Psychiatric-Substance Use Disorder Comorbidity: Associations Across CNS Drug Categories

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Introduction

- Around 50% of substance use disorder (SUD) patients have non-substance psychiatric disorders (NSPD), indicating shared underlying causes and complicating treatment.
- suggesting these issues may share common roots
- Most studies group drugs by legal status, rather than how they affect Central Nervous System (CNS) activity (speeding up, slowing down, or blocking pain)
- This study looks at how different types of mental health challenges relate to use of specific drug types

Research Questions

- What is the relationship between the presence of comorbid affective, anxiety, and personality disorders and the substance abuse of stimulant, depressant, and analgesic among adults?
- How do the underlying pathologies of affective, anxiety, and personality disorders interact with the neurological mechanisms of stimulants, depressants, and analgesics to influence substance addiction patterns among adults?

Sample, Measurements and Methods

- **Survey**: Wave 1, NESARC, 2001-2002.
- **Participants**: 43,093 adults, civilian non-institutionalized.
- **Methodology**: In-person, computer-assisted AUDADIS.
- **Data Collected**: DSM-IV psychiatric and substance use diagnoses, family history, treatment usage, socioeconomic details, stressful life events in the last 12 months
- **Analyses Methods:** logistic and multinomial regression, univariate analyses, regression validation

Predictor Variables

Classification	Non-Substance Psychiatric Disorder
Affective	Major depression, manic (bipolar I), hypomanic (bipolar II)
Personality	Generalized anxiety disorder, panic without agoraphobia, panic with agoraphobia
Anxiety	Antisocial, obsessive compulsive personality disorder, paranoid, schizoid, dependent, avoidant

*included sociodemographic factors as covariates (eg. age, race/ethnicity, income)

Response Variables

Classification	Substances
Stimulant	Nicotine, amphetamines, cocaine
Depressant	Alcohol, sedatives, tranquilizers
Analgesic (Painkillers)	Heroin, opioids, cannabis

Logistic Regression Analysis Results: Odds Ratio by Substance Class

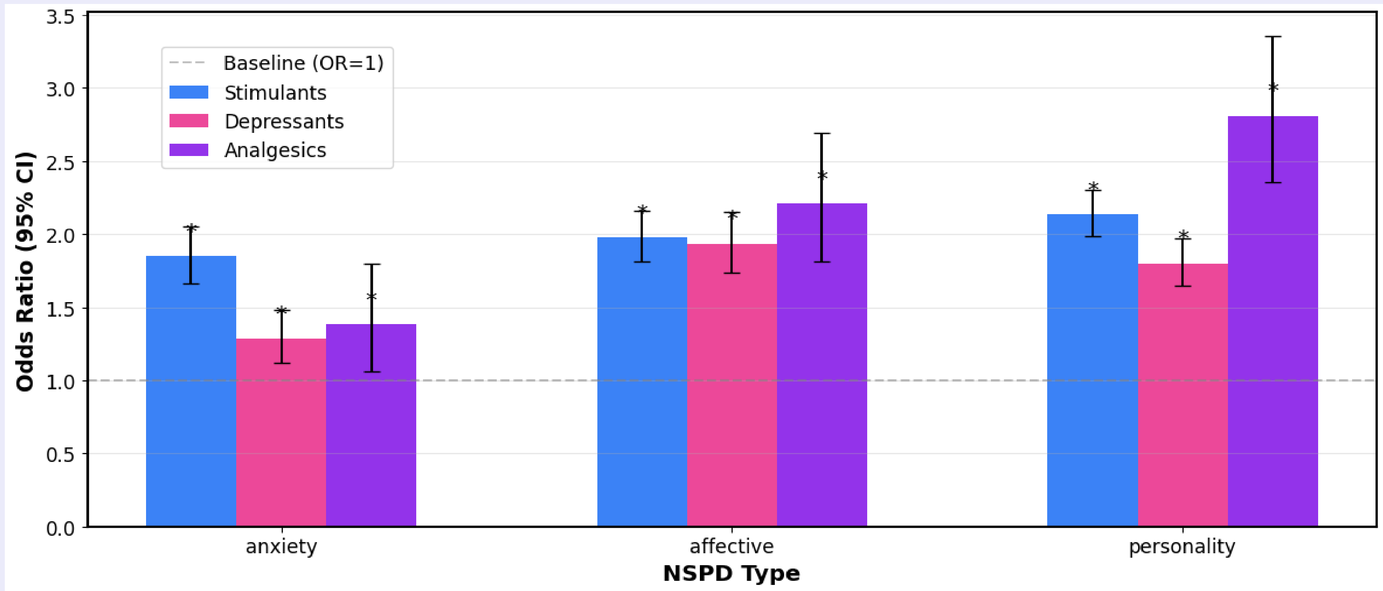

Figure 1: Odds ratios comparing substance use patterns across psychiatric disorders, with 95% confidence intervals. All associations are statistically significant ($p < 0.001$, except anxiety-analgesic $p=0.016$). **Personality disorders show the strongest relationships overall**, particularly with analgesics (OR=2.81, exp(1.0335)). Stimulant use is consistently associated with all psychiatric disorders (ORs 1.85-2.14), while **depressant use shows relatively weaker associations with anxiety disorders** (OR=1.29, exp(0.2510)). The model's pseudo R-squared values (0.09-0.21) suggest moderate predictive power across substance types.

Separate and Aggregate Effects of Stimulant Use Per Psychiatric Disorder

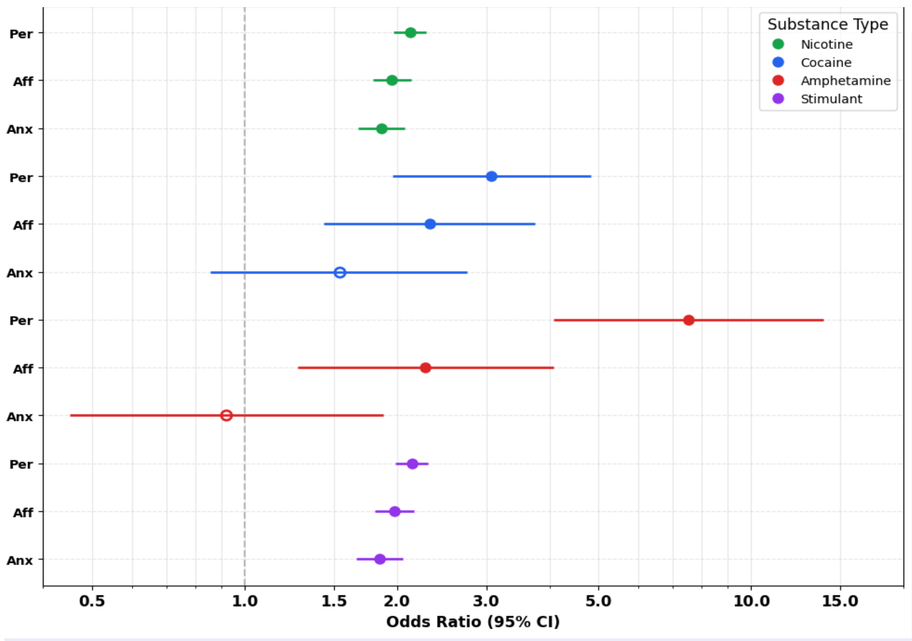

Figure 2: The aggregate stimulant measure shows significant associations ($p < 0.05$) with all three psychiatric disorders, while individual stimulant analyses reveal more nuanced patterns. Notably, **neither cocaine nor amphetamine demonstrate significant associations with anxiety when analyzed separately, despite showing consistent significant relationships with affective and personality disorders.** This suggests potential synergistic effects when stimulants are considered collectively rather than individually.

Multinomial Regression Results: Odds Ratio for Single,Poly and No Drug Use

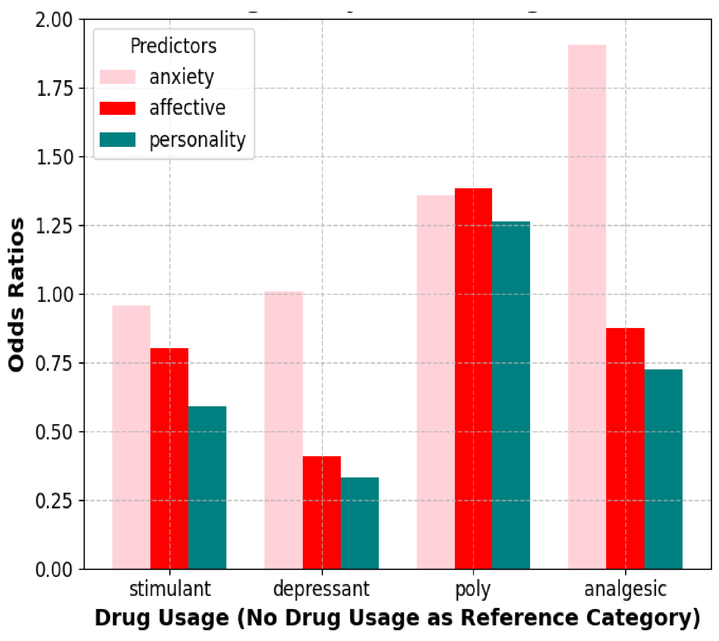

Figure 3: Odds ratios of single substance use (polysubstance use compared to no substance use. Values above 1 indicate increased odds of substance use, relative to individuals without psychiatric disorders. **Anxiety disorders show the highest association with analgesic use, while all psychiatric disorders are associated with increased odds of polysubstance use.**

Discussion

While affective disorders showed moderate but consistent associations across substance types and anxiety disorders showed weaker but still elevated relationships, personality disorders demonstrated the strongest associations overall. These findings underscore that the underlying mechanism of drugs may serve to compliment certain psychopathologies: personality disorders' link to dopamine dysregulation may drive stimulant preference, while anxiety disorders' symptoms may lead to seeking anxiolytic effects from analgesics. Understanding these disorder-specific substance preferences could illuminate both the psychopathology driving substance choice and the pharmacological properties that make certain substances particularly rewarding for specific conditions.