

Integrating Treatment for Pain and PTSD

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Disclosure Statement

With respect to the following presentation, there is nor has been no relevant (direct or indirect) financial relationship between Dr. Dobscha (or spouse) and any for-profit company which could be considered a conflict of interest.

Outline

- Prevalence of pain and PTSD
- Impacts
- Overview of models
 - Psychological
 - Biological
 - Care models
- Clinical demonstration project at Portland VA
- Other ongoing/proposed research
- Best practice suggestions

Prevalence of pain and of PTSD

- Pain

- Most common physical symptom reported to physicians
- One-third to one-half of patients treated in ambulatory care clinics (chronic pain)
- Rates high among OEF/OIF/OND (Returning) Veterans, especially those treated in polytrauma programs

- PTSD

- 7% - 12% lifetime risk in general population (Sharp 2004)
- 20 - 30% lifetime risk among Vietnam Veterans
- 13 - 17% among Returning Veterans (may be higher with multiple deployments)

Comorbid pain & PTSD—prevalence

- Among patients presenting for pain treatment, 35% to 50% have PTSD or significant PTSD symptomatology
 - In our earlier study of 400 patients with chronic pain recruited from a primary care setting, 17% had positive trauma stem plus PCL>50
- Among patients presenting for PTSD treatment, 45% to 80% report chronic pain problems.
- Up to half of patients with pain secondary to motor vehicle accidents or burns have symptoms of PTSD
- Among immigrant refugee populations with trauma exposure, it is estimated that half have comorbid pain and PTSD

Impacts of comorbid pain & PTSD

- Multiple studies show that, compared to patients with either condition alone, patients with both disorders have:
 - More intense pain
 - More affective distress
 - Greater levels of life interference/disability
- **Greater healthcare utilization** (Outcalt et al, Pain Medicine 2013)
 - pain + PTSD group had 7% more VA primary care visits than pain only group
 - pain + PTSD group had 46% more primary care visits than PTSD only group
 - Rates of opioid and non-opioid analgesics, antidepressants, benzodiazepines were higher in the pain + PTSD group

PTSD and prescription opioids

- Patients with PTSD more likely to be prescribed opioids for pain, and at higher doses
- In study of 141,000 Returning Veterans, over 1 year:
 - 18% of veterans with PTSD were prescribed opioids, compared to 12% with other mental health disorders, and 7% of veterans with no diagnosed MH disorders
 - Veterans with PTSD more likely to receive high doses (23% vs. 16%) and to receive sedative hypnotics (41% vs. 20%) compared to no mental health diagnosis group.
 - Using inpatient and emergency room data, PTSD group had greatest incidence of opioid-related accidents and overdoses; self-inflicted injuries, and violence-related injuries

(Seal et al. JAMA, 2012)

Why are pain and PTSD so frequently comorbid and how might they interact?

- Several models:
 - Mutual maintenance
 - Shared and triple vulnerability
 - Depression and coping as mediators between pain and PTSD
 - Biological

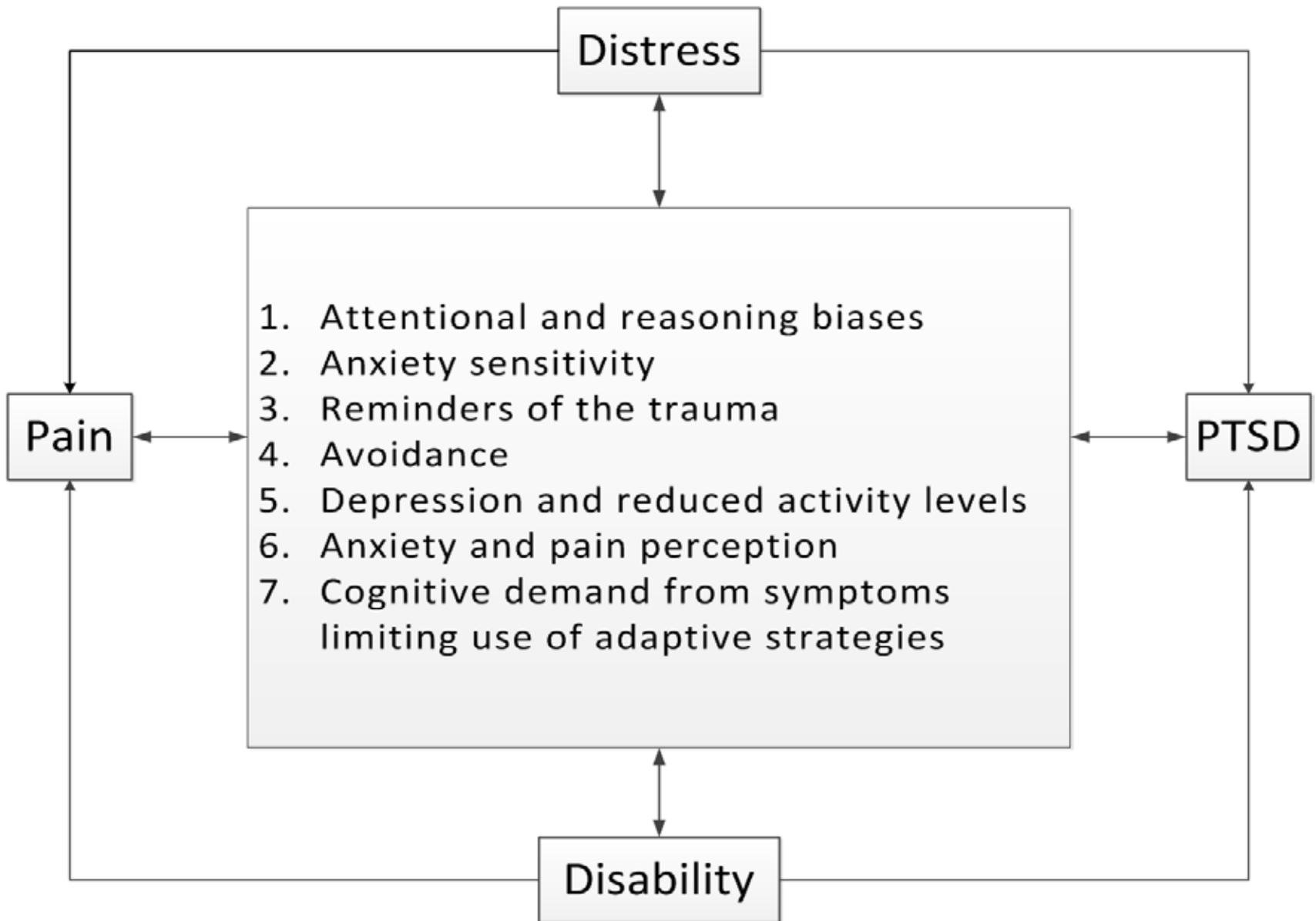
Before we get to the models:

- Anxiety Sensitivity: Dispositional tendency (or trait) to be fearful of arousal related sensations, based on beliefs they may have harmful social, somatic or psychological consequences (Reiss and McNally, 1985; Asmundson et al, 2002)
- Fear-Avoidance (“kinesiophobia”): Fear that pain will lead to more injury (damage) which leads to avoidance of activity
- Catastrophizing: Coping style in which one worries about uncontrollable and inevitably negative outcomes (thinking the worst) (see Sharp and Harvey, 2001)

Mutual maintenance

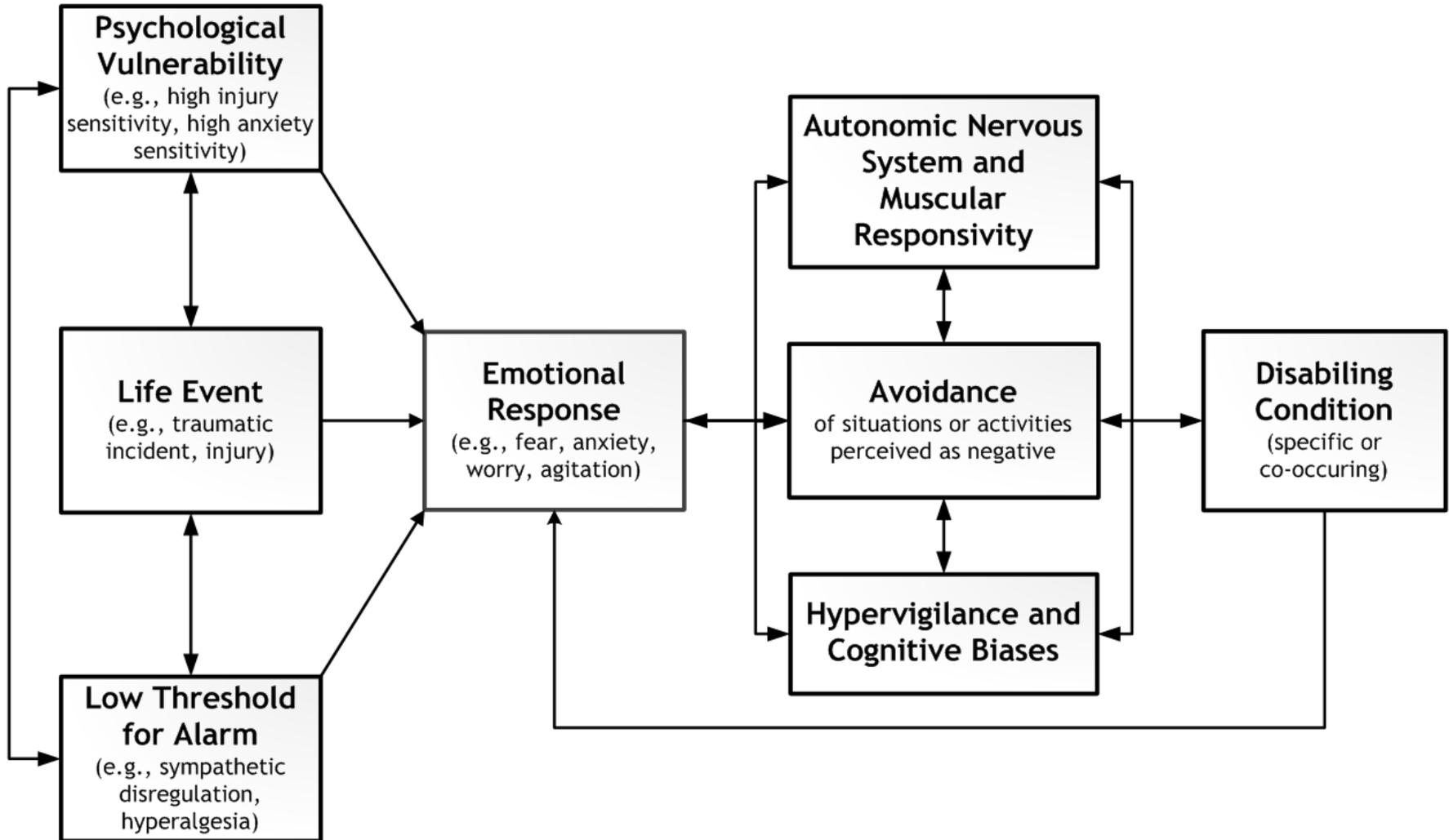
- Physiological, affective and behavioral components of PTSD maintain or exacerbate symptoms of pain
and
- Cognitive, affective and behavioral components of chronic pain maintain or exacerbate symptoms of PTSD

(Sharp and Harvey, 2001)



From (Sharp and Harvey, Clinical Psychology Review, 2001)

Shared vulnerability



From Asmundson and Katz, Depression and Anxiety, 2009

Depression mediates relationship between PTSD and pain (Roth et al, 2007)

- Cross sectional study of 241 patients at university hospital pain program whose pain began with traumatic injury

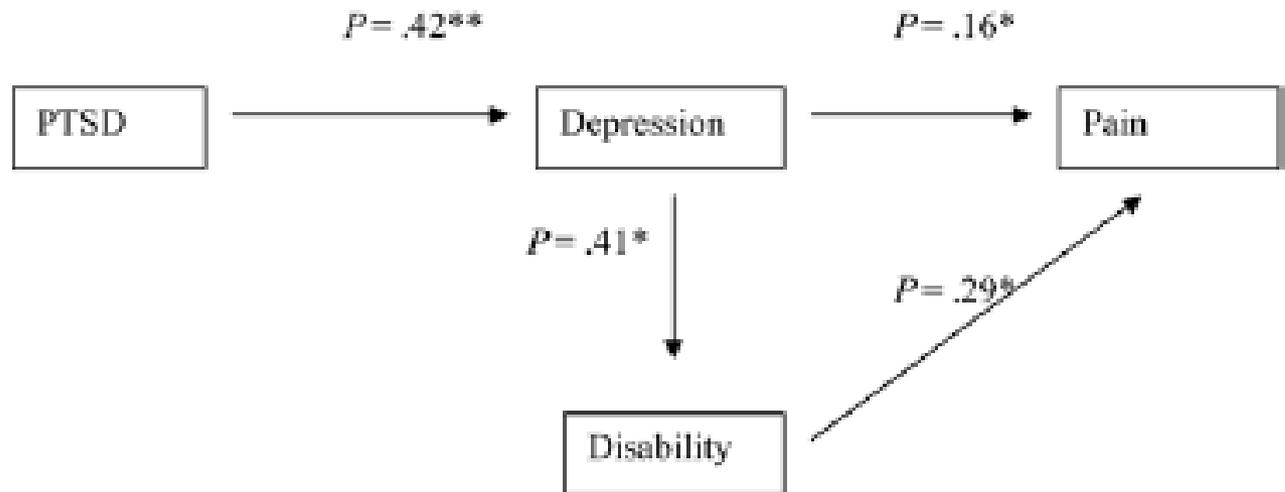


Figure 3. Model 3: Depression and disability influence pain. Depression is also indirectly related to pain through disability. Post-traumatic stress disorder (PTSD) is associated with depression. Notes: $**P < .001$, $*P < .05$.

Coping strategies and depression symptoms mediate relationship between PTSD and pain

(Morasco et al 2012)

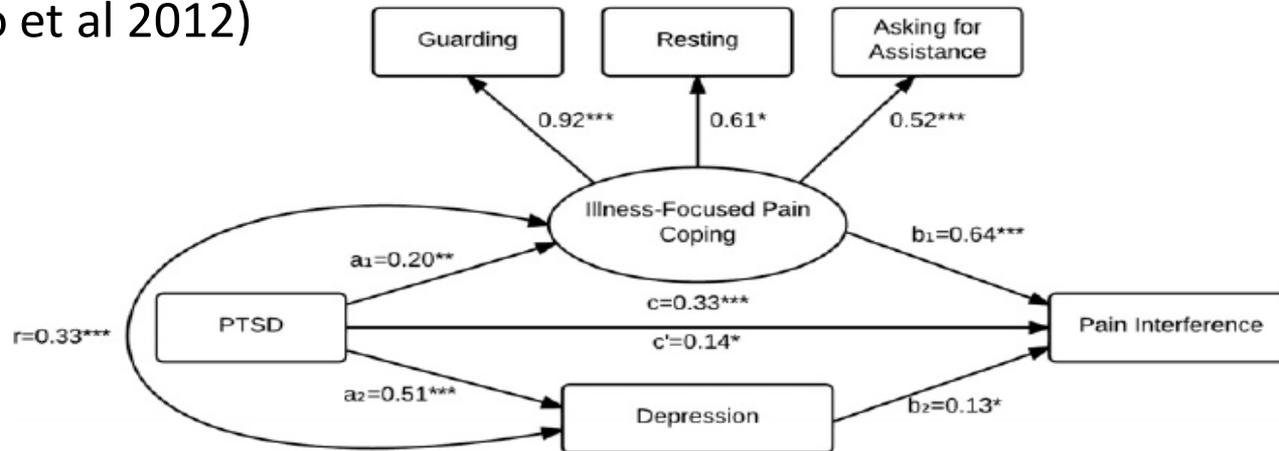


Fig. 1. Mediation model for PTSD and pain interference. * $p < .05$, ** $p < .01$, *** $p < .001$.

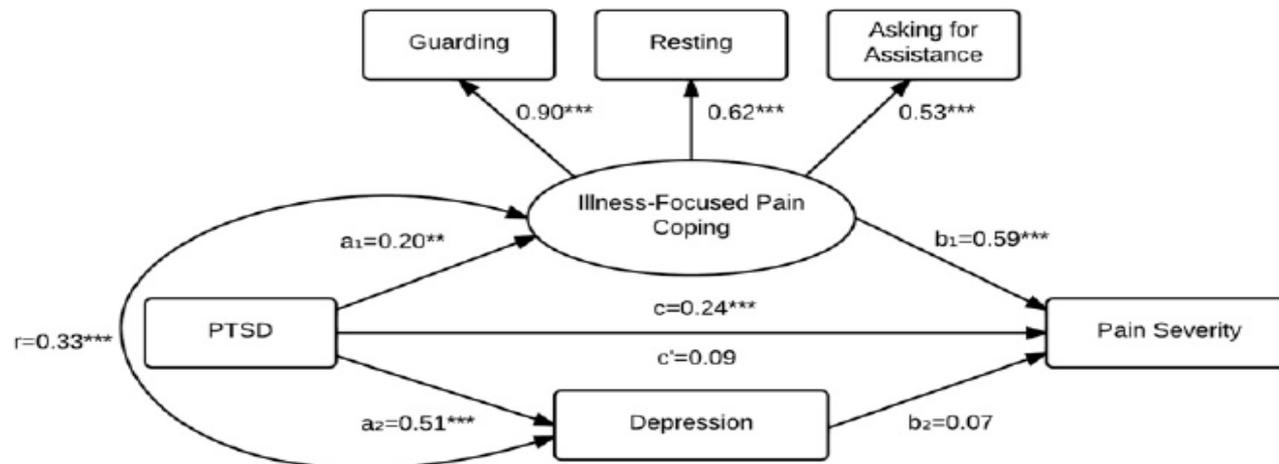


Fig. 2. Mediation model for PTSD and pain severity. * $p < .05$, ** $p < .01$, *** $p < .001$.

Biological considerations

- Autonomic nervous system, endogenous opioid system, and serotonergic system dysregulations have been observed in both disorders
- Contributions of state and trait anxiety to hyperalgesia have been documented
- There is some evidence to support genetic factors in anxiety sensitivity traits (Stein et al 1999)
- More recently, Neuropeptide Y and neuroactive steroids allopregnanolone and pregnanolone have been found to regulate pain and to be low in persons with pain and to be inversely correlated with PTSD symptom severity

Summary of models

- Pain and PTSD share a number of features that can explain their development, maintenance and co-occurrence, and which may have implications for treatment
- Anxiety sensitivity/fear-avoidance/catastrophizing are intertwined and likely work together to enhance fear of somatic sensations (anxiety and of pain).
- This fear contributes to avoidance and depression and, ultimately, more disability and symptoms due to increased isolation, deconditioning, and decreased habituation to anxiety provoking cues

Why an integrated approach?

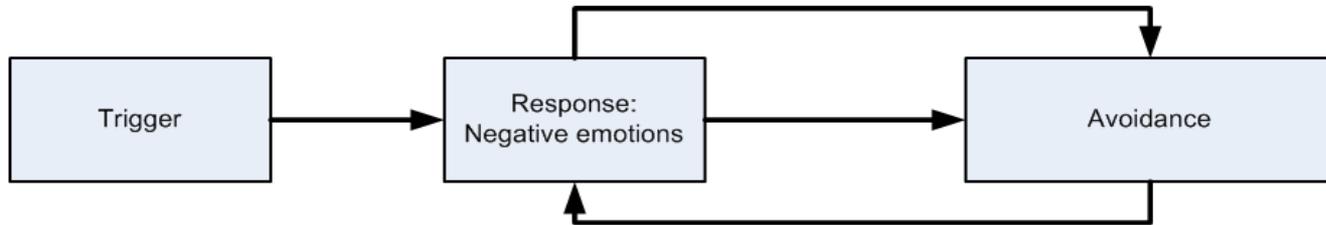
- Specific reasons to integrate treatment
 - Models suggest substantial overlap in causes, maintenance and potential treatment approaches
 - CBT approaches have been shown to be effective for both conditions—overlap in content
 - Efficiencies to be gained in terms of implementation, especially since comorbidity is so common
- Problems when treatment is not integrated
 - Communications between involved clinicians
 - Clear communications to patients
 - Untreated condition may limit response of other condition to treatment

Promising integrated approaches

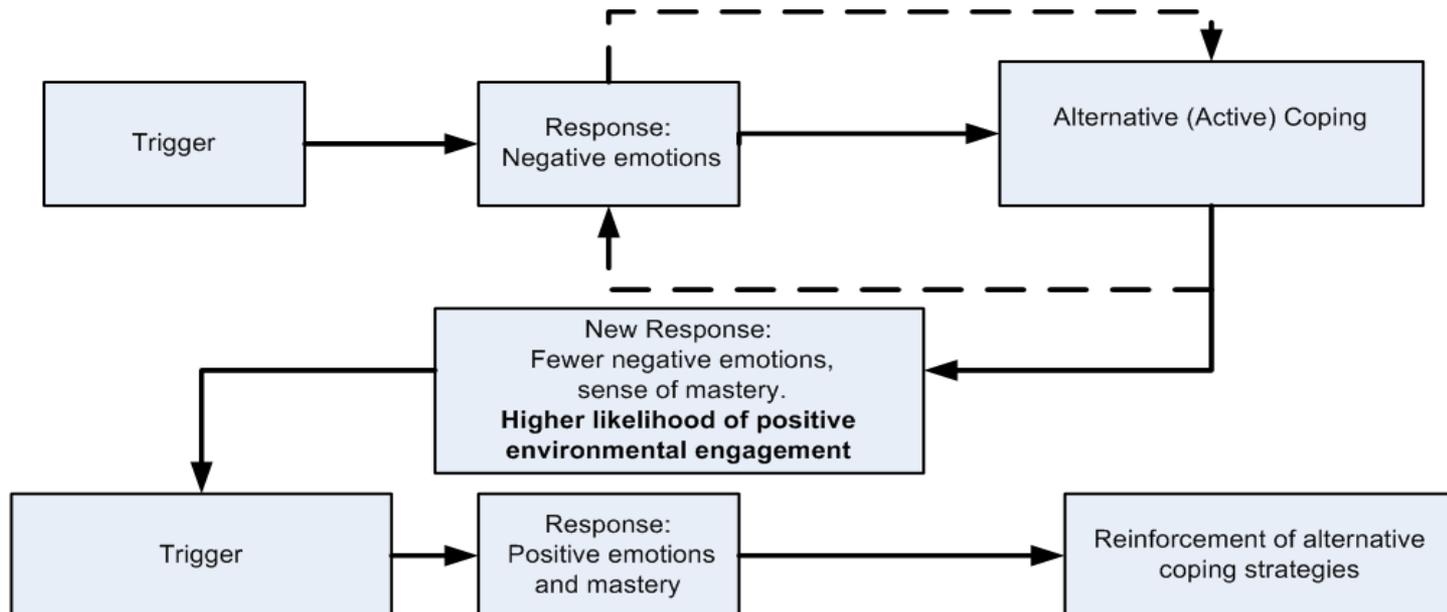
- Cognitive and Behavioral Treatments: goal-oriented psychotherapy approaches that systematically address maladaptive thoughts and behaviors
 - Cognitive Processing Therapy (CPT): incorporates trauma-specific cognitive techniques (addressing safety, trust, power, control, esteem and intimacy)
 - Acceptance and Commitment Therapy: Focuses on accepting rather than modifying internal experience; emphasizes shift toward seeking valued life
 - Behavioral Activation: Helps patient engage in activities that are rewarding and consistent with long-term goals

Behavioral activation

Typical Behavioral Response in Depression

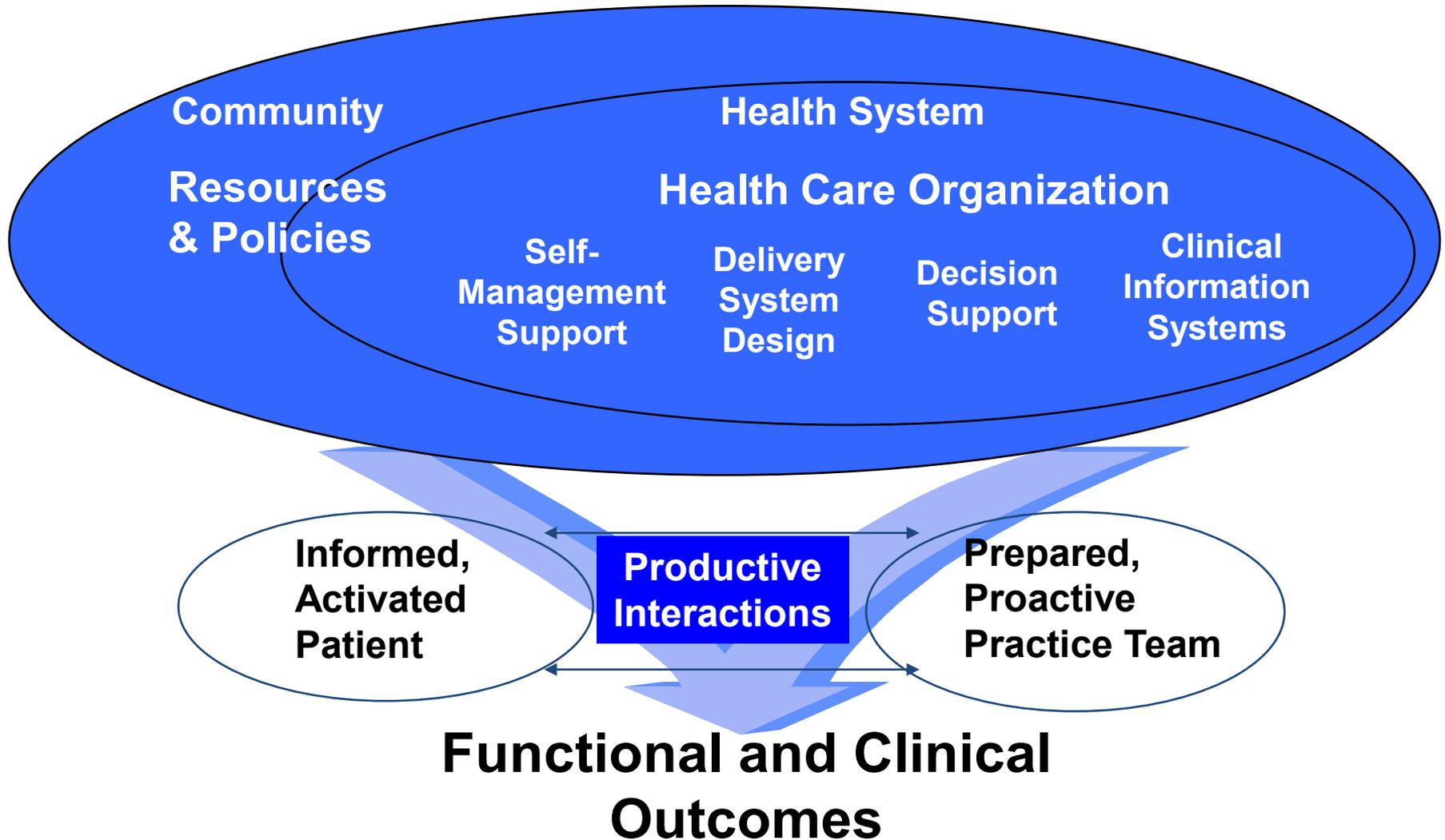


BA Aims to Change Contextual Factors through Alternative Coping



Evidence-Based Chronic Disease Management Approaches for Treating Depression

Ed Wagner & Institute for Healthcare Innovation (IHI)



Integrative (CAM) therapies—pain

Scientific Evidence on CAM for Pain	Promising Evidence of Potential Benefit	Limited, Mixed, or No Evidence To Support Use
Low-Back Pain		
Acupuncture	✓	
Massage	✓	
Spinal Manipulation	✓	
Progressive Relaxation	✓	
Yoga	✓	
Prolotherapy		✓
Herbal Remedies		✓

From National Center for Complementary and Alternative Medicine (NCCAM)
<http://nccam.nih.gov/health/pain/chronic.htm?nav=gsa>

Integrative therapies—PTSD

From VA/DoD Clinical Practice Guideline for Management of Post-Traumatic Stress:

- There is insufficient evidence to recommend CAM approaches as first line treatments for PTSD. [I]
- CAM approaches (e.g. mindfulness, yoga, acupuncture, massage, and others) may be considered for adjunctive treatment of hyperarousal symptoms
- CAM approaches may be considered as adjunctive approaches to address some co-morbid conditions (e.g. acupuncture for pain). [C]

Integrated treatment—smaller studies

- Liedl et al (2011): 36 traumatized refugees randomized to [Cognitive Behavioral Therapy (CBT) + biofeedback (BF)], [CBT + BF + physical activity]; wait-list control
 - Patients in the [CBT + BF + physical activity] group showed greater change in cognitive coping]
- Morina et al (2012): 15 traumatized refugees received 10 sessions of BF then 10 sessions of Narrative Exposure Therapy
 - Significant pre-post reductions in pain and PTSD symptoms
 - BF increased motivation for subsequent therapy

- Muller et al (2009): 11 traumatized refugees received 10 sessions of BF/CBT
 - Positive pre-post small/medium effects for pain outcomes
- Wald et al (2010): 5 women from an urban area with pain and PTSD received 4 sessions of interoceptive exposure (IE) exercises followed by 8 sessions of trauma related exposure therapy (TRE)
 - 4 patients had pre-post reductions in PTSD symptoms and pain, though pain symptoms recurred at 3 months

Salt Lake City Integrative Health Clinic and Program (IHCP) (Smeeding et al 2010)

- Outpatient program offering 10 non-pharmacological CAM therapies and mind-body skills classes:
 - Acupuncture
 - Aquatic bodywork
 - Stress management
 - Hypnosis
 - Meditation,
 - Qigong
 - Yoga
 - Herb–drug interaction counseling
 - Multidisciplinary weight management
 - Tobacco cessation classes

- Data collected over 2 years
- Post-hoc quasi-experimental design, creating groups based on initial assessments for comparison:
 - Anxiety (low/high)
 - Depression (low/high)
 - PTSD (low/high)
- Outcomes examined within group, not examined by type of treatment received
- Each group demonstrated improvements in depression and anxiety scores, and in some SF-36 categories at 6 months; some improvements persisting for at least 12 months

IMPPROVE: Integrated Management of Pain and PTSD in Returning OEF/OIF/OND VETERANS

- Clinical Demonstration project at the Portland VAMC
- Supported by funding from VA Mental Health Services through the Pacific Northwest MIRECC
- Contributors:
 - Jane Plagge PsyD
 - Mary Lu MD
 - Travis Lovejoy PhD
 - Andrea Karl MD
 - Amy Wagner PhD

IMPPROVE: 2010-2012

- Primary goals:
 - Provide integrated treatment for chronic pain and PTSD;
 - Improve collaboration among primary care, mental health, and other clinicians to facilitate treatment of these two conditions
- Most referrals from post-deployment and primary care clinics
- Psychologist working with part-time Psychiatrist
- Initial evaluation and limited care management by psychologist; pt. data collected routinely to facilitate care
- Weekly meetings with psychiatrist who reviews records; together create recommendations to primary care providers.
- Limited psychiatrist consultation
- Up to 8 behavioral activation (BA) sessions

Behavioral Activation components

- Flexible approach guided by Veteran's values/goals
- Education about chronic pain, PTSD, and avoidance
- Rationale for BA, exploration of values
- Identification of treatment goals and barriers
- Identification of areas for activation
- Development of activity schedule—increase awareness of interactions between activities, emotions, and pain, and identify helpful and unhelpful behavioral patterns
- Ongoing review of values, goals and progress
- Problem solve and develop alternative coping strategies

Preliminary outcomes

- Retrospective review/analysis
- Demographic and diagnosis data obtained from VISN Data Warehouse (ICD codes back to 2001)
- Compared completers to non-completers; examined outcome measures over time (baseline, mid-treatment, and post-treatment) using GEE modeling
- Primary outcomes: PTSD Checklist (PCL-C), Chronic Pain Grade (CPG) pain severity, and CPG pain interference
- Other measures included health related quality of life (CDC HRQOL-4), Satisfaction with life (SWLS), and Global rating of change

Results

- Of 73 eligible Veterans, 58 (79%) decided to participate
- 45 of 58 (78%) were referred from primary care or post-deployment; remainder from mental health clinicians
- Mean age 33; 98% male, 88% white
- Most frequently recommended pain management strategies:
 - physical therapy (85% of participants)
 - pain medication or pain medication adjustments (74%)
 - imaging, or other workup (59%).
 - psychiatric medications (35%),
 - prostheses (24%),
 - complementary therapies (e.g., tai chi, yoga; 12%),

Completers and non completers

- 30 Veterans (52%) completed BA (83% of these completed 8 sessions, but some had fewer if felt goals had been reached)
- Completers older than non-completers but otherwise did not differ on other variables
- Reasons for discontinuation:
 - 16 did not respond to outreach attempts
 - 4 were discontinued due to poor treatment adherence, alcohol dependence, or crises requiring psychiatric hospitalization
 - 3 geographically relocated
 - 2 cited travel inconveniences
 - 1 was “too busy”
 - 1 could not tolerate treatment
 - 1 did not believe treatment would help

Changes in mental health, quality of life, and pain-related variables

Variable	Pre-Intervention	Mid-Intervention	Post-Intervention	Wald χ^2	p-value
PTSD Checklist	63.4 ± 10.2	53.8 ± 16.5	54.6 ± 13.9	17.20	< 0.001
Pain Severity	6.8 ± 1.4	6.1 ± 2.0	5.8 ± 2.2	5.95	0.050
Pain Interference	6.9 ± 2.1	5.1 ± 2.4	4.9 ± 2.5	22.52	< 0.001
PHQ-9 Depression	16.1 ± 4.4		12.4 ± 5.3	22.35	< 0.001
Pain Catastrophizing Scale	32.9 ± 13.0		23.9 ± 10.5	19.04	< 0.001
Tampa Kinesiophobia Scale	27.4 ± 4.3		24.1 ± 5.2	17.49	< 0.001
Life Satisfaction	14.7 ± 6.7		17.2 ± 7.8	7.39	0.007
Physical Quality of Life	20.5 ± 9.4		14.2 ± 11.1	11.00	0.001
Mental Quality of Life	20.9 ± 9.1		14.7 ± 10.6	13.25	< 0.001
Interference with ADLs	17.9 ± 8.6		11.9 ± 10.2	22.67	< 0.001
AUDIT-C Alcohol	3.6 ± 3.9		3.1 ± 3.1	1.56	0.212

Additional findings

- Intervention completers were generally satisfied with the program. At post-intervention, participants, on average, rated their perceived benefit with the program as 7.45 (SD = 1.70) on a 0-10 scale, where 0 = “Not at all,” 5 = “Moderately,” and 10 = “Extremely.”
- On average, intervention completers reported being “somewhat better” (Mean Global Improvement Rating = 4.03 [SD = 1.27], where 1 = “Worse,” 4 = “Somewhat better,” and 7 = “Completely better”)

IMPPROVE next steps

- Decrease number of sessions—rationale:
 - Most gains were made by 5 sessions
 - May reduce dropouts
 - May improve feasibility of translating to standard clinical settings
 - Other BA programs have used shorter numbers of sessions (see Wagner et al, 2007)
- Add phone “booster” sessions after BA
- Expand reach to non-Returning Veteran groups
- Take more referrals from PTSD Clinical Teams
- Testing group format

Integrated treatment using CBT and CPT—initial pilot (Otis et al 2009)

- 12 session treatment combining components of CBT for pain with components of CPT for PTSD
 - Session 1 Education on Chronic Pain and PTSD
 - Session 2 Making Meaning of Pain and PTSD
 - Session 3 Thoughts/Feelings related to Pain and PTSD & Cognitive Errors
 - Session 4 Cognitive Restructuring
 - Session 5 Diaphragmatic Breathing and Progressive Muscle Relaxation
 - Session 6 Avoidance and Interoceptive Exposure
 - Session 7 Pacing and Pleasant Activities
 - Session 8 Sleep Hygiene
 - Session 9 Safety/Trust
 - Session 10 Power/Control/Anger
 - Session 11 Esteem/Intimacy
 - Session 12 Relapse Prevention and Flare-up Planning

Outcomes for 3 Initial Pilot Participants

	Participant 1			Participant 2			Participant 3		
Measure	Pre	Post	Imp	Pre	Post	Imp	Pre	Post	Imp
CAPS	83	35	58%	91	55	40%	91	79	13%
PCL	73	36	51%	64	48	25%	60	54	10%
MPQ	15	1	93%	41	16	61%	41	40	2%
BDI	30	34	-13%	28	21	25%	24	33	-38%
RMDQ	15	10	33%	8	4	50%	20	11	45%

CAPS: Clinician-Administered PTSD Scale (50 cutoff)

PCL: PTSD Checklist-Specific Version (50 cutoff)

MPQ: McGill Pain Questionnaire (0-78)

BDI: Beck Depression Inventory (0-63)

RMDQ: Roland & Morris Disability Questionnaire (0-24)

(slide from Dr. Otis)

Next steps: Intensive Treatment of Chronic Pain and PTSD (Otis, ongoing)

- VA RR&D-funded study of 102 Veterans from VA Boston and VA Connecticut with comorbid chronic pain and PTSD
- Participants randomized to:
 - Intensive Integrated Pain and PTSD treatment vs.
 - Standard care
- Intervention:
 - 6 bi-weekly outpatient therapy sessions of 90 minutes

Proposed project: Exercise training program for pain and PTSD (Scioli, ongoing)

- Rationale:
 - Exercise programs shown to be effective for pain.
 - Limited evidence to support exercise helpful for PTSD, but shown to be helpful for anger, stress, depression, self esteem
 - Studies suggest that exercise may affect anti-stress hormones allopregnanalone and pregnanalone and NPY
- Aims:
 - Test effects of 12 week progressive exercise training program on 1) symptoms of pain and PTSD, 2) pain thresholds and tolerance, and 3) stress hormone levels

Treatment of Chronic Stress Reaction and Chronic Pain after Traumatic Orthopedic Injury (Gatchel, ongoing)

- DoD-funded STRONGSTAR project
- Randomized clinical trial with 4 arms
 - Treatment as usual
 - Pain treatment (5 sessions, self care)
 - PTSD treatment only (5 session adaptation of prolonged exposure therapy)
 - Combined treatment (combination of pain and PTSD treatments)
- Primary outcomes: psychosocial and functional measures over 6 and 12 months

Best practices for pain and PTSD

- Conduct assessment including biopsychosocial history. Assess for other medical and psychiatric problems, including
 - Risk of misuse of substances
 - Evaluation of impact of pain on function and activities
 - Identification of avoidance behaviors that contribute to emotional distress and/or impaired functioning.
- Management should be multidisciplinary, and multimodal addressing physical, social, psychological, and spiritual components in an individualized treatment plan.
- Consider CBT including 1) addressing fear avoidance, 2) BA emphasis, 3) cognitive and behavioral coping skills
- Consider use of other non-pharmacological modalities such as biofeedback, physical therapy, and complementary alternative modalities (mindfulness, meditation, yoga, acupuncture)
- Centrally acting medications should be used in caution in patients with PTSD (in particular opioids and benzodiazepines)

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