



The Association of Alcohol Abuse and/or Dependence and Major Depression among Adults by Sex



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Introduction

- The comorbidity between Alcohol Use Disorder (AUD) and Major Depression (MD) expresses a self-management method in which an individual uses alcohol as a psychoactive drug to regulate social dysfunctions and negative affects. (Müller, C. P., 2023)
- Co-occurring AUD and MD is well examined among adolescents between the ages of 16 and 19, where the comorbidity compounds an increased risk for suicidality. (Galaif, E. R., 2007)
- The treatment of MD, those CBT/MT-based specifically, has a positive effect on people with co-occurring AUD and MD, in controlling the symptoms of both diseases over a certain time span of the treatment conduct. (Schouten, M. J. E., 2022)

Research Questions

- Are people with major depression more likely to have alcohol abuse/dependence?
- Does the association between abnormal alcohol use and major depression differ among males and females?

Methods

Sample

- Adults (age 25 to 65) who were ever diagnosed with major depression in their lifespan (n=29,050) were drawn from the first wave of the National Epidemiologic Study of Alcohol and Related Conditions (NESARC).
- Wave 1 data from the NESARC survey were collected during 2001-2002, including nationwide samples representative of multiple demographic and socio-cultural traits of the U.S. citizens.

Measures

- MD was diagnosed using the NIAAA, Alcohol Use Disorder and Associated Disabilities Interview Schedule – DSM-IV (AUDADIS-IV).
- The patterns of alcohol consumption and their psychiatric classification were assessed using DSM-IV Substance-Related Disorders.
- Current AUD was evaluated through four levels of alcohol abuse/dependence severities (“No alcohol diagnosis”, “Alcohol abuse”, “Alcohol dependence”, and “Alcohol abuse and dependence”).

Results

Univariate

- Over 20% of adults were diagnosed with major depression in their lifespan.
- 92.2% of adults do not have alcohol abuse or dependence. Among those who abnormally use alcohol, about 4.7% of individuals abused alcohol in a behavioral way, 1.2% were dependent on alcohol in psychiatry, and 1.9% of the individuals were dependent on alcohol while they abuse alcohol.

Bivariate

- Chi-Square analysis showed that among adults, **the likelihood of having depression significantly increases as the abnormal use of alcohol becomes more severe** ($\chi^2=816.43$, $p\text{-value}<0.001$).
- Specifically, the depression diagnosis increases from those without abnormal use of alcohol (19.35%) to individuals with alcohol abuse (23.98% SE .109). Then, the rate of alcohol diagnosis becomes higher among alcohol dependence group (37.46% SE .322). The diagnosis of **the major depression is most significantly occurs among individuals combined alcohol abuse and alcohol dependence** (42.65% SE .355).
- Compared to those without alcohol abuse or dependence, individuals with alcohol **abuse** is more sensitive to the major depression $OR=1.63$ (1.42-1.85), as individuals with alcohol **dependence** are further more sensitive to the major depression, $OR=2.82$ (2.25-3.52), and individuals **combined abuse and dependence** are most sensitive to the major depression, $OR=3.93$ (3.30-4.70).

Figure 1. Alcohol Abuse/Dependence and Major Depression among adults

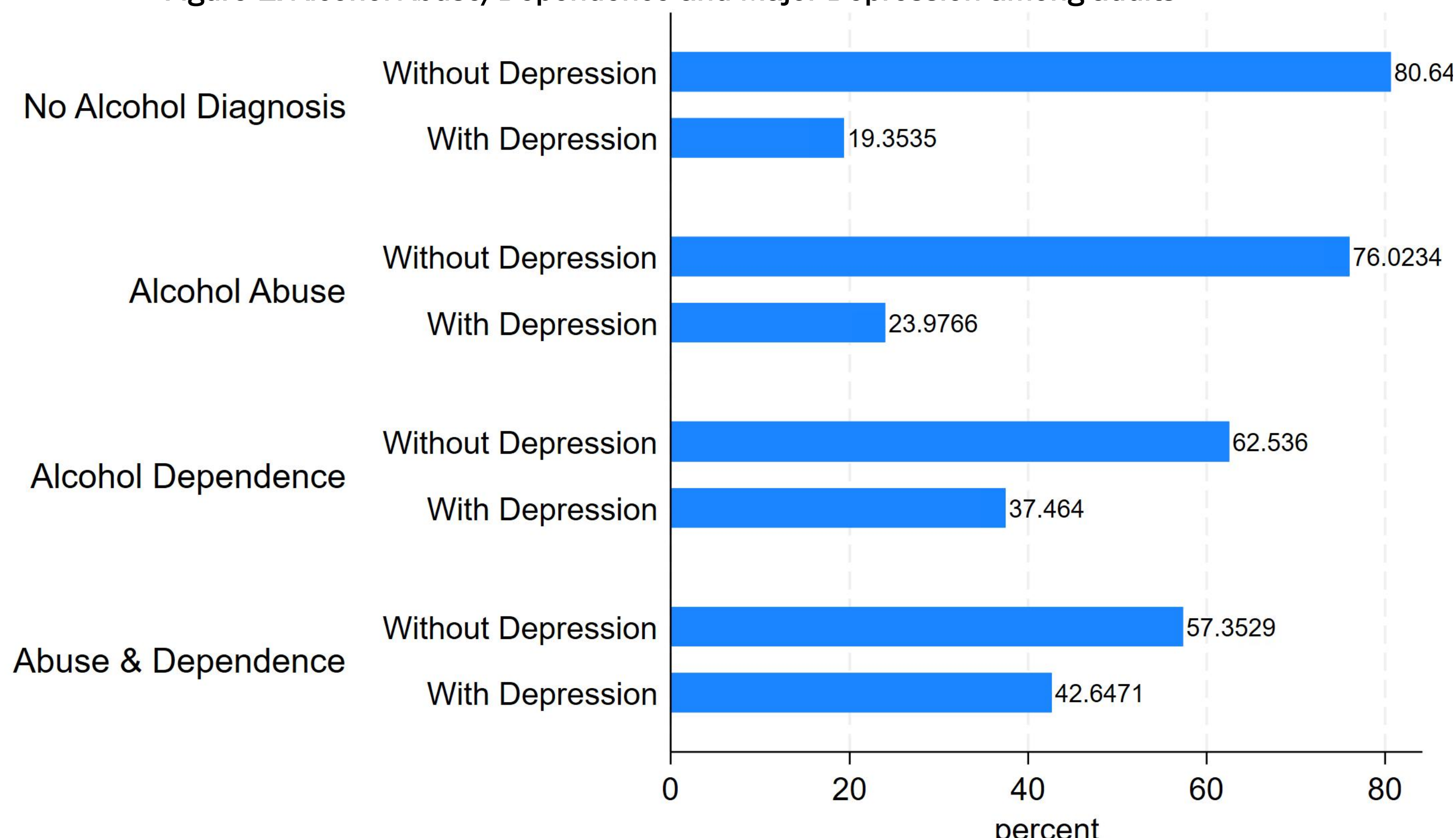
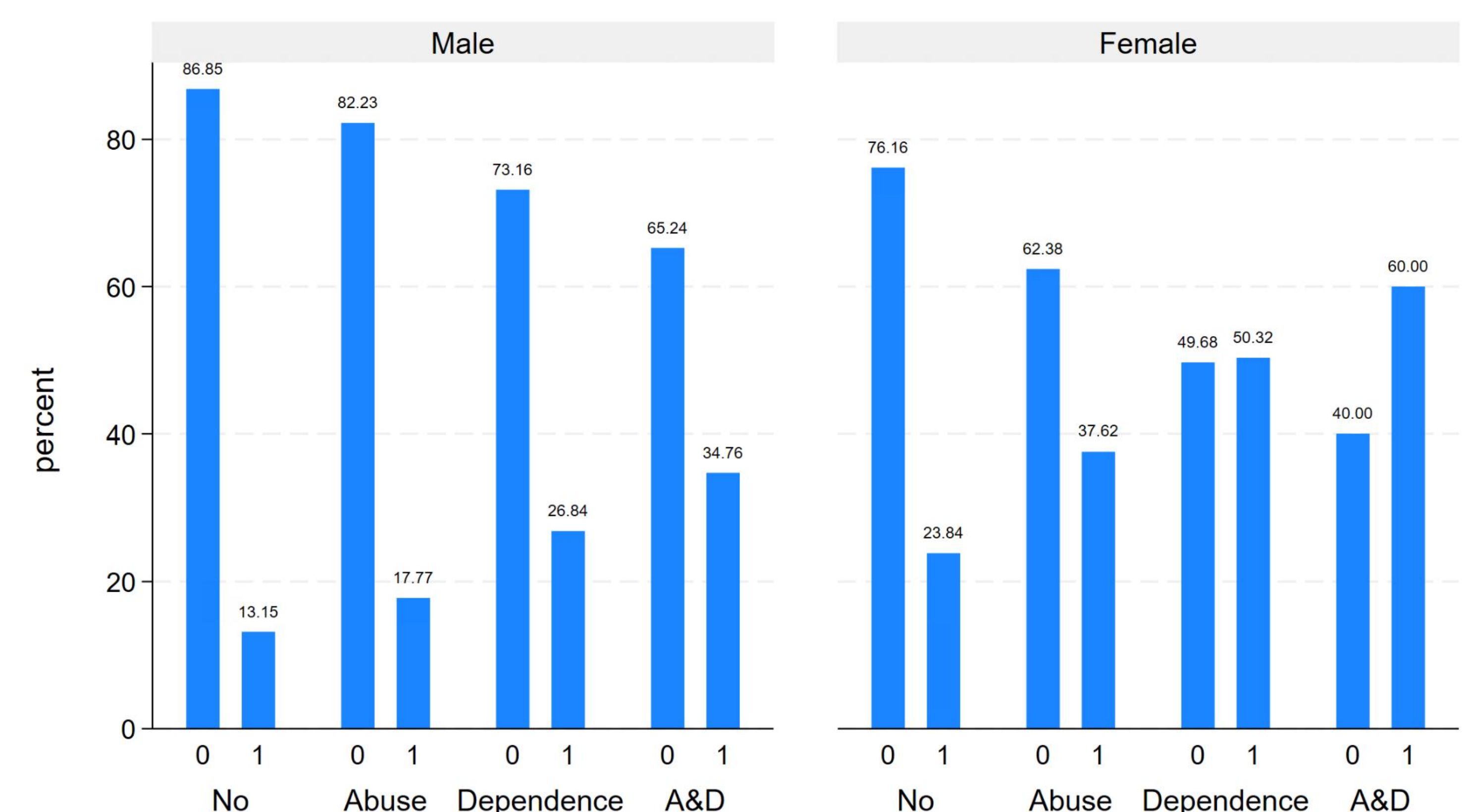


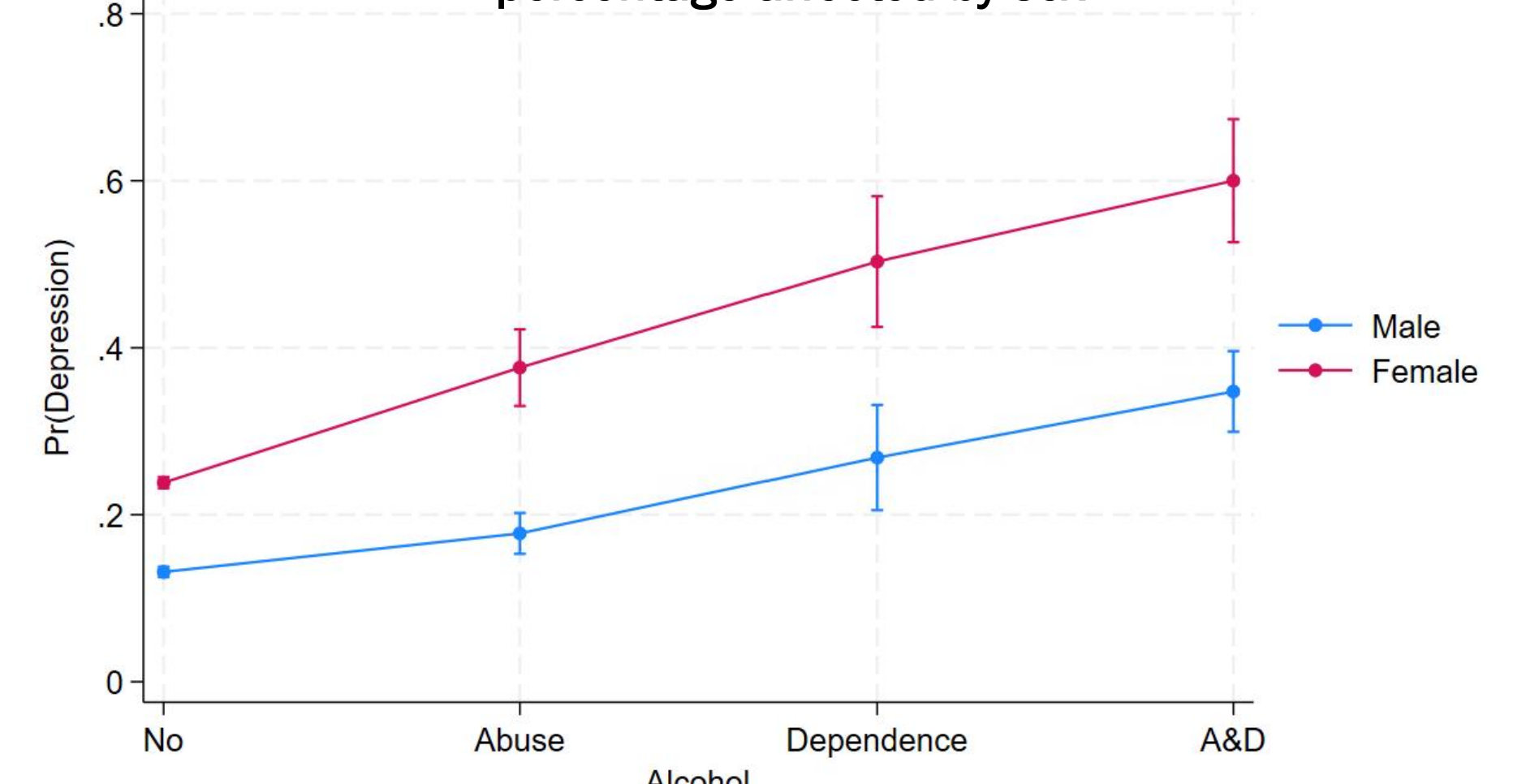
Figure 2: Alcohol abuse/dependence and major depression among adults, by males and females



Multivariate

- The association between abnormal alcohol use and major depression differs between males and females ($p\text{-value}<0.001$).
- Such that, the relationship is significantly stronger among females than among males, $OR=2.13$ (2.00-2.27).

Figure 3: Multiple logistic regression plot of alcohol and depression percentage affected by sex



Discussion

- The major depression diagnosis was significantly associated with increasing severity of alcohol abuse/dependence.
- The association was not uniform across sexes. Females showed a significantly stronger relationship between alcohol abuse/dependence and major depression than males.
- This reveals a tendency that the female's alcohol abuse behavior is more related to emotional issues. In other words, women are more likely to use alcohol to solve negative emotions.
- This pattern may reflect sex-specific pathways linking alcohol use and emotional distress, as suggested in prior research. Women may be more likely to consume alcohol in response to negative affect, consistent with the self-medication hypothesis.