

Emotional Distress Predicts Opioid Use in Chronic Pain Patients

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Pain-Related Anxiety

- Frequently co-occurs in chronic pain
- Cognitions about the consequences of pain
- Physiological symptoms consistent with the fear of pain
- Avoidance behaviors associated with the attempt to evade/reduce pain

Depression

- 40% to 50% of chronic pain patients have clinical depression
- Depressive symptoms increase as pain severity increases
- Share sleep and fatigue problems
- Reduced depressive symptoms → decreased perceived disability and pain severity



Depression

+ Pain-Related Anxiety

= Emotional Distress

- Opioid therapy is the most common approach for the treatment of moderate to severe pain
 - About 55% of CP patients use opioids
 - Opioid use alone is not adequate for treating CP
 - Encourages a cycle of avoiding pain
 - Long-term use → less pain-relief efficacy
 - Risk of hyper-analgesia
 - Risk of drug abuse
 - CP patients who take opioids have higher rates of anxiety and depression
 - Multiple side effects



Opioid Use and Chronic Pain

“A dynamic interaction among physiologic, psychological, and social factors, which perpetuates and may even worsen the clinical presentation of the illness” (Gatchel et al., 2007).

Chronic Pain and the Biopsychosocial Model

- GOAL = increase self-management skills by challenging patients to make substantial changes in their beliefs about pain and their coping strategies toward pain
- Treatment Team: psychologist, physical therapist, occupational therapist, physicians, nursing staff
- Physical and occupational therapy, relaxation training, medication management, psychotherapy, CBT, biofeedback, and education
- Intensive programs 3-4 weeks in duration
- Efficacy for decreasing pain, increasing functioning/ability to work, and enhancing quality of life

Multidisciplinary Pain Management

- 1) Change in **self-rated pain** over the course of treatment will ***significantly predict*** change in **emotional distress**.
- 1) Change in **emotional distress** over the course of treatment will ***significantly predict*** change in **opioid use**.
- 1) Change in **self-rated pain** over the course of treatment will ***significantly predict*** change in **opioid use**.
- 1) Change in **emotional distress** will ***mediate*** the relationship between **self-rated pain** and **opioid use**.

Study Hypotheses

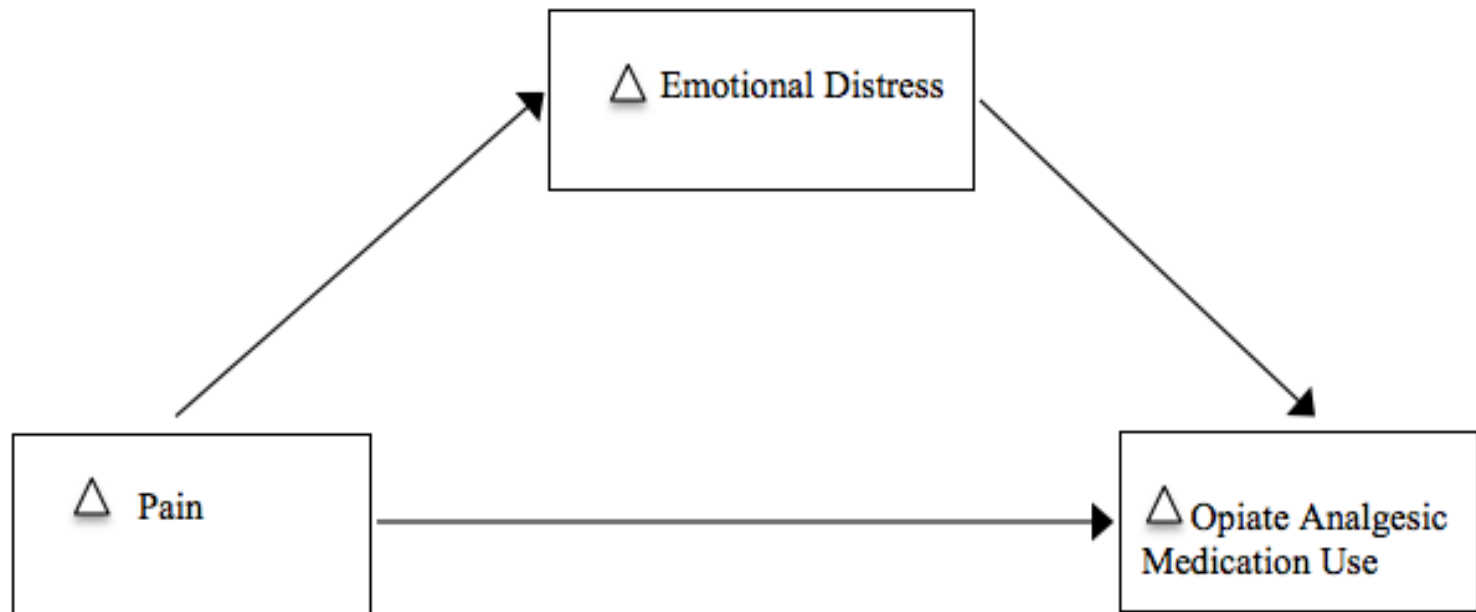


Figure 1. Hypothesized model of relationships between change in self-reported pain, change in emotional distress, and change in opiate analgesic medication use.

Study Design

Measures

- Visual Rating Scale (VRS)- Pain
- Beck Depression Inventory-II (BDI-II)- Depression
- Pain Anxiety Symptom Scale (PASS)-Anxiety
- Morphine Sulfate Equivalency (MSEQ)- Opioid Use
- Administered once at intake and once at discharge by a research assistant

Analyses

- Residualized change scores
- Correlations and descriptives
- SEM with bootstrap sampling procedure to test for mediation
- Tests the indirect effects of emotional distress on the relationship between pain-severity and opioid use.

- Chronic pain patients who completed treatment at a multidisciplinary pain rehabilitation center in Portland, Oregon between January 2006 and December 2010.
- Completed 3 to 4 weeks of intensive program (5 days per week, 6 hours per day)
- N = 248 chronic pain patients
- Average age = 44.4 years (range = 24–81; SD = 9.67)
- Majority were men (n = 162; 65%) and 86 (35%) were female.
- Majority were Caucasian (n=214; 86%)
- Almost all (236; 95%) participants reported current use of opioid medication at intake.

Participants

Table 3

Means (Standard Deviations) and Pearson Correlation Values for the PASS, Pain, BDI-II, and MSEQ

<u>Admission</u>						
Measure	1	2	3	4	<i>M</i>	<i>SD</i>
1. PASS	-	.030	.550**	.040	49.88	28.382
2. Pain		-	.019	-.032	6.49	1.401
3. BDI-II			-	.014	21.29	10.365
4. MSEQ				-	81.55	78.570
<u>Discharge</u>						
Measure	1	2	3	4	<i>M</i>	<i>SD</i>
1. Pass		.131*	.611**	.166**	37.12	27.480
2. Pain			.259**	.009	5.96	1.625
3. BDI-II				.136*	13.90	9.805
4. MSEQ					48.77	59.971

Means (Standard Deviations) and Pearson Correlation Values for the Unstandardized Residualized Change Scores for the PASS, MSEQ, Pain, and BDI-II

Measure	1	2	3	4	M	SD
1. PASS		.202**	.587**	.188**	12.76	20.735
2. Pain			.310**	.060	.53	1.529
3. BDI-II				.178**	7.39	9.162
4. MSEQ					32.77	44.098

Notes: Means and standard deviations of raw difference scores (rather than standardized residualized change scores) are presented because means of standardized residualized change scores are equal to zero and standard deviations are equal to one (they are deviations from a best fit regression line).

PASS = Pain Anxiety Symptoms Scale, BDI-II = Beck Depression Inventory – II, MSEQ = Morphine Sulfate Equivalency score (opiate analgesic medication use)

** $p < .05$, ** $p < .01$ (2-tailed)*

** $p < .05$, ** $p < .01$*

Bootstrap Results to Test Significance of Mediation Effects

	Unstandardized				Standardized				
Path/effect	<i>B</i>	<i>SE</i>	95% CI		β	<i>SE</i>	95% CI		<i>p</i>
			Lower	Upper			Lower	Upper	
<i>c</i>	.060	.060	-.059	.171	.060	.059	-.068	.168	.389
<i>a</i> CP→CE	.258	.065	.120	.378	.257	.064	.122	.377	.003
<i>b</i> CE→CO	.199	.064	.074	.324	.199	.063	.078	.316	.003
<i>c'</i> CP→CO	.012	.063	-.130	.125	.012	.063	-.135	.126	.931
<i>a x b</i> (indirect effect)	.050	.021	.020	.104	.050	.020	.017	.099	.003

Note. The 95% confidence intervals for both the unstandardized and standardized results were produced with the bias-corrected option in the bootstrap dialogue box.

Results

- Change in Pain **predicts** Change in Emotional Distress
- Change in Emotional Distress **predicts** Change in Opioid Use
- Change in Pain **does not predict** Change in Opioid Use
- Change in Emotional Distress **indirectly affects** the relationship between Change in Pain and Change in Opioid Use
- Emotional Distress is a key factor in the Pain and Opioid Use relationship

Findings and Implications

Study Limitations

- No control group
- Only two data points
- Self report measures (MSEQ is exception)
- Did not control for age, gender, race

Further Research

- Why does pain not predict opioid use?
 - Can these results be replicated in outpatient multidisciplinary pain management programs?
 - Why does emotional distress predict opioid use?
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Questions?

- The authors would like to acknowledge the following individuals for their contributions on this research project:
 - Jay R. Skidmore, Ph.D., Seattle Pacific University
 - Amy Mezulis, Ph.D., Seattle Pacific University
 - Sara J. Dyson, Ph.D., Seattle Pacific University
 - Jeffrey Holguin, M.S., Seattle Pacific University
 - Miriam Feliu, Psy.D., Duke University Medical Center
 - Christopher L. Edwards, Duke University Medical Center

Acknowledgements
