Pain and Addiction

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Objectives

- Define pain and addiction
- Discuss the pain / addiction connection
- Describe the basics of evaluation and management

What is Addiction?

Addiction is a treatable, chronic medical disease involving complex interactions among **brain circuits**, **genetics**, the **environment**, and an individual's **life experiences**. People with addiction use substances or engage in behaviors that become compulsive and often continue despite harmful consequences. Prevention efforts and treatment approaches for addiction are generally as successful as those for other chronic diseases.

What is Pain?

An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.

International Association for the Study of Pain. *IASP terminology*. Available at: https://www.iasp-pain.org/terminology?navItemNumber=576#Centralsensitization.

What is Pain?

- **Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.**
- **Through their life experiences, individuals learn the concept of pain.**
- **A person's report of an experience as pain should be respected.**

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When someone with an alcohol or substance use disorder tells you they are in pain…

Please Take Them Seriously

Patients with pain and addictive disorders…

- Have worse physical,

Patients with pain and addictive disorders…

- Have worse physical, psychiatric

Patients with pain and addictive disorders…

- Have worse physical, psychiatric, and social functioning

Patients with pain and addictive disorders…

- Have worse physical, psychiatric, and social functioning
- Are more likely to relapse

Patients with pain and addictive disorders…

- Have worse physical, psychiatric, and social functioning
- Are more likely to relapse
- Are more likely to overdose

Patients with pain and addictive disorders…

- Have worse physical, psychiatric, and social functioning
- Are more likely to relapse
- Are more likely to overdose
- Are more likely to die by suicide

Dennis BB, Bawor M, Paul J, et al. The impact of chronic pain on opioid addiction treatment: a systematic review protocol. *Syst Rev*. 2015;4(1):1-9.
Hartz SM, Culverhouse RC, Mintz CM, et al. Association between recent overdose and chronic pain among individuals in treatment for opioid use disorder. *PLOS ONE*. 2022;17(11):e0271379. doi:10.1371/journal.pone.0271379
Larson MJ, Paasche-Orlow M, Cheng DM, Lloyd-Travaglini C, Saitz R, Samet JH. Persistent pain is associated with substance use after detoxification: a prospective cohort analysis. *Addiction*. 2007;102(5):752-760

Chronic Pain as a Co-Occurring Disorder in Addiction

- Between 43 and 73% of alcohol use disorder (AUD) patients have moderate to severe pain.
- The prevalence of pain in the opioid use disorder (OUD) treatment population may be as high as 36-62%.
- Nearly 60% of individuals with tobacco use disorder (TUD) have chronic pain

Why are chronic pain and addiction so frequently co-occurring?

- Negative reinforcement processes
- Genetics, environment, life experiences
- Neurobiology

Neurobiological Overlap

- Chronic pain and substances like alcohol and opioids can change the brain in ways that amplify pain
- Dysfunctional reward system (dopamine)
- Endogenous opioid system
- Brain structures / circuits are shared between addiction and pain (anterior cingulate, insula, central nucleus of the amygdala, etc.)
- Therefore, chronic pain and addiction overlap in how they affect the brain and behavior – ‘Double Hit Hypothesis’

CNS Pain Sensitization

- Alcohol and substance use can contribute to CNS pain sensitization (aka “Central Sensitization”)
- Neural substrates of central sensitization overlap with those of withdrawal/negative affect
- However, assessment of central sensitization is a challenge in clinical settings.

General Section
Research Paper
OPEN
PAIN REPORTS

Central sensitization in opioid use disorder: a novel application of the American College of Rheumatology Fibromyalgia Survey Criteria

O. Trent Hall[a,*], Julie Teater[a], Kara M. Rood[b], K. Luan Phan[a], Daniel J. Clauw[c,d]

Research Paper
PAIN
OPEN

Fibromyalgia predicts increased odds of pain-related addiction exacerbation among individuals with pain and opioid use disorder

Orman Trent Hall[a,*], Julie Teater[a], Parker Entrup[a], Megan Deaner[a], Craig Bryan[a], Steven E. Harte[b], Chelsea M. Kaplan[b], Khn Luan Phan[a], Daniel J. Clauw[b,c]

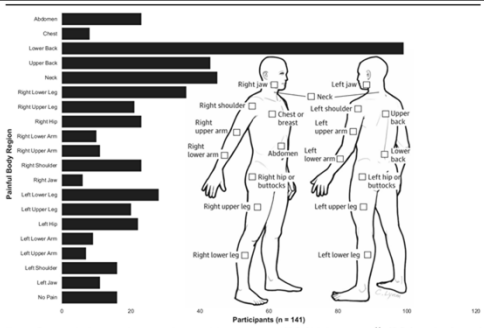


Figure 1. Frequency of self-reported pain by body region. Anatomic illustration from the ACR-FMS/Michigan body map.[14] ACR-FMS, American College of Rheumatology 2011 Fibromyalgia Survey Criteria.

Table 1 - Original Items about Pain and OUD

Pain is a major reason why I have kept using opioids.
I find myself needing more and more opioids to control my pain.
I have put off getting treatment for Opioid Use Disorder because I’m afraid my pain will be worse when I stop using opioids.
I am worried pain will cause me to relapse in the future.

Participants were asked *“To what degree do you agree or disagree with the following statements?”* Responses were scaled as *strongly disagree (1), disagree (2), neutral (3), agree (4)* or *strongly agree (5).*

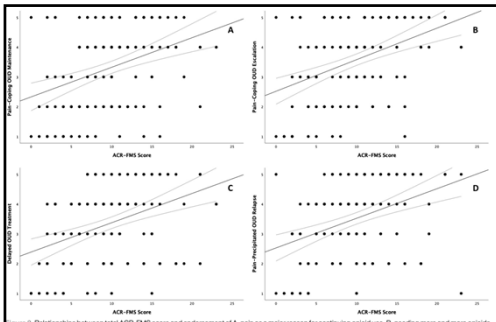


Figure 2. Relationships between total ACR-FMS score and endorsement of A. pain as a major reason for continuing opioid use, B. needing more and more opioids to control pain, C. delaying OUD treatment for fear that pain will be worse when stopping opioids, and D. worry about pain–precipitated OUD relapse. Responses (Y axis) to original questions were on a 5-point Likert scale and scaled as *strongly disagree (1), disagree (2), neutral (3), agree (4), or strongly agree (5).* ACR-FMS, American College of Rheumatology 2011 Fibromyalgia Survey Criteria; OUD, opioid use disorder.

Central sensitization was correlated with agreement with:

A. Pain is a major reason why I have kept using opioids **(maintenance)**
B. I find myself needing more and more opioids to control my pain **(escalation)**
C. I have put off getting treatment for OUD because I'm afraid my pain will be worse when I stop using opioids **(treatment delay)**
D. I am worried pain will cause me to relapse in the future **(relapse)**

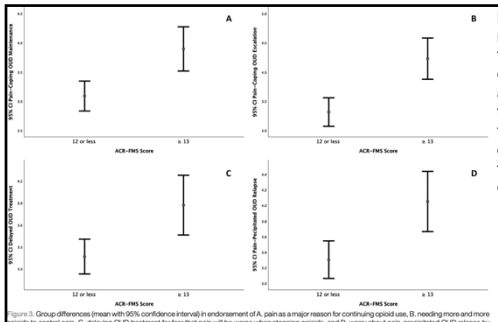


Figure 3. Group differences (mean with 95% confidence interval) in endorsement of A. pain as a major reason for continuing opioid use, B. needing more and more opioids to control pain, C. delaying OUD treatment for fear that pain will be worse when stopping opioids, and D. worry about pain–precipitated OUD relapse by ACR-FMS cut point ≥ 13 (consistent with fibromyalgia). Responses (Y axis) to original questions were on a 5-point Likert scale and scaled as *strongly disagree (1), disagree (2), neutral (3), agree (4), or strongly agree (5).* ACR-FMS, American College of Rheumatology 2011 Fibromyalgia Survey Criteria; OUD, opioid use disorder.

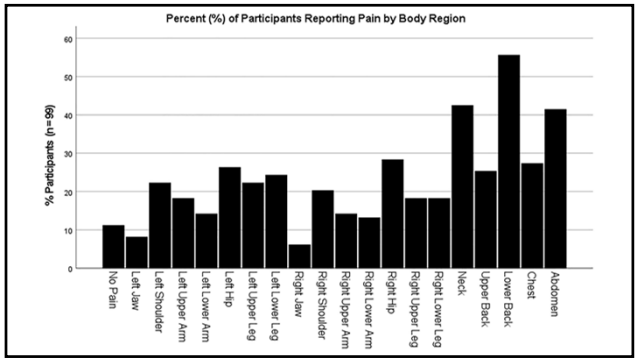
Participants who met criteria for fibromyalgia exhibited greater agreement with these statements than those who did not meet fibromyalgia criteria

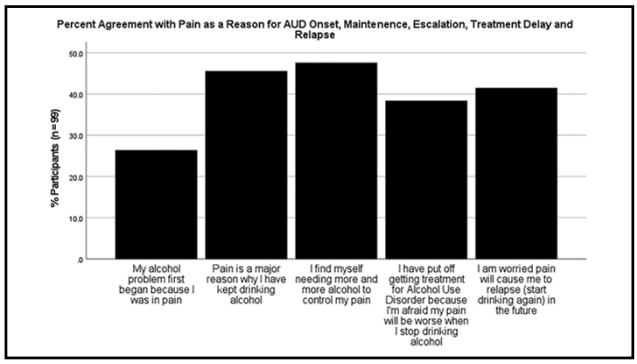
Central Sensitization in Alcohol Use Disorder: Correlates of Pain, Addiction and Health-Related Quality of Life

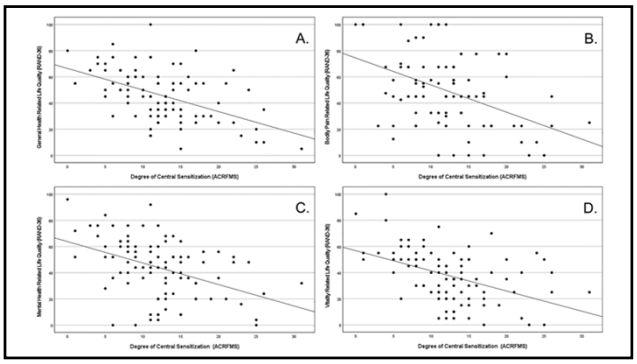
We found similar results among patients with **Alcohol Use Disorder** (n = 138)

Central sensitization was associated with greater agreement with pain as a reason for the **onset, maintenance, escalation, treatment delay, and relapse of AUD**.

Hall OT, Entrup P, King A, et al. Central sensitization in alcohol use disorder: correlates of pain, addiction and health-related quality of life. *J Addict Dis*. 2023;0(0):1-12. doi:10.1080/10550887.2023.2237396







Central Sensitization is Associated with Pain-Motivated Drinking in Alcohol Use Disorder

- Manuscript currently under review
- Cross-sectional survey of adults with AUD (n = 138)
- Developed a new scale, the Pain-Motivated Drinking Scale (PMDS)
- Then conducted MHLR to determine if central sensitization was associated with frequency of pain-motivated drinking <u>after controlling for age, gender, race, ethnicity, number of AUD criteria present, depression, anxiety, and **pain severity.**</u>

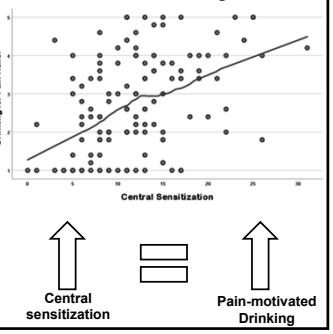
Central Sensitization is Associated with Pain-Motivated Drinking in Alcohol Use Disorder

Among patients with pain **<u>and</u>** AUD (n = 114), those higher in central sensitization reported they drank more often to relieve pain. This effect was **independent of pain severity**, AUD severity, anxiety, depression and other covariates.

Table 3 - Hierarchical Multiple Regression: Pain-Motivated Drinking Scale.

	R	R^2	Adj. R^2	ΔR^2	ΔF	*P*
Model 1	.009	.000	-.009	.000	.010	.922
Model 2	.124	.015	-.002	.015	1.72	.193
Model 3	.256	.066	.015	.050	1.44	.235
Model 4	.297	.088	.026	.022	2.61	.109
Model 5	.309	.096	.027	.008	.677	.551
Model 6	.526	.277	.214	.181	26.0	<.001
Model 7	.573	.329	.265	.052	7.94	.006

Model 1: age
Model 2: age, gender
Model 3: age, gender, race, ethnicity
Model 4: age, gender, race, ethnicity, Mental Health (RAND-36).
Model 5: age, gender, race, ethnicity, Mental Health (RAND-36), AUD severity (DSM-5).
Model 6: age, gender, race, ethnicity, Mental Health (RAND-36), AUD severity (DSM-5), Pain severity (RAND-36).
Model 7: age, gender, race, ethnicity, Mental Health (RAND-36), AUD severity (DSM-5), Pain severity (RAND-36), Central Sensitization (ACR-SM-5).



Why does this matter?

Why does this matter?

- Pain mechanism might inform treatment approach

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- Pain mechanism might inform treatment approach
- Pain that is predominantly related to Central Sensitization is unlikely to respond to peripherally directed interventions (surgery, injections, etc.) and may be worsened by opioid analgesics.

Interventions for Central Sensitization

Non-Pharmacological Treatments as a First Step

- Trustful doctor–patient relationship acknowledging the validity of symptoms
- Communicate neurophysiological mechanisms with the use of simple terminology such as a hyper, sensitized, or fired-up nervous system
- Explanation of treatment strategies
- Realistic expectations
- Promotion of self-management and internal locus of control
- Continued life participation (eg, work, physical, and social activities)
- Exercise, diet, sleep hygiene, stress reduction
- Physical Therapy, Alternative / Complementary Treatments

Non-Pharmacological Treatments as a First Step

- Pain Guide – An education and self-management resource for patient-centered chronic pain care
- Developed by the Chronic Pain and Fatigue Research Center at the University of Michigan
- Homepage | PainGuide | University of Michigan

Psychiatric / Psychological Therapies

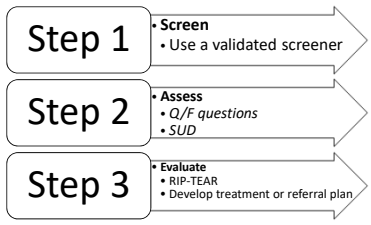
- Cognitive-behavioral therapies
- Acceptance-based therapies
- Treatment of any mental health comorbidities (i.e., depression,
  anxiety, PTSD)

Medications

- Tricyclic antidepressants
- Serotonin–norepinephrine reuptake inhibitors
- Gabapentinoids and other membrane stabilizers
- Simple analgesics and non-steroidal anti-inflammatory drugs
  have little effect
- Avoid opioids

Assessment and Treatment of Addiction

3-Step Approach



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Step 1 – Use a validated screener

- This can be as easy as asking two simple questions

Single Question Substance Use Screener

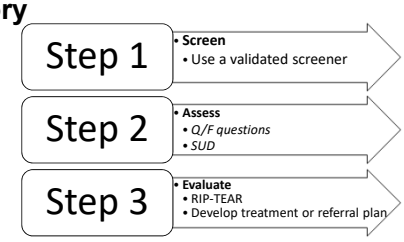
"How many times in the past year have you used an illegal drug or used a prescription medication for non-medical reasons?"

- *i.e., used the medication for the feeling or experience it caused?*

Single Question Alcohol Screener

"How many times in the past year have you had five or more drinks in a day (men) or four or more drinks in a day (women)?"

3-Step Approach to a Substance Use History



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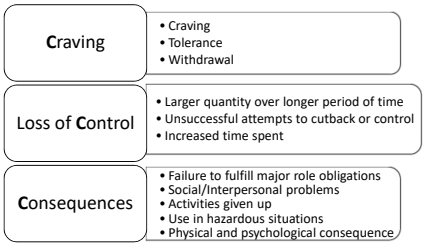
Step 2 – Assess Quantity & Frequency

- How often
- How much
- Last use
- First use

Step 2 – Apply DSM-5 Criteria



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Step 3 – Evaluate (RIP-TEAR)

Framework	Related Questions
Risks of current use	Are there immediate risks to address? History of overdose, IV use, use of multiple substances, acute withdrawal
Initiation	When did the substance use start?
Pattern	What is the quantity and frequency of substance use?
Treatment	Have there been prior treatment episodes? With what?
Effects	What are the positive and negative effects of substance use?
Abstinence	Have there been prior periods of not using? How long did they last?
Return to use	What factors can help prevent return to substance use?

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The Curbsiders - An Internal Medicine Podcast [Internet]. 2022 [cited 2024 Feb 2]. # 8 Back to Basics: A Stigma-Free History - The Curbsiders. Available from: https://thecurbsiders.com/addiction-medicine-podcast/8-back-to-basics-a-stigma-free-history

Step 3 – Evaluate (Treatment & Referral Plan)

- Medications
- Multimodal pain management plan
- Mutual aid (AA, NA, SMART Recovery)
- Psychosocial treatment

Step 3 – Evaluate (Treatment & Referral Plan)

- Medications for OUD
- Buprenorphine
- Methadone
- IM Naltrexone

Step 3 – Evaluate (Treatment & Referral Plan)

- Medications for AUD
- PO or IM Naltrexone
- Acamprosate
- Disulfiram

Step 3: Develop a treatment or referral plan

- Medications
- Multimodal pain management plan
  - Therapies (PT/OT/Complementary/Pain Psychology)
  - Adaptive equipment / ergonomic evaluation
  - Interventional procedures / surgical evaluation if needed
  - Non-opioid analgesics
  - Exercise regimen
  - Digital therapeutics (Pain Guide)
- Mutual aid (AA, NA, SMART Recovery)
- Psychosocial treatment

Bibliography

Full bibliography available in the webcast downloads for this program.