Convergent Interactions of Post Traumatic Stress Disorder, Pain, and Alcohol Use in the New Orleans Alcohol Use in HIV Cohort

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Background

- **Chronic pain** is a frequent comorbidity among people with HIV (PWH)
- People with chronic pain are at increased risk for developing **Post-Traumatic Stress Disorder (PTSD)**
- Pain and PTSD often work **bidirectionally** and exacerbate one another
- **Alcohol use disorder (AUD)** is also prevalent in PWH
- PWH are twice as likely to misuse alcohol compared to the general population

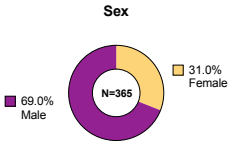
Objective

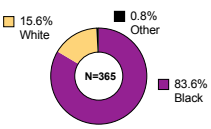
Investigate the relationship between pain symptoms, PTSD, and alcohol consumption in an underserved cohort of people with HIV

Methods

New Orleans Alcohol Use in HIV (NOAH) Study

- Longitudinal study investigating alcohol use patterns in an underserved cohort of PWH
- N=365, average age ~ 48 years, most participants incomes below 200% of poverty level





Exposure: Post-Traumatic Stress Disorder (PTSD)

- Assessed using the Primary Care PTSD Screen for DSM-IV (PC-PTSD)

Question 1	Have had nightmares about it or thought about it when you did not want to?
Question 2	Tried hard not to think about it or went out of your way to avoid situations that reminded you of it?
Question 3	Were constantly on guard, watchful, or easily startled?
Question 4	Felt numb or detached from others, activities, or your surroundings?

Cut-off for PTSD score
≥ 3: At risk for PTSD, < 3: Not at risk for PTSD

Outcome 1: Pain

- Assessed using the 36-Item Short Form Survey (**SF-36**) Pain Intensity & Pain Interference Scales

How much bodily pain have you had during the past 4 weeks?	
None	100
Very Mild	80
Mild	60
Moderate	40
Severe	20
Very Severe	0

During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?	
Not at All	100
Slightly	75
Moderately	50
Quite a Bit	25
Extremely	0

Outcome 2: Alcohol Use

- Assessed using the Alcohol Use Disorders Identification Test (**AUDIT**) and Alcohol Use Disorders Identification Test-Consumption (**AUDIT-C**)*

Outcome 3: Cortisol

- Assessed in the blood using an ELISA (enzyme-linked immunosorbent assay) in nmol/mL

Participants with a greater risk of developing PTSD reported more pain interference and are at higher risk of developing an AUD

Results

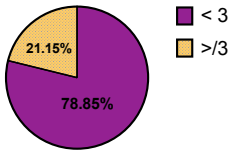


Figure 1: In the baseline NOAH cohort, 77 participants (21.2%) had PTSD scores ≥ 3.

Females in the NOAH cohort report more pain, while males have greater AUD risk & consumption

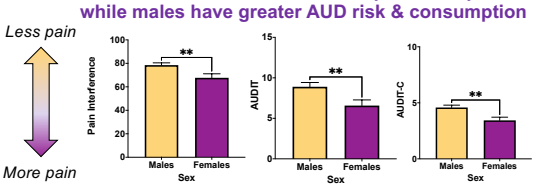


Figure 3: Females in the NOAH cohort have lower SF-36 pain interference scores (**A**; p=0.0042) compared to males, while males report higher AUDIT (**B;** p=0.001) and AUDIT-C (**C;** p=0.0016) scores.

Participants with high PTSD scores had more pain interference and higher AUDIT scores

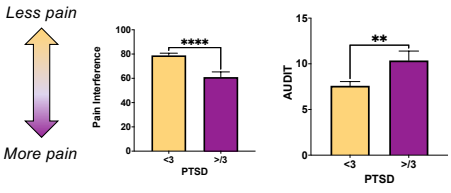


Figure 2: Participants with PTSD scores ≥ 3 had lower SF-36 pain interference scores (**A**; p<0.0001) and higher AUDIT scores (**B**; p=0.0073).

Cortisol levels differ across PTSD scores

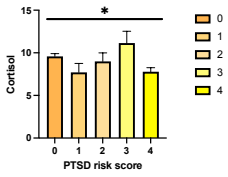


Figure 4: Cortisol levels differ across PTSD scores (p=0.0456).

PTSD scores decrease with age

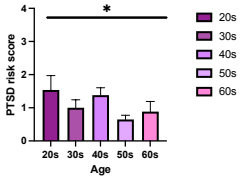
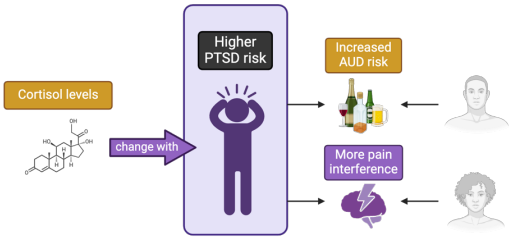


Figure 5: PTSD scores decrease with age (p=0.0250).

Conclusions

- HIV-positive individuals with **higher PTSD scores** (i.e., more PTSD symptoms) have **more pain interference** in their everyday lives and are at **increased risk of developing an AUD**
- Although sex did not impact PTSD scores, **females reported more pain** compared to males, while **males had increased AUD risk**
- **Cortisol levels differ across PTSD scores**, displaying an inverted U-shaped curve. Interestingly, those with the highest PTSD scores had the lowest cortisol levels
- Age may contribute to PTSD symptoms in PWH, with younger individuals at increased risk of PTSD
- Future studies will examine the impact of Adverse Childhood Experiences (ACEs) and stress on pain and alcohol consumption in the NOAH cohort



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Questions?
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