



Difficulties in emotion regulation and chronic pain-related disability and opioid misuse



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HIGHLIGHTS

- Difficulties in emotion regulation associated with greater risk of opioid misuse.
- Difficulties in emotion regulation associated with greater pain-related disability.
- One point increase in DERS-18 score associated with 16–19% greater odds of misuse.
- DERS-18 scores predict risk with 76–79% sensitivity and 78–80% specificity.

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ABSTRACT

Risk for opioid misuse is a crucial consideration for patients with chronic pain, given the recent high rates of opioid-related deaths in the U.S. Emotion regulation difficulties may be associated with chronic pain outcomes such as opioid misuse, but may also be amenable to intervention. The aim of this study was to examine associations between difficulties with emotion regulation and disability and risk for opioid misuse among Appalachian chronic pain patients. The Difficulties in Emotion Regulation scale (DERS-18), Pain Disability Index (PDI), Screener and Opioid Assessment for Patients with Pain – Revised (SOAPP-R), and Current Opioid Misuse Measure (COMM) were collected from 149 patients (age 25–80, 59% female) presenting to a behavioral medicine department for evaluation. The extent to which DERS-18 scores predict risk for opioid misuse and disability was examined via hierarchical regression, logistic regression, and receiver operating characteristic (ROC) curve analyses. DERS-18 scores account for 45% of variance in SOAPP-R, 36% in COMM scores, and 11% in PDI scores. A one-point increase in DERS-18 score is associated with 19% greater odds of being at risk for misuse as measured by the SOAPP-R, and 16% greater odds on the COMM. In ROC analyses, the DERS-18 is a good predictor of risk on the SOAPP-R (AUC = .85) and COMM (.83), with cut-off scores in the mid-30s exhibiting good sensitivity and specificity. Difficulties in emotion regulation are associated with poorer functioning and with greater risk of opioid misuse in this population, but may be amenable to intervention.

1. Introduction

Chronic pain is a major public health problem, with 25.3 million adults in the United States experiencing chronic pain in 2012 (Nahin, 2015). Chronic pain can contribute to a variety of negative outcomes such as increased disability and, among those prescribed long-term opioids to treat their pain, risk for opioid dependence and misuse. Opioid misuse is a particularly crucial concern at this point in time, as opioid dependence and addiction has increased in the United States,

and particularly Appalachia, with West Virginia exhibiting the highest rates of overdose deaths (Centers for Disease Control and Prevention, 2017; Rudd, Aleshire, Zibbell, et al., 2016).

Researchers have posited a close association between emotions and pain, with a variety of theories attempting to describe the bidirectional associations between increased negative emotions and increased pain, or even viewing emotional distress and physical pain as two manifestations of the same fundamental mechanisms (Dima, Gillanders, & Power, 2013; Linton, 2013). Therefore, emotional distress and

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dysregulation is conceivably intimately associated with pain- and treatment-related outcomes.

Emotion regulation refers to a process in which one uses some strategy with the goal of influencing one's emotions, and depends upon one's awareness of one's own emotions, setting goals for the emotion regulation, and the ability to implement strategies (Gross & Jazaieri, 2014). There are both adaptive (e.g., nonjudgment of emotions, reappraisal, acceptance) and maladaptive (e.g., expressive suppression, experiential avoidance, rumination) emotion regulation strategies that one can employ, with substance abuse being associated with the maladaptive strategy of avoidance (Conklin et al., 2015). Difficulties with emotion regulation have been shown to be associated with pain complaints. In a study examining emotion regulation-related features of borderline personality disorder, the authors found that negative affect and emotion sensitivity were associated with reports of pain severity and how much pain interfered with daily activities (Reynolds, Carpenter, & Tragesser, n.d.). Another study found that chronic pain was associated with greater impairment in executive functioning, and particularly emotion control (Baker, Gibson, Georgiou-Karistianis, et al., 2016). The results of these studies suggest bidirectional associations between chronic pain and emotion dysregulation. This bidirectional association is consistent with research showing that certain, maladaptive emotion regulation strategies are associated with heightened physiological responses (e.g., stimulation of the cardiovascular system (Gross, 2002)); however, difficulties with emotion regulation may be associated with pain-related outcomes above and beyond pain level itself. For example, a chronic pain patient's use of efficacious emotion regulation is significantly associated with one's quality of life, even after accounting for other pain-related variables such as disability and pain management. Agar-Wilson and Jackson, 2012.

Poor emotion regulation may confer greater risk of opioid medication misuse among chronic pain patients. This increased risk would be consistent with more general theories of substance abuse, such as the self-medication hypothesis, which posits that individuals abuse substances as a way to cope with negative psychological states in the face of impairment in regulating those negative emotions (Khantzian, 1985). The association between poor emotion regulation and a more negative experience of pain may also increase risk for misuse of opioids in attempting to manage pain. McHugh and colleagues (RK, Weiss, Cornelius, et al., 2016) examined risk for opioid medication misuse among chronic pain patients and found that distress intolerance was associated with greater misuse. Additionally, Baker et al.'s (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004) model of negative reinforcement provides a useful connection between negative affect and substance use. The model suggests individuals learn to detect internal cues of negative affect during periods of withdrawal and respond by taking more of the drug. Over multiple learning periods, individuals become sensitive to the internal and external negative affect cues and strengthen the response of drug use to ameliorate these symptoms, and reduce the use of other more adaptive strategies. When applying this to chronic pain and opioid use, the emotion dysregulation associated with chronic pain may contribute to the maladaptive response of avoidance and provide additional negative affect cues associated with negative reinforcement (e.g., pain/discomfort of any kind becomes a cue to use opioids). As we know, physical dependence with opioid medication can occur after a very small number of uses (Stein, 2013) and chronic use can result in hyperalgesia (Lee, Silverman, Hansen, Patel, & Manchikanti, 2011), both of which would be additional negative affect cues to use more opioids.

In addition, emotion dysregulation may be associated with greater levels of disability among those with chronic pain. Psychological distress, characterized as depression, anxiety, and stress, has been shown to mediate the association between pain severity and disability (Hall, Kamper, Maher, et al., 2011). This mediation also is consistent with Reynolds and colleagues' (Reynolds et al., 2018) findings regarding pain's increased interference with activities at greater levels of negative

affect and emotional sensitivity. Vowles and Gross (Vowles & Gross, 2003) examined a fear-avoidance model in predicting work-related disability, and found that changes in fear beliefs regarding the possibility of further damage or pain when performing physical and work activities predicted changes in work ability.

The current study aimed to examine associations between difficulties with emotion regulation and two pain-related outcomes – disability and risk for opioid misuse – among Appalachian chronic pain patients. We hypothesized that greater levels of dysregulation of emotions (i.e., poorer emotion regulation) would be associated with greater levels of pain-related disability and greater risk for opioid misuse.

2. Materials and methods

2.1. Participants & procedure

Participants were patients age 18 and over who were referred to a West Virginia behavioral medicine department for psychological evaluation of a chronic pain complaint. Patients may have been referred for evaluations for long-term opioid therapy, pain medication pump, spinal cord stimulator, or psychotherapy to address chronic pain management. Patients were given a packet of questionnaires to complete either prior to or just after the evaluation interview with a provider, as part of standard care. Packets were either mailed to the patient's home prior to the clinical appointment, or were provided upon arrival. Responses on all questionnaires in the packet were entered into a data set without identifying information. For this study, data for only those patients who completed the Difficulties in Emotion Regulation Scale (DERS-18; see below) as part of this intake packet were used.

2.2. Measures

2.2.1. Demographic information

Data on patients' age and sex were gathered via self-report on the questionnaires.

2.2.2. Difficulties in emotion regulation Scale-18 (DERS-18)

The DERS-18 is a short-form of a self-report measure of emotion dysregulation (Gratz & Roemer, 2004a; Victor & Klonsky, 2016). Items are rated from 1 (“almost never”) to 5 (“almost always”), and some items are reverse-coded, such that higher scores reflect greater difficulty in emotion regulation. It consists of six subscales measuring different types of difficulties in emotion regulation, and has exhibited good reliability and internal consistency, as well as convergent validity. Scores on the short form also correlate very highly with scores on the original DERS, demonstrating very good concurrent validity (Victor & Klonsky, 2016).

Only total DERS-18 scores were used in this study, as the aim of the current study was to examine general levels of emotional dysregulation. Scores range from 18 to 90, with higher scores indicative of greater emotion dysregulation (i.e., poorer emotion regulation).

2.2.3. Short-form McGill pain questionnaire (SF-MPQ)

The SF-MPQ is a measure of pain severity utilizing (Stein, 2013) descriptors (11 sensory and 4 affective descriptors) (Melzack, 1987). Items are rated by respondents from 0 (none) to 3 (severe). Total scores range from 0 to 45, with higher scores indicative of greater pain severity along a greater number of descriptors. This questionnaire has exhibited good sensitivity to change following treatment for pain (Melzack, 1987).

2.2.4. Pain rating

Patients rated their overall level of pain on a 10-point visual analog scale, where 0 = no pain and 10 = worst possible pain. This type of pain rating scale has frequently been used as a general level of subjective pain level, and has acceptable psychometric properties (Mehta,

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