



Distress Intolerance and Prescription Opioid Misuse Among Patients With Chronic Pain

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Abstract: The risk for misuse of opioid medications is a significant challenge in the management of chronic pain. The identification of those who may be at greater risk for misusing opioids is needed to facilitate closer monitoring of high-risk subgroups, and may help to identify therapeutic targets for mitigating this risk. The aim of this study was to examine whether distress intolerance—the perceived or actual inability to manage negative emotional and somatic states—was associated with opioid misuse in those with chronic pain. A sample of 51 participants prescribed opioid analgesics for chronic back or neck pain were recruited for a 1-time laboratory study. Participants completed measures of distress intolerance and opioid misuse, and a quantitative sensory testing battery. Results suggested that distress intolerance was associated with opioid misuse, even controlling for pain severity and negative affect. Distress intolerance was not associated with pain severity, threshold, or tolerance, but was associated with self-reported anxiety and stress after noxious stimuli. This study found robust differences in distress intolerance between adults with chronic pain with and without opioid medication misuse. Distress intolerance may be a relevant marker of risk for opioid misuse among those with chronic pain.

Perspective: This study demonstrated that distress intolerance was associated with opioid misuse in adults with chronic pain who were prescribed opioids. Distress intolerance can be modified with treatment, and thus may be relevant not only for identification of risk for opioid misuse, but also for mitigation of this risk.

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Although many individuals with chronic pain are able to adhere to a prescribed opioid analgesic regimen, a significant percentage of chronic pain patients receiving long-term opioid therapy will misuse their medication.^{3,50} This presents a significant challenge to providers trying to manage chronic pain while mitigating the risk of opioid misuse and its adverse consequences (eg, the development of opioid

use disorder). The ability to identify patients at greater risk for opioid misuse would allow for closer monitoring of this subgroup, and may provide targets for intervention to reduce medication misuse. Accordingly, much research in this area has focused on identifying risk factors for opioid misuse.

A history of a substance use disorder consistently appears to confer risk for opioid medication misuse.^{1,9,15,34} Support is mixed for a wide range of other variables, such as younger age, history of legal problems, and presence of mood disorders.⁴⁷ Optimal prediction may require consideration of multiple risk variables; multi-variable screening tools have been developed that have enhanced the ability to detect those at risk.^{7,9,23} Although much progress has been made in identifying risk factors, the ability to predict those who will misuse their medication remains limited,¹⁰ and the mechanisms underlying this increased risk remain largely unknown.

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Understanding risk at the mechanistic level yields the ability to not only identify those in need of closer monitoring, but potentially to intervene to reduce the likelihood of misuse. The identification of mechanisms underlying elevated risk—particularly those that can be mitigated with intervention—is crucial to improving our understanding of prescription opioid misuse and to developing and refining prevention and treatment strategies.

Distress intolerance, an important vulnerability factor in substance use disorders,^{4,6,32} is a particularly strong candidate for such a mechanism. Distress intolerance is defined as the perceived or actual inability to handle aversive somatic or emotional states. Importantly, distress intolerance is modifiable with behavioral interventions,³⁰ and treatments designed to reduce distress intolerance have shown preliminary efficacy for those with substance use disorders,^{2,5} including opioid-dependent patients.^{39,46} The overarching aim of this study was to examine distress intolerance as a potential mechanism underlying prescription opioid misuse in patients with chronic pain.

The perception that one cannot tolerate distress motivates a wide range of behaviors intended to quickly avoid or escape distress, such as avoidance,^{18,48} risk-taking,²⁶ substance use,^{4,6} and nonsuicidal self-injury.³⁶ Such seemingly diverse “quick-fix” behaviors share the ability to provide strong, proximal negative reinforcement. For those who are highly intolerant of distress, a strategy that provides rapid relief may be particularly reinforcing,³⁸ and become relied upon to the exclusion of more adaptive behaviors. Consistent with this perspective, distress intolerance is associated with the use of highly reinforcing substances, such as nicotine⁴ and heroin,³² and is associated with using substances to cope with negative emotional states.^{20,52}

Among those with chronic pain, the inability to tolerate pain and emotional responses to pain may motivate opioid use (beyond that prescribed) to provide rapid relief from these states. Greater motivation to seek rapid relief from opioids may increase risk for misusing opioids, and may maintain problematic opioid use over time. Indeed, individuals with chronic pain who have greater sensory¹⁶ and cognitive²⁸ reactivity to pain are at elevated risk for prescription opioid misuse. Greater psychiatric severity and negative affect also appear to increase risk for misuse in this population.⁴⁹ Taken together, this research suggests that those with chronic pain who misuse their opioids exhibit higher levels of distress in general, as well as heightened reactivity to that distress, both of which may be reflective of poor regulation of these states.

The primary aim of this study was to examine whether distress intolerance was associated with opioid misuse among individuals with chronic pain who were receiving long-term opioid treatment. We hypothesized that participants with higher distress intolerance would be more likely to misuse opioids. In a secondary aim, we examined the association between distress intolerance and pain sensitivity, pain threshold, and subjective pain intensity. This exploratory aim examined whether

elevations in distress intolerance were reflective of heightened reactivity to noxious stimuli.

Methods

Participants

The study sample was recruited from the pain management clinic of a large, urban academic hospital. Patients receiving treatment at the clinic were recruited via posted advertisements and mailings from research staff. Patients were eligible for the study if they met the following criteria: 1) age 18 to 70 years; 2) presence of chronic back pain (defined as >3 months of pain, at an average severity of ≥ 4 on a 0–10 scale); and 3) current prescription for an opioid analgesic medication for pain. Exclusion criteria for this study included variables contraindicated for the psychophysical testing or other study procedures, including: 1) presence of an active infection; 2) significant arm or shoulder pain (due to potential interference with performance on study computer tasks); 3) history of myocardial infarction or other serious cardiovascular condition (due to potential contraindication with psychophysical testing procedures); 4) other acute major psychiatric or medical condition that would interfere with the ability to engage in the experimental session (eg, current significant impairment in the ability to engage in tasks requiring sustained attention; no participants were excluded for this reason); and 5) current peripheral neuropathy, active vasculitis, or severe peripheral vascular disease. Interested individuals completed a screening procedure with a member of the study staff to determine eligibility; those who met eligibility criteria were then scheduled for an informed consent meeting.

A sample of 51 participants (24 women) were enrolled in the study. The mean age was 54.6 years (SD = 8.4). Most of the sample self-identified race as Caucasian (72.5%), followed by African American (19.6%), other (3.9%), Asian (2%), and American Indian or Alaskan Native (2%). A small proportion (3.9%) self-identified as Hispanic or Latino/Latina. Educational attainment was heterogeneous: 3.9% completed less than high school, 15.7% completed high school, 35.3% completed some college, 35.3% completed college, and 9.8% completed a graduate degree.

Procedures

All study procedures were approved by the McLean Hospital institutional review board. After provision of informed consent, participants completed a battery of self-report measures. Study staff then administered a behavioral measure of distress intolerance and a psychophysical testing battery (see the Psychophysical Testing section for description); the order of these 2 procedures was randomly assigned to control for potential order effects.

Measures

Accurately defining prescription opioid misuse among those receiving opioid treatment is challenging because

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