bulging discs,

Rx: P.T. X 2, chiropractic, epidurals, acupuncture, many pain meds, considering surgery

Hx: neck and thoracic pain, sick days for severe pain, no radiation, worse with sitting, bending, restricted activities, apathetic, depressed about pain

PE: normal muscle strength, reflexes, and sensation; muscles tight, pain with movement

Data from Providence Hospital Mind Body Program

75 patients, mean age 51, mean pain duration 8.8 years, baseline pain 5.1/10, 57% with significant childhood trauma, mean # of Sx 13.5, CC: 45% FM, 45% neck and back pain

>30% Improvement: Post-tx 64%; 6-mo. 67%

>50% Improvement: Post-tx 43%; 6-mo. 53%

Burger, Lumley, Schubiner, et. al. J Psychosomatic Res. 2016, 81: 1-8.

RO1:CBT vs. EAET for Fibromyalgia

NIH-funded, 2-site, 3-arm, allegiance-controlled RCT: Wayne State University, University of Michigan and Providence Hospital

Patients: n = 230 (94% female, M = 49 years old): Cluster randomized (~ 6 patients / group)

8 sessions, 90-min, once per week, small group

Assessments: Baseline, post-treatment, and 6-month follow-up

Lumley, Schubiner, Williams, Clauw, et. al. In preparation.

CBT vs. EAET for Fibromyalgia

Pain ratings (means):

Post: EAET < Control; CBT no effect

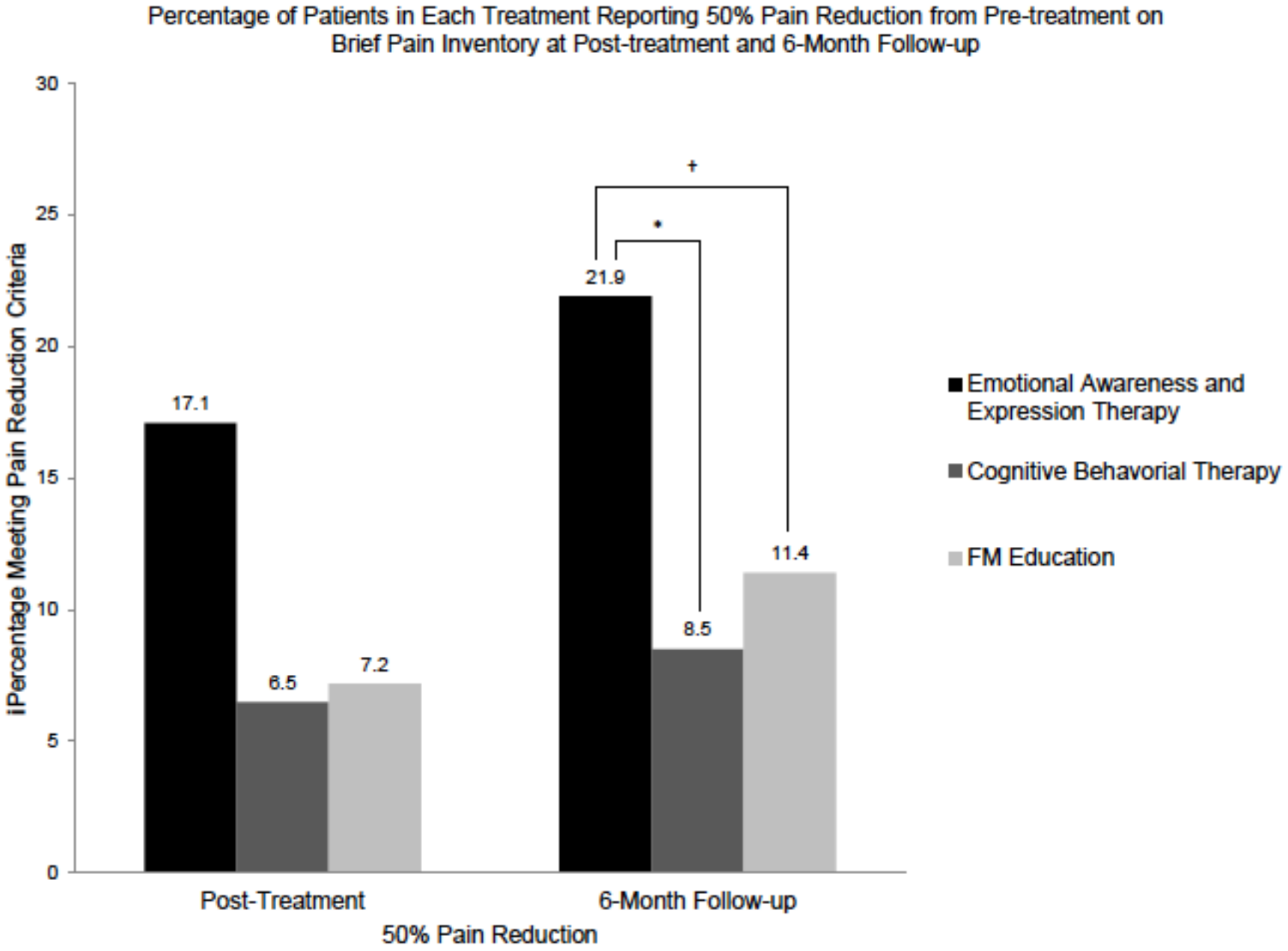
6-month: no difference

Patients with 50% pain reduction from baseline:

Post: EAET (17%) > CBT (6%), Control (7%); NNT=9

6-month: EAET (22%) > CBT (9%), Control (11%); NNT=7

Lumley, Schubiner, Williams, Clauw, et. al. In preparation.


Percentage of Patients in Each Treatment Reporting 50% Pain Reduction from Pre-treatment on Brief Pain Inventory at Post-treatment and 6-Month Follow-up
iPercentage Meeting Pain Reduction Criteria
30
25
20
15
10
5
0
17.1
6.5
7.2
21.9
8.5
11.4
†
*
Post-Treatment
6-Month Follow-up
50% Pain Reduction
Emotional Awareness and Expression Therapy
Cognitive Behavorial Therapy
FM Education

Two treatment models for chronic pain

	Pain clinic	PPD
Etiology	Tissue damage/??	Neural pathways
Search for underlying cause	Examine body	Examine life and emotions
Chance for reversal	Little	Possible
Interventions	Injections, meds, procedures	Educational, Behavioral, Emotional
Psychological goals	Learn to cope with pain	Unlearn pain pathways, fix life

Models of care:

Matching Treatments?

Back pain due to life stress, not DDD

Back pain due to ankylosing spondylitis

Back pain due to metastatic cancer

Patient preference factors

A 52-year-old woman with neck and head pain for 37 years

Evangelical family, teen MJ use once, strong reactions, guilt, pain.

A new understanding, altering reactions to pain, and expressing feelings led to resolution of pain

Compassion is key:
For the provider
and for the patient

“The true basis of the good bed-side manner is a large heart.”

--Francis Peabody.

JAMA 1892, 18: 203-204

Psychophysiologic Disorders

Stress and unresolved emotions create real, physical pain via neural pathways

No disease process in the body, i.e., physiological, but not pathological changes

Symptoms are a message created by subconscious processes

Pain and other symptoms can persist for years due to learned neural pathways

Reversal of mind body symptoms can occur by cognitive, behavioral and affective interventions

“Working in the field of pain management for many years, I was aware that chronic pain could occur from traumatic experiences. But we didn’t know how to use that knowledge. We could only offer support and help them cope with their pain when medications and injections were only partially helpful. Since I have understood that the mind commonly generates pain and learned how to recognize that process, I realize that the majority of my patients have a psycho-physiologic disorder and that many of them can recover.” --Joel Konikow, MD, Swedish Hospital Pain Center, Seattle

Gold or Pyrite?

You decide….

Key Colleagues: Mark Lumley PhD, Alan Abbass MD, John Sarno, MD, many others

Thank you!!