RMPDS 19TH ANNUAL SCIENTIFIC MEETING

The Protective Effect of Medical Antidepressant Use on Problematic Drug Use

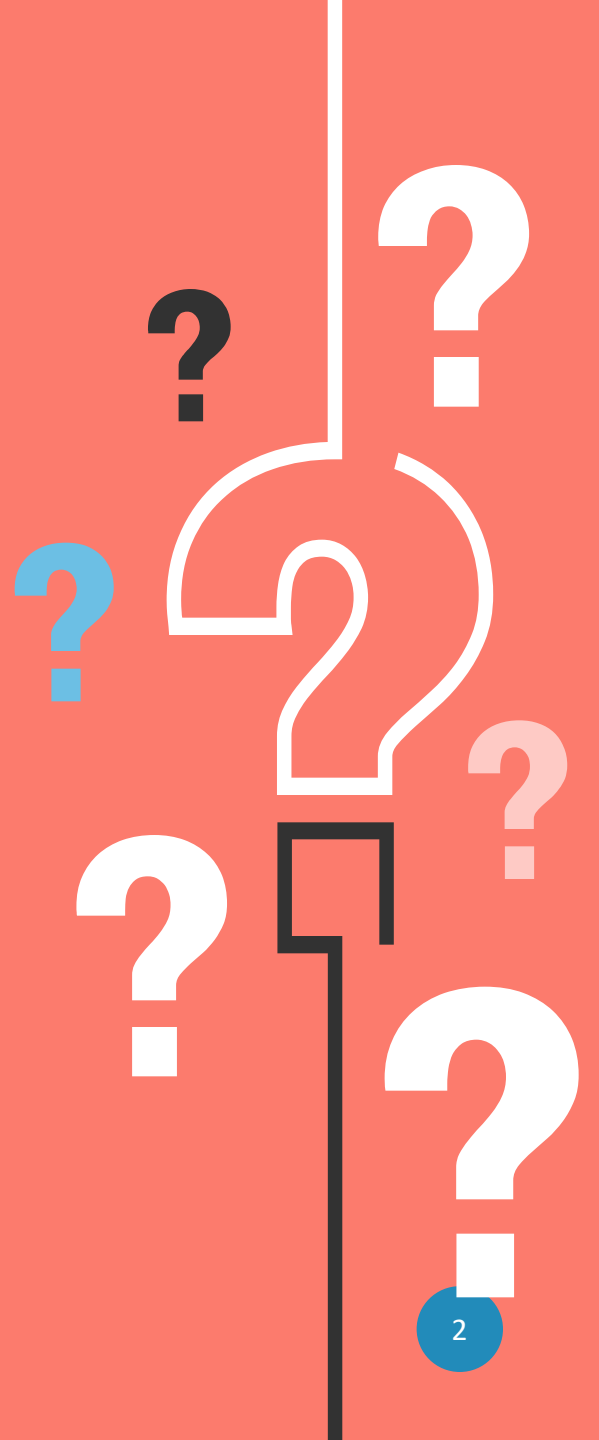
Among US Adults with Depression

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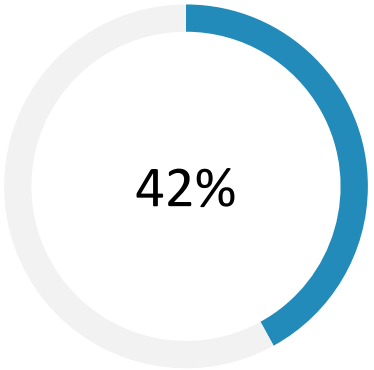
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Major Depressive Disorder (MDD)



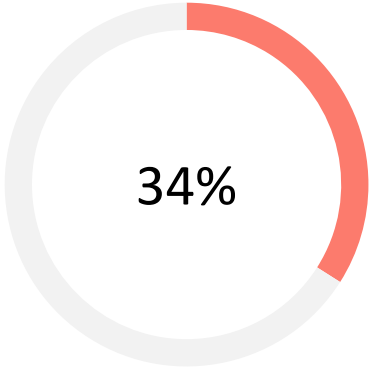
Symptomatology and Treatment Among Adults with Major Depressive Disorder

An estimated 45 million US adults had a history of major depressive disorder



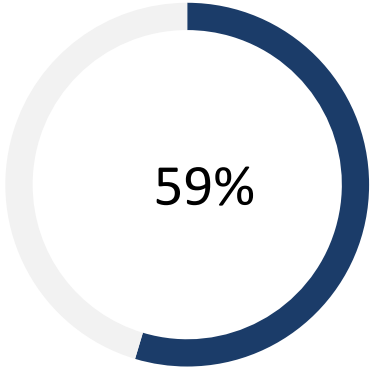
Diagnosis

An estimated 42% Of US adults with depression had used an antidepressant medication that they were prescribed in the past year[4]



Treatment

An estimated 34% Of US adults with depression had used an antidepressant medication that they were prescribed in the past year[4]

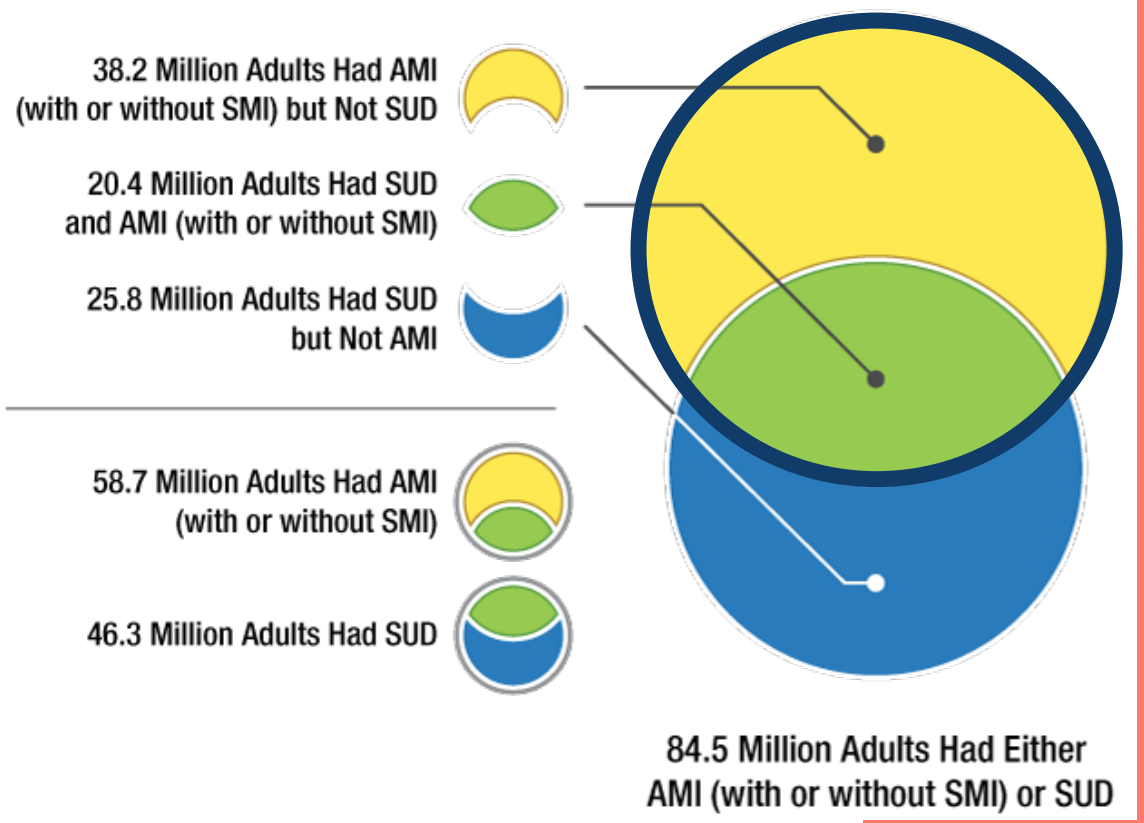


Symptoms

An estimated 59% of US adults with depression experienced moderate to severe symptoms where medical intervention is recommended[5]

Mental Illness and Substance Use Disorder

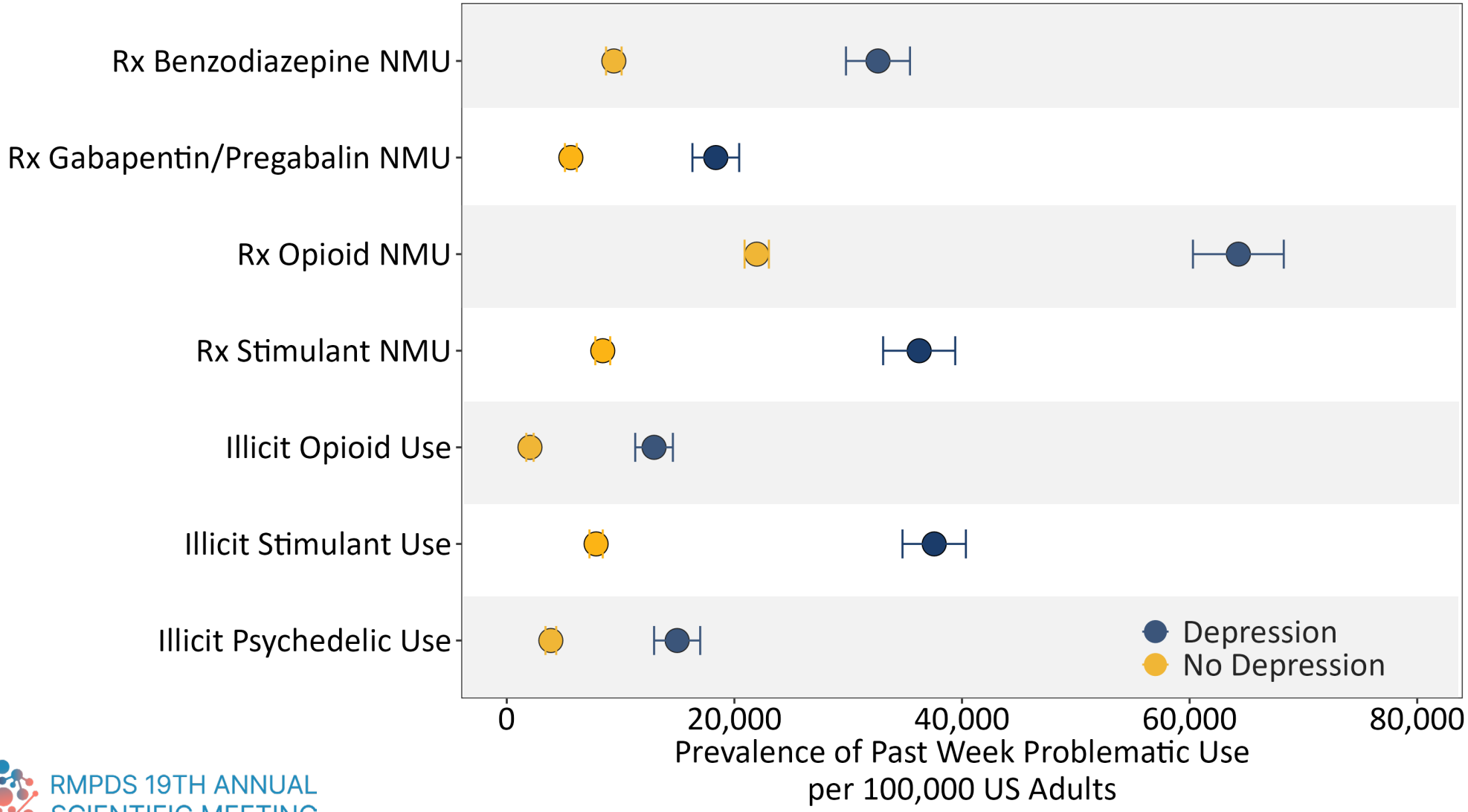
Substance Abuse and Mental Health Service Administration Estimates



Comorbid SUD with mood and anxiety disorders is associated with increased symptom severity, impairment, suicidality, and help seeking as compared to mood and anxiety disorders alone[5]

Figure: Key Substance Use and Mental Health Indicators in the United States: Results from the 2023 National Survey on Drug Use and Health[7]

Non-Medical Use Among Adults with and Without Depression



Antidepressant Treatment in Clinical Trials

Treatment with antidepressants has been shown to reduce drug use under specific study conditions[9:15]



Markou et al., 1998

Depressed drug users reduced their drug use more than nondepressed users when treated with antidepressants[11]



Ziedonis & Kosten, 1991

Among those who abused cocaine, treatment with antidepressants lead to a 90% reduction in cocaine use[15]



Cornelius et al., 1995

Adults with alcohol use disorder treated with an antidepressant (fluoxetine) had lower total alcohol consumption compared to those treated with placebo[9]



Mason et al., 1996

Among alcoholics diagnosed with depression, those treated with antidepressants were abstinent significantly longer than those treated with placebo[12]

Study Design

Does medical antidepressant use have a protective effect against problematic drug use among adults with depression?

Objective	Measure the association of medical antidepressant use with changes to the odds of problematic drug use among adults with depression
Data Source	The Survey of Non-Medical Use of Prescription Drugs (NMURx) combing data from 2023 and 2024
Exposure	Medical Use of a prescribed antidepressant in the past year
Outcome	Problematic use of a psychoactive drug other than an antidepressant in the past week separated by drug class

Survey of Non-Medical Use of Prescription Drugs (NMURx)

An Online Survey for Pharmacoepidemiological Investigation[16]



Double Opt-In Online Survey



Nationally Representative Estimates



Anonymous Responses



Guardrail Quotas



Capturing 60,000 US Adults per Year



Calibration Weighting

Defining Medical Antidepressant Use

Primary Analysis



Defining Antidepressant Use

Sensitivity Analysis



Balancing the Exposure Groups

Ideal State

Outcomes independent of treatment assignment

Observational Data

Outcomes are only independent of treatment assignment given a set of covariates

$$\log\left(\frac{P(Z)}{1-P(Z)}\right) = \beta_0 + \beta_1 X_1 + \cdots + \beta_n X_n$$

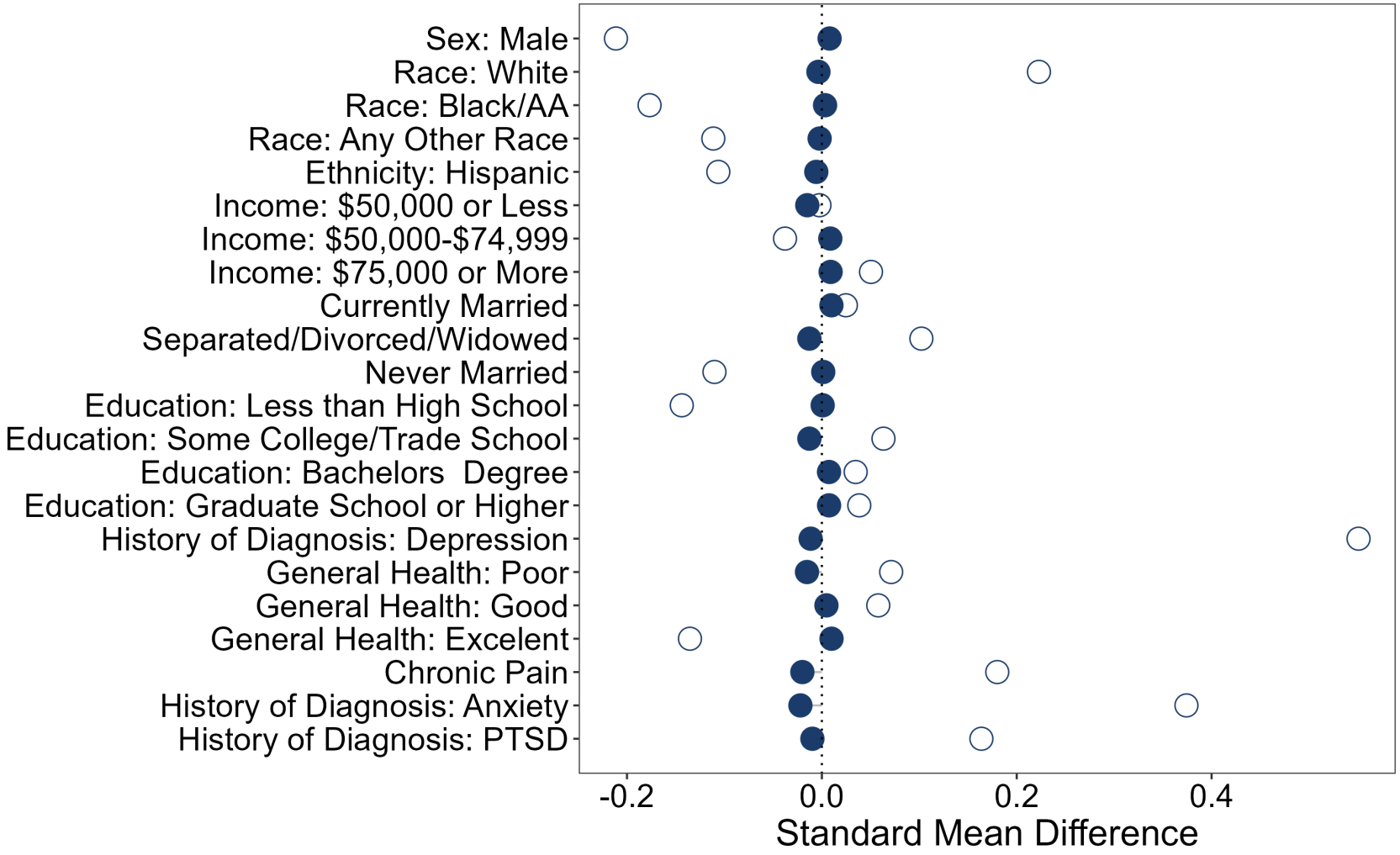
Propensity Score Analysis

Comparable Groups

Once groups are balanced in regards to the exposure, logistic regression can be used to model the differential association of exposure with outcome

Standard Mean Difference of Demographic Characteristics

Comparing adults with depression who medically used a prescription antidepressant to those who did not

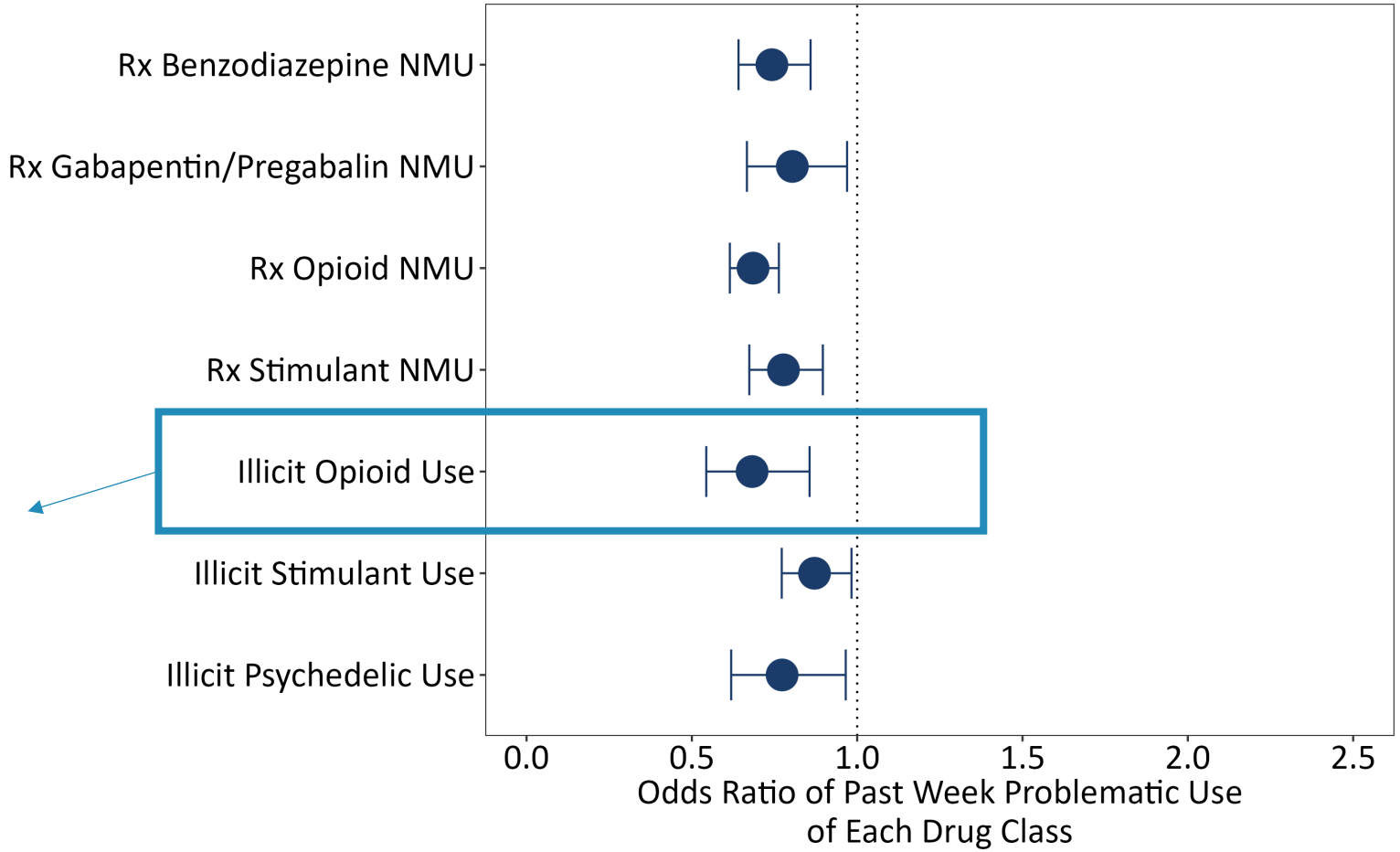


Relative Change in Odds of Past Week Problematic Drug Use Associated With Medical Antidepressant Use Among Adults with Depression

Exposure

Medical Use of a Prescribed Antidepressant in the Past Year

Among US adults with depression who had medically used an antidepressant in the past year, antidepressant use was associated with a 33% decrease in the odds of having used an illicit opioid in the past week [OR: 0.68 (95%CI: 0.54, 0.86)].



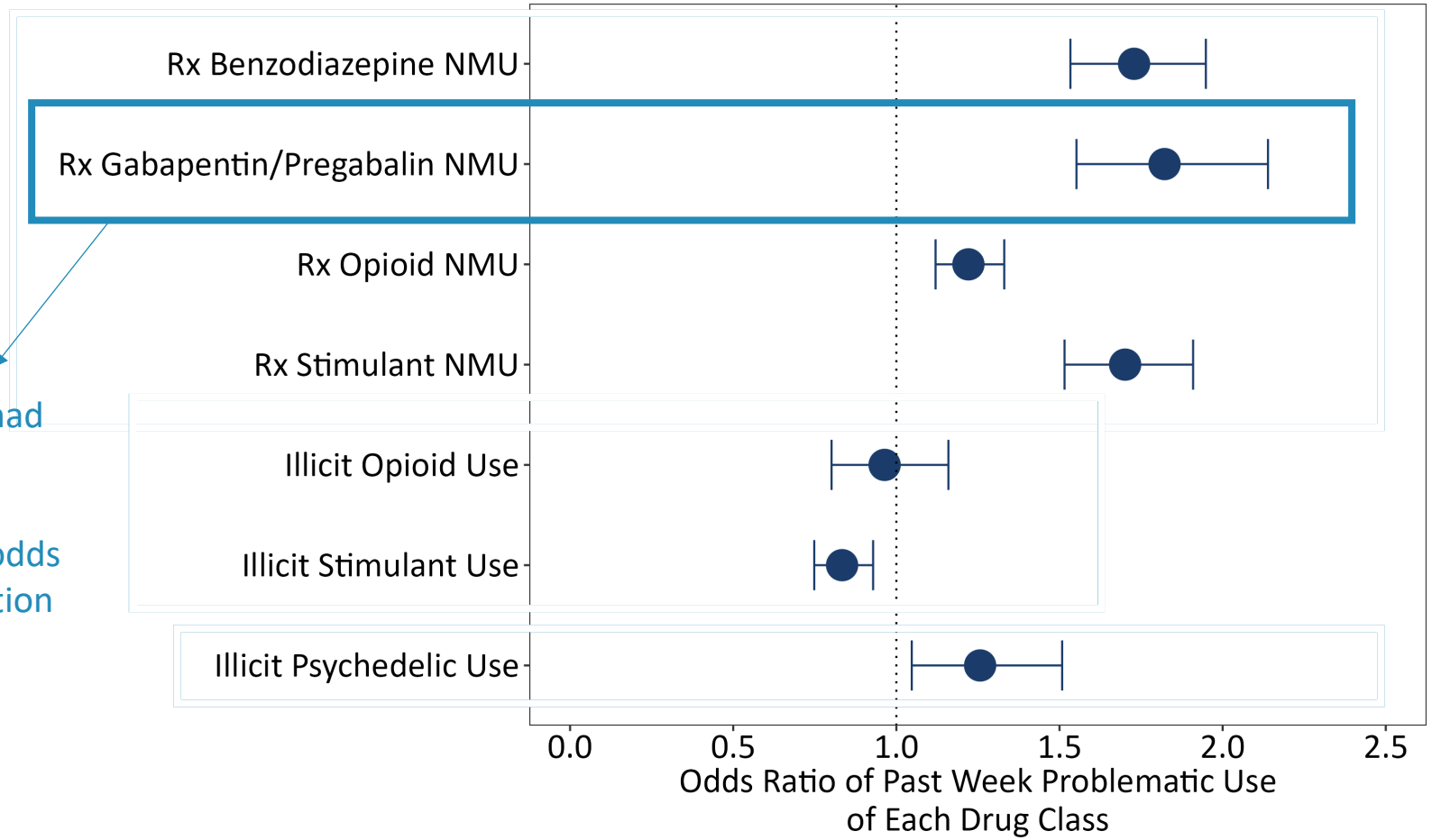
Medical Antidepressant use was protective against problematic drug use when the antidepressant was used as prescribed

Relative Change in Odds of Past Week Problematic Drug Use Associated With Antidepressant Use Among Adults with Depression

Exposure

Any Use of a Prescribed Antidepressant in the Past Year

Among US adults with depression who had used a prescribed antidepressant in the past year, antidepressant use was associated with an 82% increase in the odds of having non-medically used a prescription gabapentin/pregabalin in the past week [OR: 1.82 (95%CI: 1.55, 2.14)].



Conclusions



Differential Risks

The impact of medical antidepressant use on problematic drug use varied significantly by drug class



Protective Treatment

Using a prescribed antidepressant was protective, but only when used only as directed



Influential Behaviors

Differentiating between medical use and non-medical use was essential



Robust Analysis

Advanced statistical methods can minimize confounding and achieve covariate balance using observational data

RMPDS 19TH ANNUAL SCIENTIFIC MEETING

Thank you

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