

An Examination of Pain Severity, COVID Stress, and Substance use: Comparing Individuals with Chronic Pain Alone and Comorbid Anxiety and Mood Disorders in the Second Year of the Pandemic



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Background

- Individuals living with chronic pain (CP) have reported worsened pain during the COVID-19 pandemic (Fallon et al., 2021; Lynch et al., 2020; Mun et al., 2021)
- COVID stress is a prevalent psychological response to COVID-19 that is linked with greater pain severity in CP samples (Asquini et al., 2021; Taylor et al., 2020)
- Identifying factors that may affect the relationship between COVID stress and pain severity is important for promoting improved pain outcomes among CP populations during COVID-19 and future pandemics
- Anxiety and mood disorders, which often co-occur with CP, are associated with greater COVID stress in the general population and greater pain severity among CP samples (Asmundson & Katz, 2009; Clauw et al., 2020; Zis et al., 2017)
- Substance use is a common way to cope with COVID stress that can maintain and exacerbate mental and physical health symptoms (Rodriguez et al., 2020; Umacu & Lee, 2020)
- Researchers have yet to examine levels of COVID stress, pain severity, and substance use as well as evaluate how substance use impacts the relationship between COVID stress and pain severity among those with CP and psychopathology

Current study objectives

- Compare levels of COVID stress, pain severity, and substance use across groups in a CP sample with and without comorbid anxiety disorders or mood disorders
- Explore how substance use impacts the relationship between pain severity and COVID stress across groups

Method

Sample

- 1405 adults in Canada and the U.S. completed an online survey on the impacts of COVID-19 in March 2021 ($M_{age} = 56.45$, 52.82% women)
- Groups:** CP alone ($n = 910$), CP and an anxiety disorder ($n = 285$), CP and a mood disorder ($n = 210$)

Measures

- Questions assessing mental health disorders and medical conditions
- COVID Stress Scales ($\alpha = .97$ for total scale) – 36 items assessing five dimensions of COVID-related distress (Taylor et al., 2020)
- Brief Pain Inventory ($\alpha = .90$) – 4 items assessing pain severity (Cleeland et al., 1994)
- Coping with COVID-19-related stress ($\alpha = .93$ for total scale) – 38 items assessing a range of different coping strategies, one of which assesses the severity of substance use to cope (Taylor et al., 2022)

Analyses

- One-way ANOVAs with Tukey's HSD post hoc tests were conducted to compare levels of COVID stress, pain severity, and substance use across groups
- Independent moderation analyses evaluated the effect of substance use on the association between COVID stress and pain severity across groups

Tables and Figures

Graphs legend

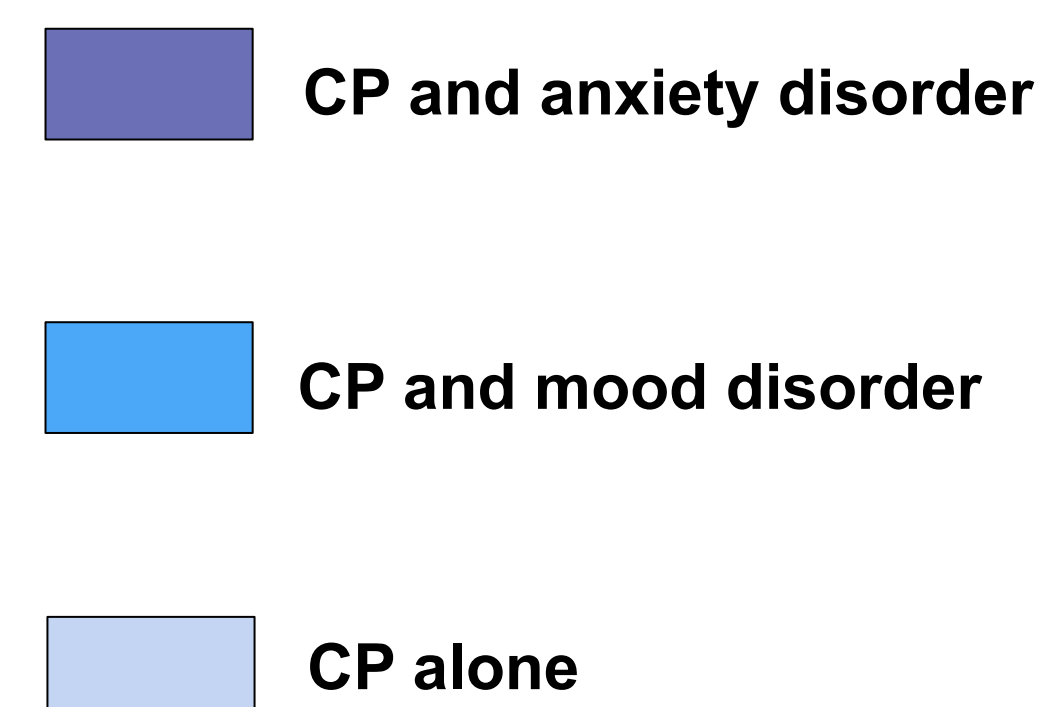


Figure 1. COVID Stress Across Groups

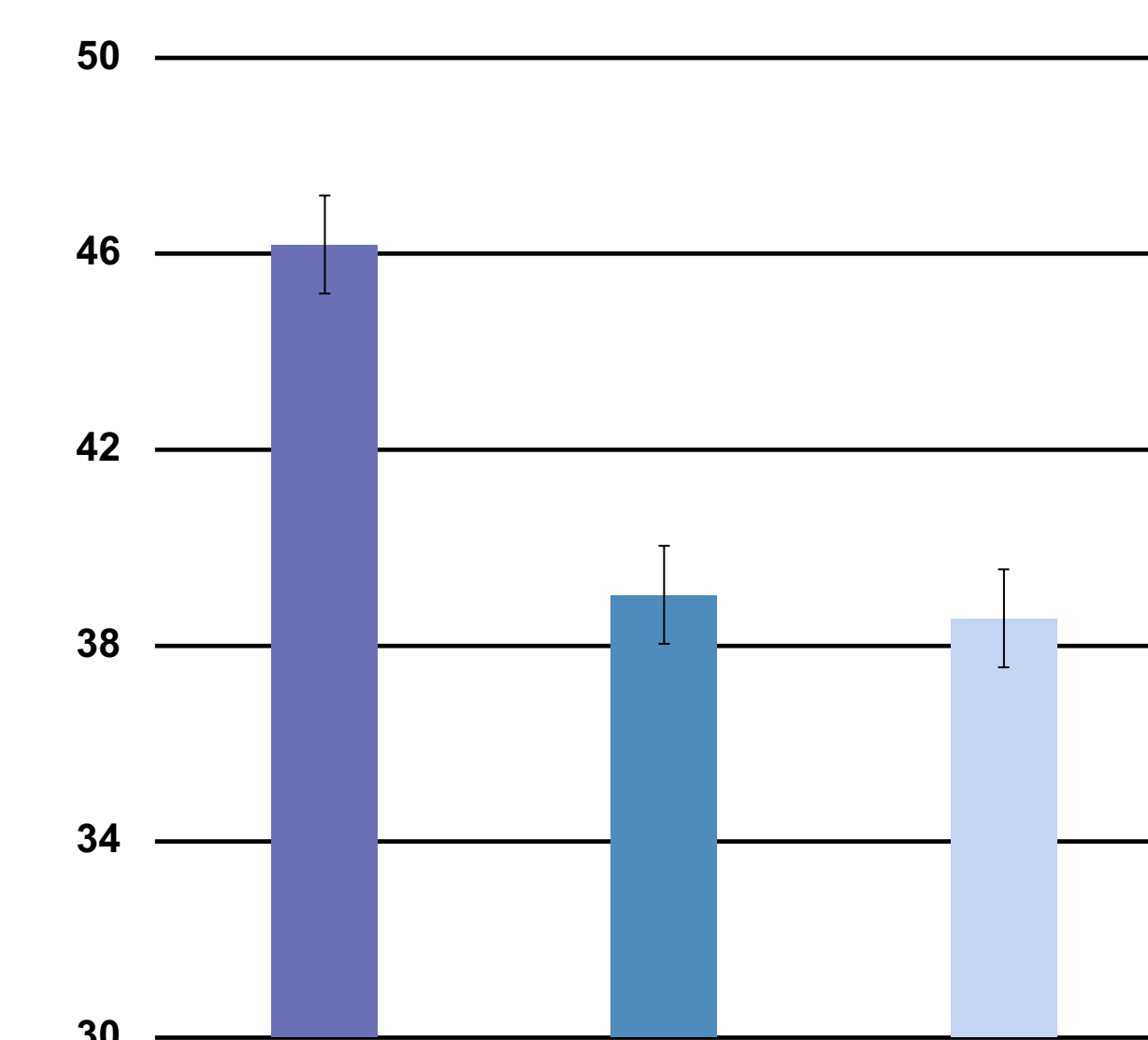


Figure 2. Pain Severity Across Groups

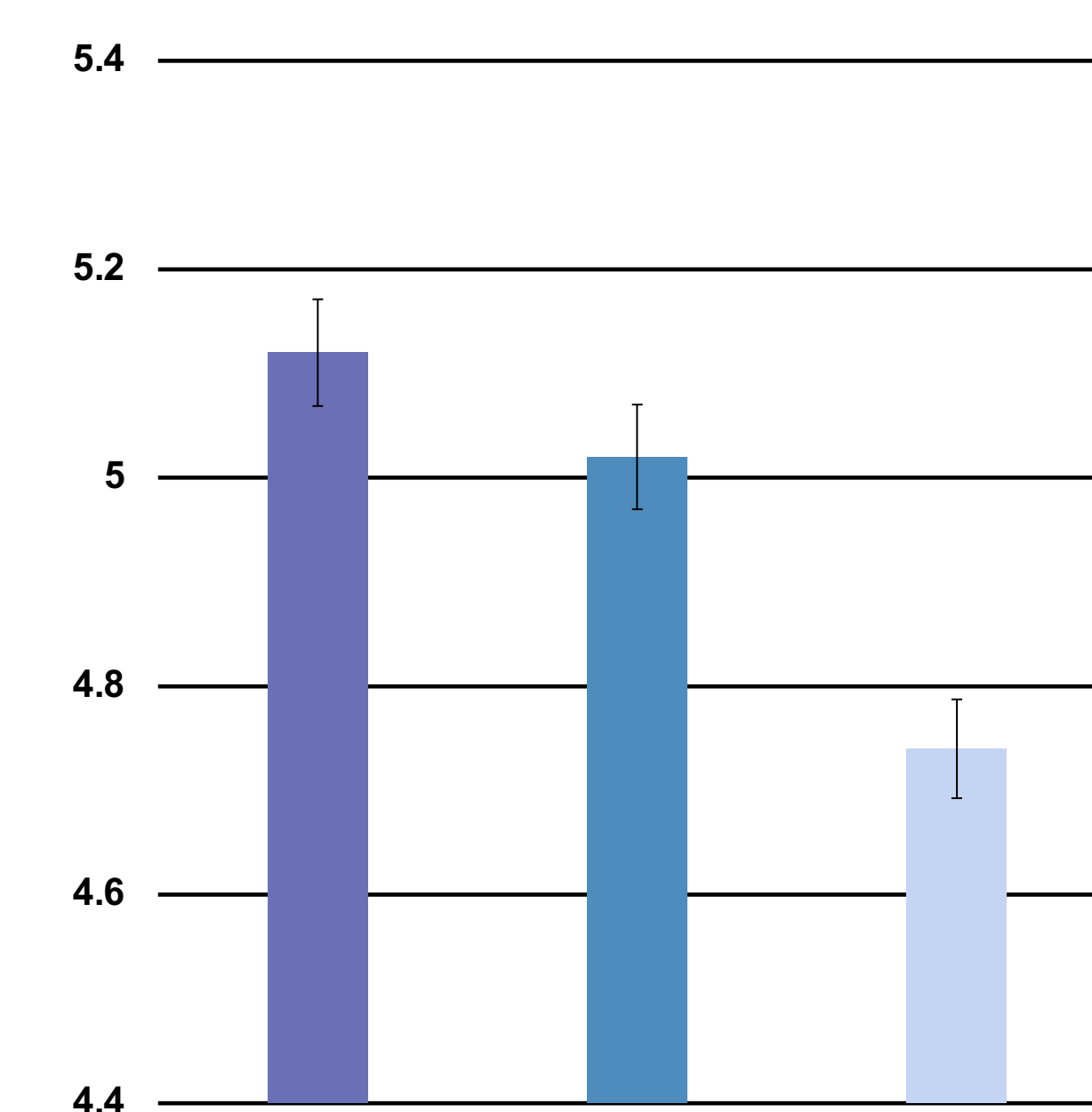


Figure 3. Substance Use Across Groups

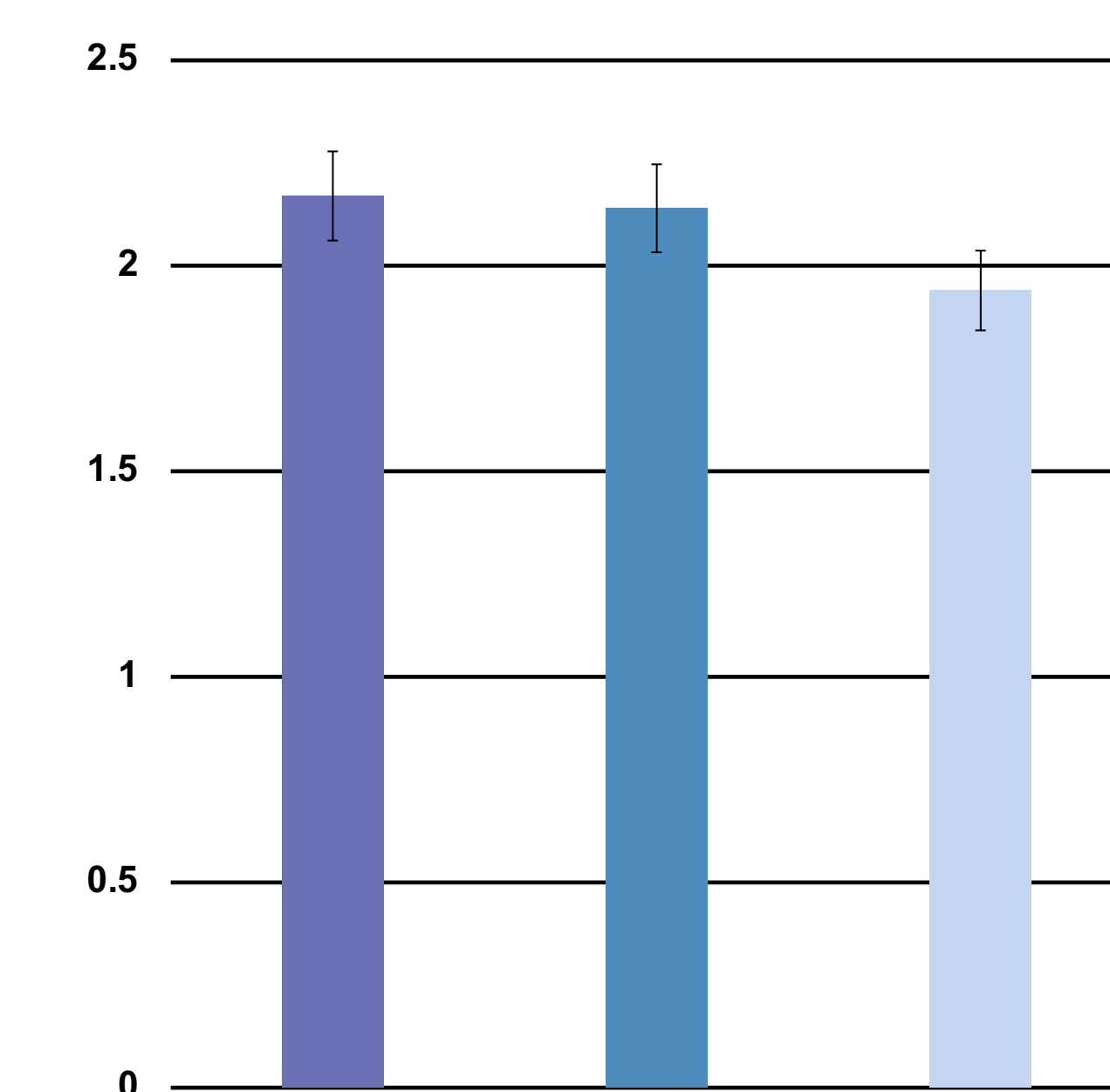
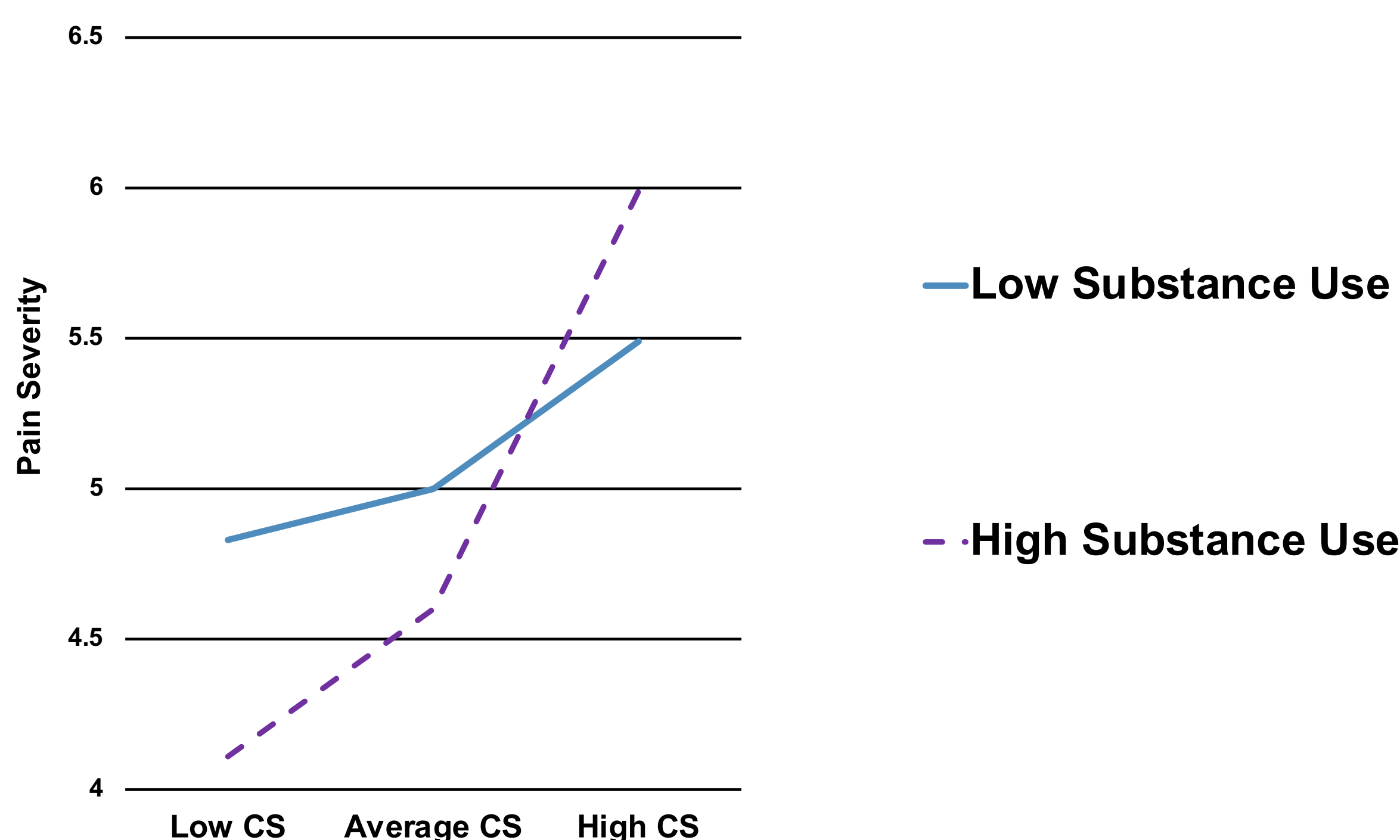


Figure 4. Effect of Substance Use on the Relationship Between COVID Stress (CS) and Pain Severity among CP and Anxiety Disorder Group



Results

Did COVID stress differ across groups?

- Yes, $F(2, 1398) = 12.05$, $\eta^2 = .017$, $p < .001$ (see Figure 1)
- The CP and anxiety disorder group reported greater COVID stress than the CP and mood disorder group ($p = .027$) and the CP alone group ($p < .001$)

Did pain severity differ across groups?

- Yes, $F(2, 1398) = 7.31$, $\eta^2 = .007$, $p < .001$ (see Figure 2)
- The CP and anxiety disorder group reported greater pain severity than the CP alone group ($p = .013$)

Did substance use differ across groups?

- Yes, $F(2, 1398) = 12.18$, $\eta^2 = .017$, $p < .001$ (see Figure 3)
- The CP and anxiety disorder group and the CP and mood disorder group reported greater substance use than the CP alone group ($p < .001$, $p = .002$)

Did substance use moderate the relationship between COVID stress and pain severity?

- Yes, but only for the CP and anxiety disorder group (see Figure 4)
- Higher COVID stress predicted greater pain severity at both high and low substance use ($F(1, 283) = 8.70$, $p = .03$, $\Delta R^2 = .026$)

Discussion and Implications

- Individuals with comorbid CP and an anxiety disorder who report elevated COVID stress and pain severity appear to be more negatively affected by COVID-19 compared to those with CP alone and those with CP and a mood disorder
- The current results are consistent with previous findings that individuals with an anxiety disorder are especially vulnerable to the negative impacts of COVID-19 (Asmundson et al., 2020)
- The present findings suggest that substance use amplifies the relationship between COVID stress and pain severity among individuals with CP and an anxiety disorder
- Those with both CP and an anxiety disorder may experience pandemic-related stressors associated with both their physical and psychological conditions and may use substances to cope with the effects of such stressors
- Substances such as nicotine, tobacco, cannabis, and alcohol produce analgesic effects (Ditre et al., 2019), however, recurrent substance use can exacerbate physical and psychological symptoms and subsequently promote continued substance use

Implications

- Targeting substance use may be beneficial in psychological interventions among populations with comorbid CP and anxiety disorders who are experiencing elevated COVID stress and pain
- Public health measures to provide accessible resources for substance use may help mitigate deleterious outcomes for populations who are using substances to cope with COVID stress and pain