The Moderating Role of Fatigue Sensitivity in the Relation between Depression and Alcohol and Opioid Misuse among Adults with Chronic Low Back Pain

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Introduction

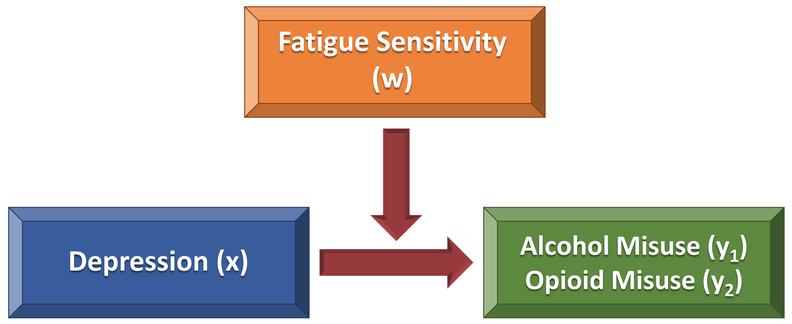
- Chronic low back pain (CLBP) is a major cause of disability in the United States and a risk factor for problematic substance use because of its association with opioid misuse and problematic alcohol consumption.
- Individuals with CLBP and depression symptoms are at a greater risk for misusing substances.
- Fatigue is a relevant factor in the pain literature and has shown to be related to poorer mental health and pain-related outcomes.
- One construct related to the experience of fatigue and poor mental health outcomes is fatigue sensitivity. Fatigue sensitivity has yet to be examined in relation to substance use outcomes among adults with CLBP.
- Fatigue sensitivity is defined as the perception and fear of negative consequences related to fatigue symptoms.
- Specifically, persons with CLBP and greater fatigue sensitivity may be more sensitive to depression-related symptoms and may interpret them as damaging. To cope with heightened distress, these individuals may be more likely to use opioids or alcohol.
- Exploring the relation among these variables is of interest to analyze to improve public health since current research suggests the deteriorating effect of alcohol and opioid misuse on pain outcomes.

Hypothesis/Aims

- The purpose of the study is to examine fatigue sensitivity as a moderating variable among the relation of depression and opioid misuse and Alcohol Use Disorders Identification Test (AUDIT) scores for adults with CLBP.
- It was expected that individuals with greater depression would exhibit a stronger association of greater opioid misuse and higher AUDIT scores at higher rather than lower fatigue sensitivity levels.

Methods

- **Participants:** 291 adults (69.1% female, M_{age} = 45.77, SD = 11.22), who endorsed mild to severe CLBP and current opioid use. 83.5% of the sample identified as white.
- **Measures:** Fatigue Severity Scale [FSS] (α = .77); Brief Pain Inventory [BPI]; Fatigue Sensitivity Questionnaire [FSQ] (α = .92); Overall Depression Severity and Impairment Scale [ODSIS] (α = .94); Current Opioid Misuse Measure [COMM] (α = .96); Alcohol Use Disorders Identification Test (α = .95)
- **Procedure:** Qualtrics panels were administered to participants who validated endorsement for mild to severe CLBP. Secondary data analysis was performed on the collected data from the panels.
- **Data Analysis:**
  - Bi-variate correlations were examined among depression symptoms, fatigue sensitivity, opioid misuse, and AUDIT scores.
  - Covariates included age, sex, FSS, BPI.
  - Two hierarchical independent linear regression models represented variable interaction.
  - Planned simple slope post-hoc analysis was conducted with high and low moderator variable values.



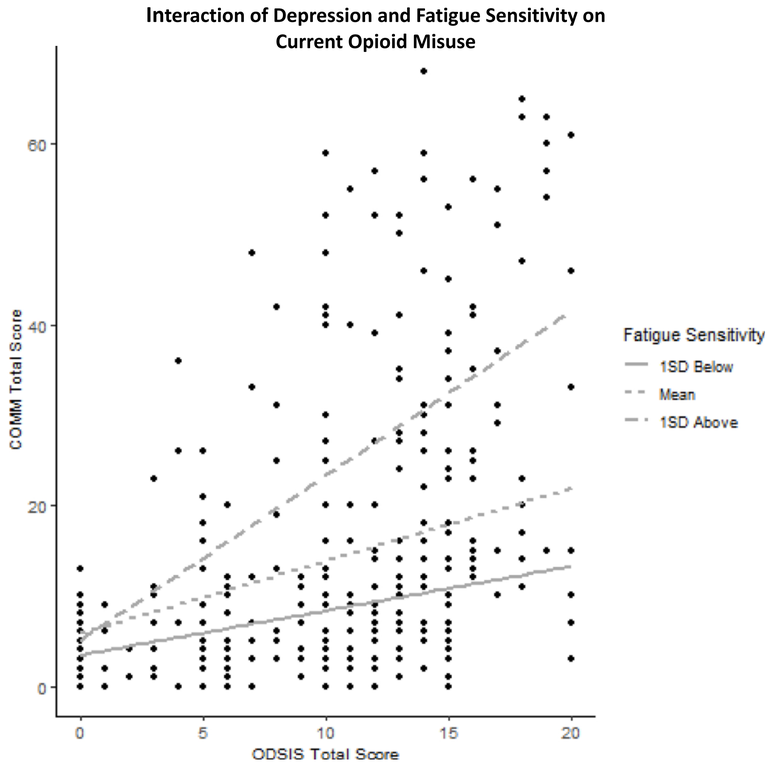
Results

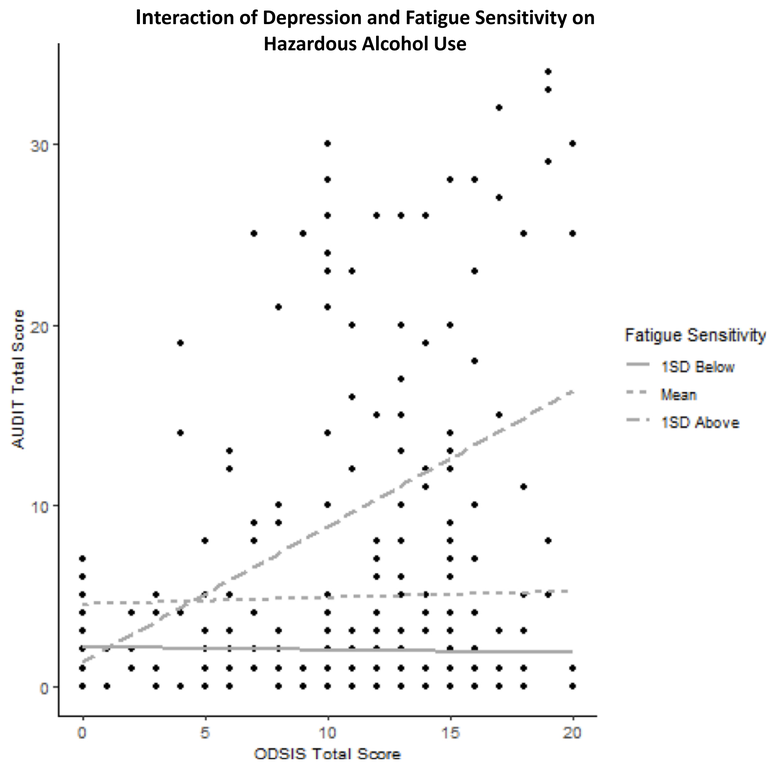
- Adults with greater depression symptoms exhibited a statistically significant relation with higher opioid misuse and AUDIT scores at higher fatigue sensitivity levels compared to lower levels.
- Fatigue sensitivity significantly predicted greater opioid misuse and greater AUDIT scores.
- Depression symptoms significantly predicted greater opioid misuse.

Bivariate Correlations and Descriptive Statistics.

	1.	2.	3.	4.	5.	6.	7.	Mean (SD) or % [N]
1. Sex (Female)	1							69.1% [201]
2. Age	.06	1						45.77 (11.22)
3. Pain Level	−.14**	.05	1					6.66 (1.93)
4. Fatigue Severity	.10	−.11*	.24***	1				5.26 (1.33)
5. Depression	−.09	−.21***	.29***	.56***	1			10.30 (5.43)
6. Fatigue Sensitivity	−.14**	−.38***	.25***	.53***	.57***	1		27.47 (11.83)
7. Opioid Misuse	−.22***	−.41***	.25***	.26***	.47***	.58***	1	16.11 (16.27)
8. Alcohol Misuse	−.30***	−.25**	.13*	.05	.26***	.41***	0.62**	5.75 (8.41)

Note. *p<.05, **p<.01,***p<.001
Sex coded 0 = Male and 1 = Female, Fatigue Severity = FSS; Depression = ODSIS; Fatigue Sensitivity = FSQ; Opioid Misuse = COMM; Alcohol Misuse = AUDIT.





Discussion

- Results were consistent with the hypothesis and validated the importance of assessing fatigue sensitivity as a moderating factor to the magnitude of the relation among depression and problematic substance use for patients with CLBP.
- Given the results, fatigue sensitivity may be considered an underlying individual difference factor for opioid and alcohol misuse.
- Future work is needed to examine the moderating function of fatigue sensitivity in the current model with alternate perceptions about substance use and barriers.
  - Alternate samples include patients in quitting or withdrawal conditions.
- Future research would benefit from exploring the current model among a more ethnically diverse sample to determine the generalizability of the model.
- Likewise, replicating the current model with a longitudinal approach would show the directionality of the effects in the current model and reduce temporal-association restraints.
- Clinical implications include reducing fatigue sensitivity among adults with CLBP, by utilizing methods such as Acceptance and Commitment Therapy or cognitive restructuring and psychoeducation, to improve depression and substance use outcomes.

Acknowledgements & References

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[1] Manning, K., Rogers, A. H., Garey, L., & Zvolensky, M. J. (2020). The moderating role of fatigue sensitivity in the relation between depression and alcohol and opioid misuse among adults with chronic low back pain. *Fatigue: Biomedicine, Health & Behavior*, 1-14.