Patterns of substance use and mental health symptoms among people with HIV engaged in care

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Background

- Mental health symptoms and substance use are prevalent among people with HIV
- We sought to identifying meaningful patterns in how mental health symptoms and substance use co-occur

Methods

Study Population: 20,874 clinic visits from 4,000 randomly-selected participants in the Center for AIDS Research Network of Integrated Clinical Systems (CNICS), 2005 - 2018.

Clustered Observations at visits using Random Forest sidClustering algorithm on 9 self-reported items:

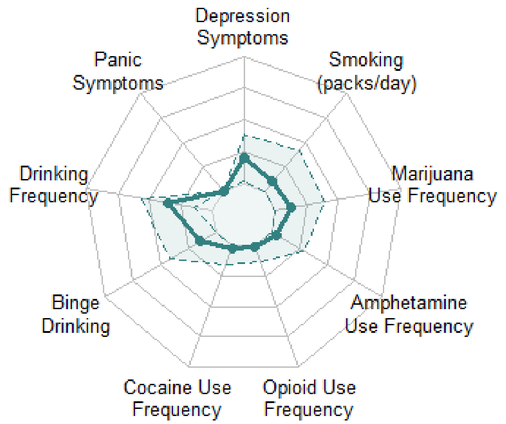
- PHQ-9 (depression symptoms)
- PHQ (panic symptoms)
- Frequency of alcohol use
- Frequency of binge alcohol use
- Smoking frequency (packs/day)
- Frequency of cocaine use
- Frequency of opioid use
- Frequency of amphetamine use
- Frequency of marijuana use

We **analyzed resulting clusters**:

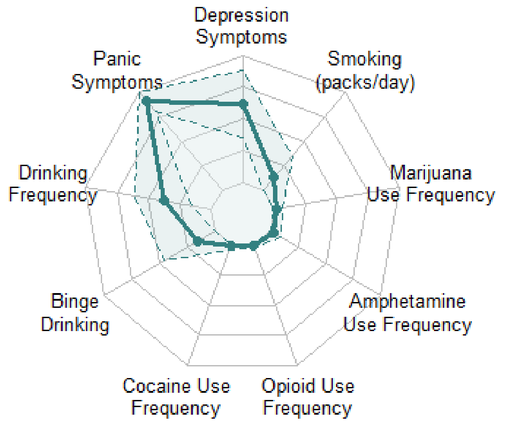
- Visualized the mean and interquartile range for each item
- Calculated the proportion with viral suppression (≤200 copies/mL) at the first viral load measure after each observation

Results: Symptom/Substance Use Clusters

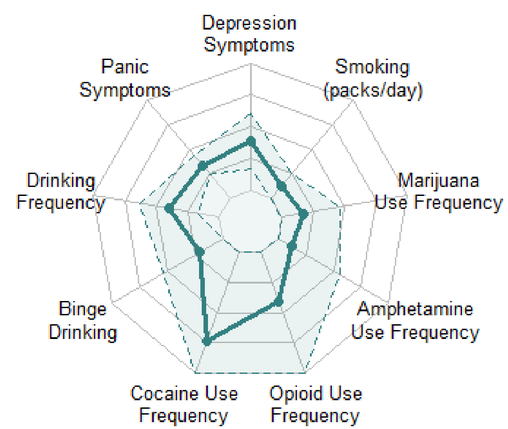
Low Burden of Mental Health Symptoms, Low Substance Use
n=15,802, 88% Suppressed



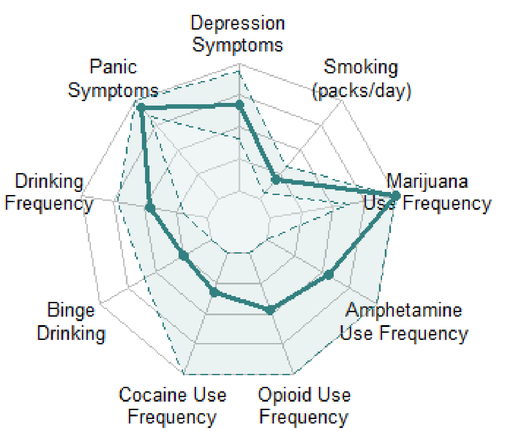
Mental Health Symptoms without Substance Use
n=3,856, 83% Suppressed



Cocaine and Opioid Use without Mental Health Symptoms
n=823, 78% Suppressed



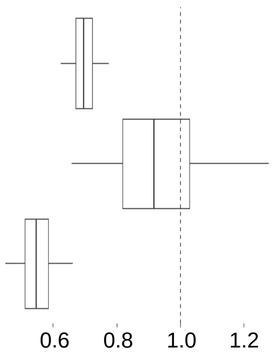
Mental Health Symptoms with Substance Use
n=393, 87% Suppressed



Each of the 9 items is plotted on a normalized scale where each tick from the center represents one standard deviation at the population level. Circles denote the mean normalized score within the cluster for each item; dashed lines denote the interquartile range. Viral suppression = viral load ≤200 copies/mL.

Results: Suppression

Odds of Viral Suppression by Cluster*



Odds Ratio
(Relative to Low Burden of Mental Health Symptoms/Low Substance Use)

Odds ratios calculated from a logistic regression on cluster assignment, adjusting for age, race, sex, HIV risk factor, and time in cohort.

Conclusions

- Depression and panic symptoms co-occur, with and without substance use.
- A distinct subset of PWH endorse cocaine and opioid use without depression or panic symptoms
- They ways that mental health symptoms co-occur with substance are associated with viral suppression.
- Further analysis could identify patterns of mental health symptoms with use of specific substances.