Racial Disparities in the Prevalence of ADHD and Conduct Disorders

Noha Shalaby MS[1,2]; Sourav Sengupta MD, MPH[1]; Jamal B. Williams PhD[1]

[1]Department of Psychiatry, State University at Buffalo, Jacobs School of Medicine and Biomedical Sciences, [2]Erie County, New York State Public Health Corps

University at Buffalo
The State University of New York

Abstract:

Objective: The primary purpose of this study is to highlight trends in the prevalence of Attention Deficit/Hyperactivity Disorders (ADHD) and Conduct Disorders (CD) between non-Hispanic White and non-Hispanic Black populations and identify potential diagnostic disparities between these groups.

Methods: De-identified electronic health record data on the TriNetX platform of patients diagnosed with ADHD, CD, or both between January 2013 and May 2023 from 50 healthcare organizations in the US were used to investigate racial and sex disparities in the prevalence of ADHD and CD diagnoses.
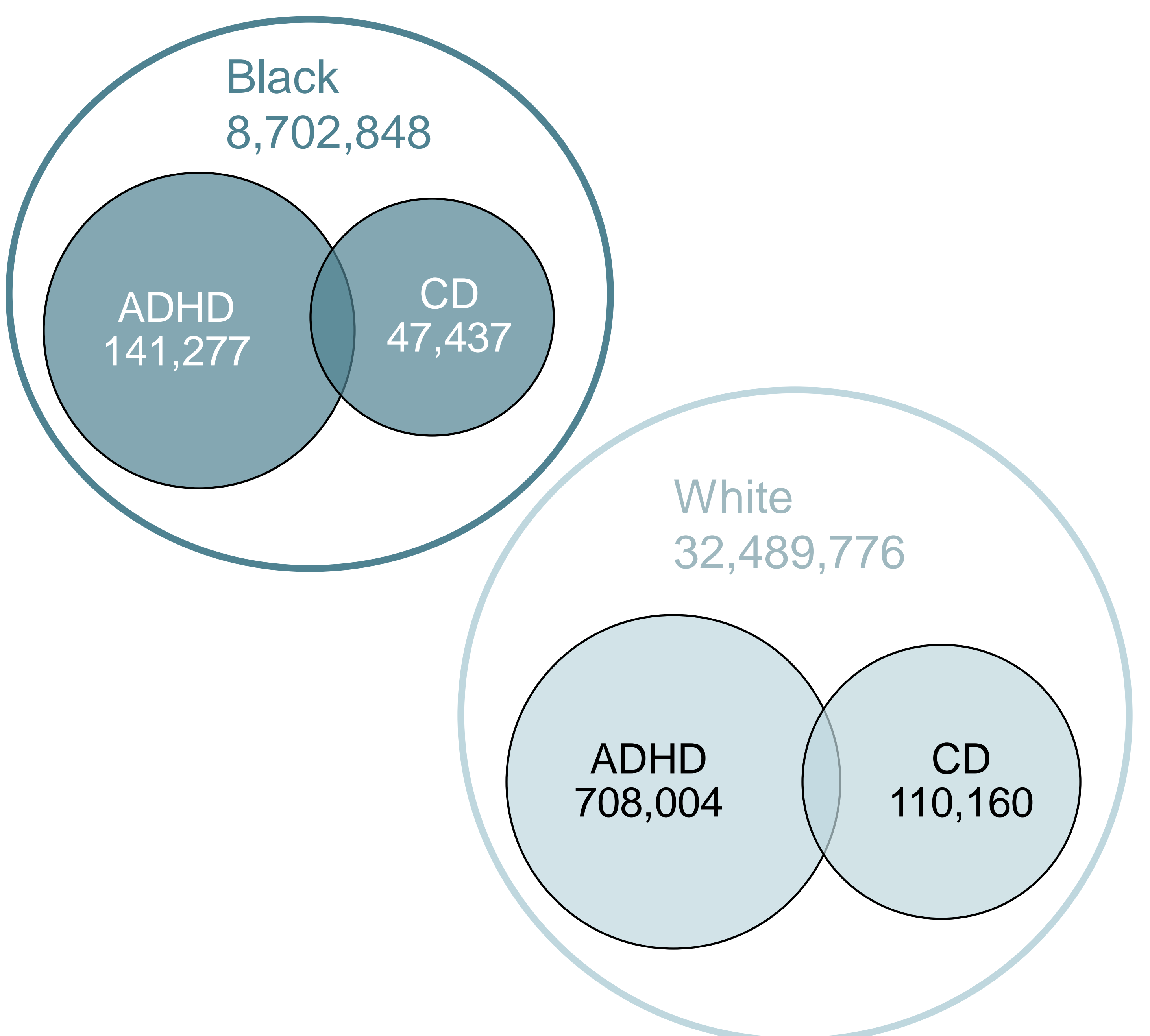
Results: With a cohort of 849,281 ADHD patients and 157,597 CD patients, non-Hispanic Whites were ~26% more likely to receive ADHD diagnosis and ~61% less likely to be diagnosed with CD than non-Hispanic Blacks. The mean age of diagnosis of ADHD was over 8 years higher for White patients than for Black patients, with a disproportionately higher number of White patients diagnosed in adulthood, compared to a comparatively negligible number of Blacks diagnosed with ADHD in the same age group. Additionally, Black females were the cohort least likely to be diagnosed with ADHD, while White females were the cohort least likely to be diagnosed with CD.

Conclusions: Race disparities exist between Black and White populations, and sex disparities exist within each population. More information is needed to determine contributors to these differences, although implicit biases and systemic racism may be key contributing factors. Presenting evidence and increasing awareness of culturally relevant diagnoses can reduce unconscious bias and move toward more informed and objective psychiatric evaluations.

Methods:

$$p = \frac{(A+B)!\,(C+D)!\,(A+C)!\,(B+D)!}{N!\,A!\,B!\,C!\,D!}$$
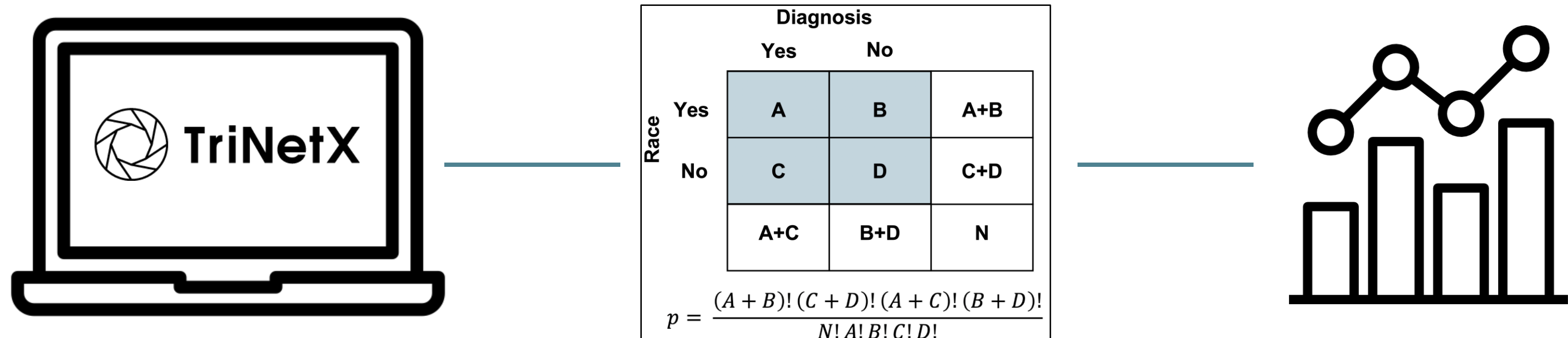
Population Distribution

Black 8,702,848
ADHD 141,277
CD 47,437

White 32,489,776
ADHD 708,004
CD 110,160

Prevalence of ADHD and CD Between Blacks and Whites

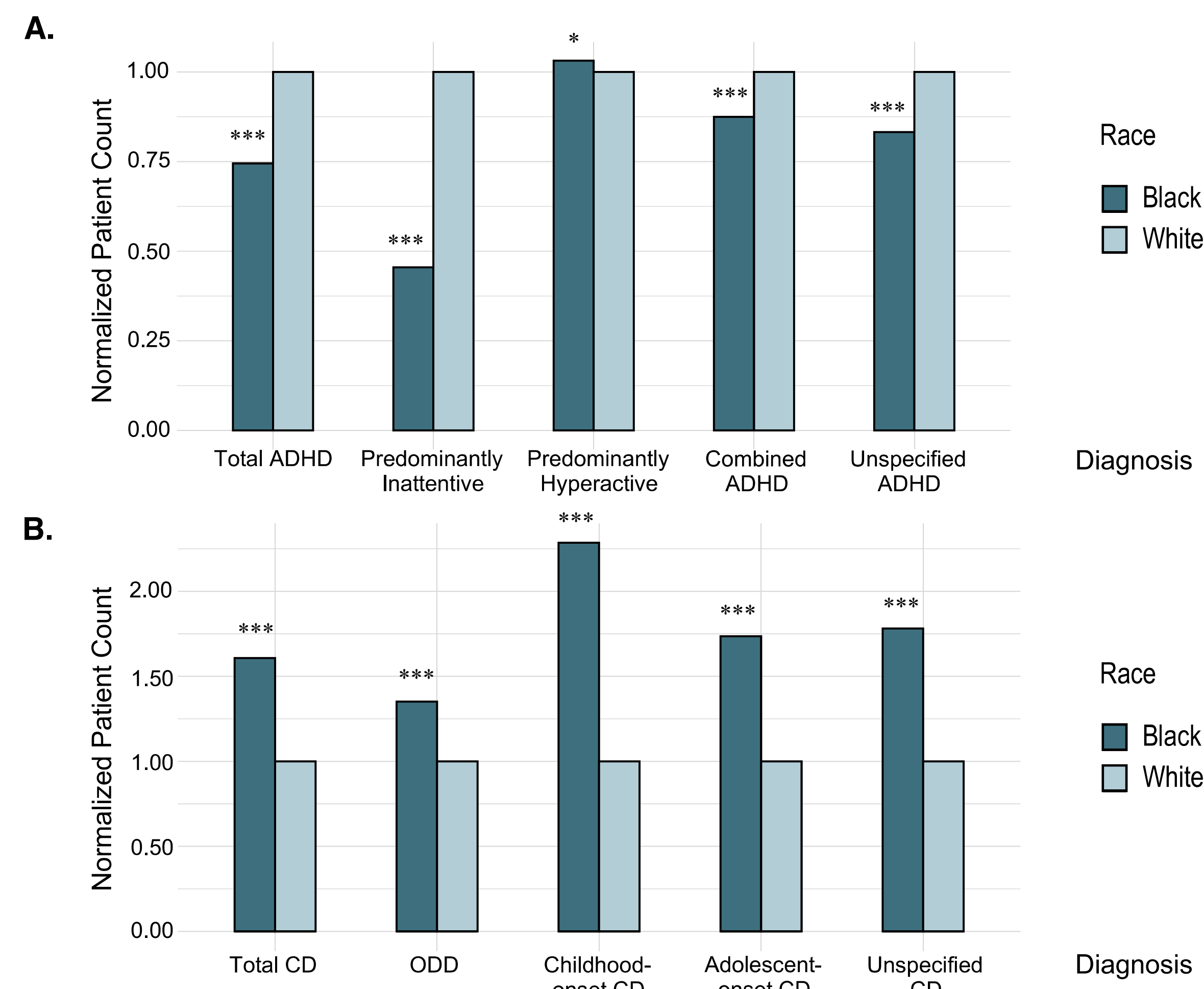

Figure 1. Normalized incidence of A. ADHD and its presentations, and B. CD and its presentations in Black and White populations. *p<0.01, ***p < 0.0001
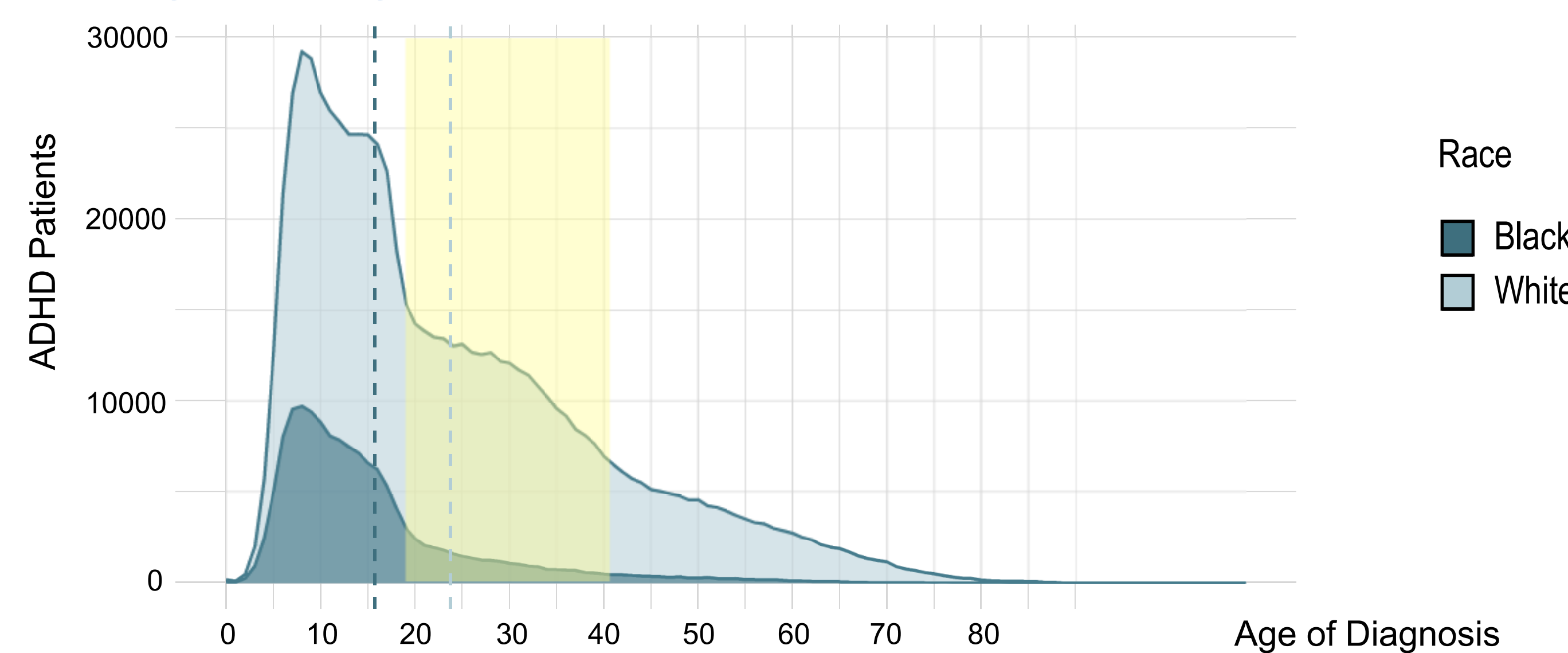
ADHD Age of Diagnosis Distribution

Figure 2. Density plot of the Age of Diagnosis distribution of ADHD in Black and White patients.

Sex Differences in ADHD and CD Prevalence Between Blacks and Whites
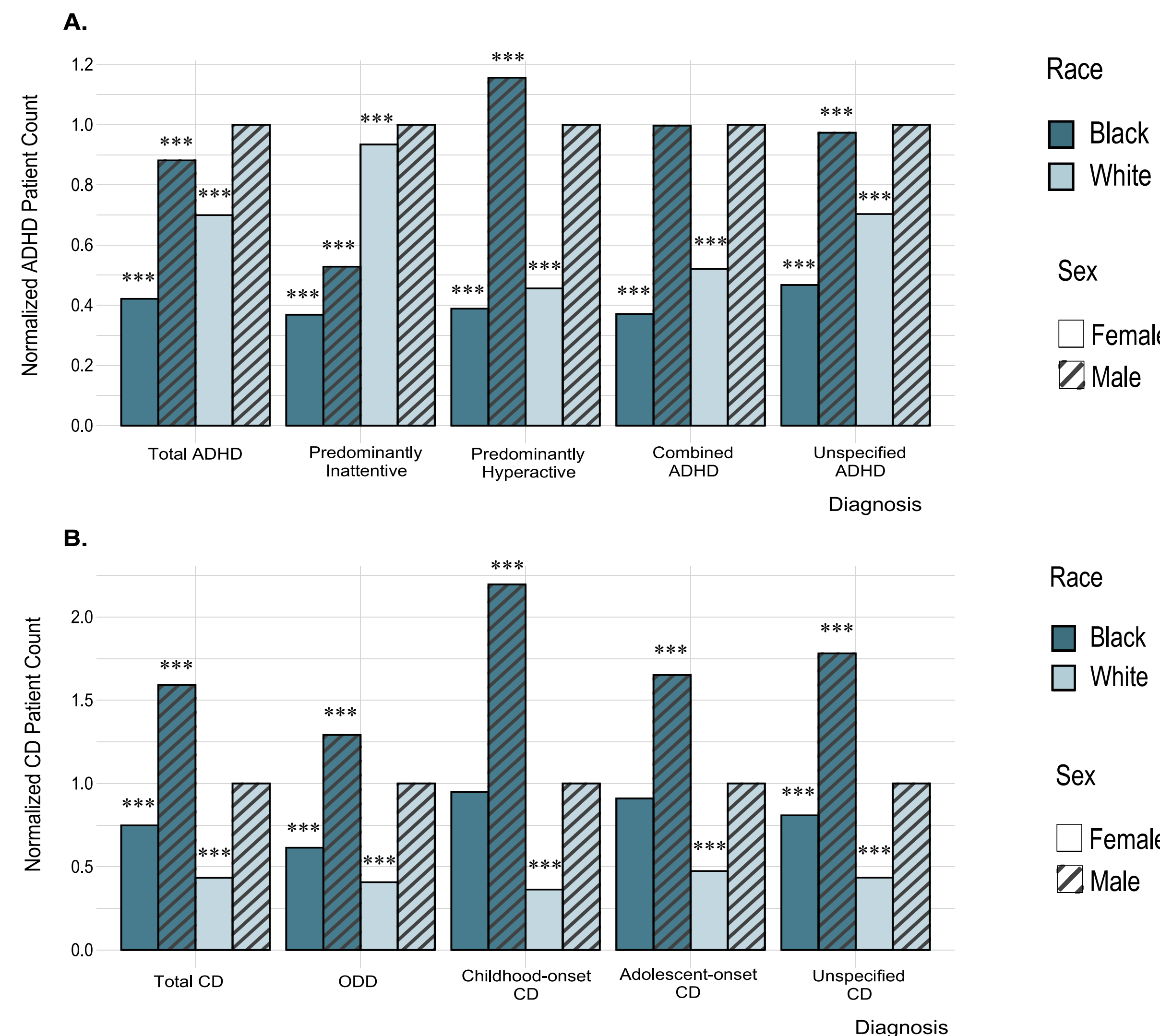

Figure 3. Normalized incidence of A. ADHD and its presentations and B. CD and its presentations in males and females in Black and White populations. ***p < 0.0001

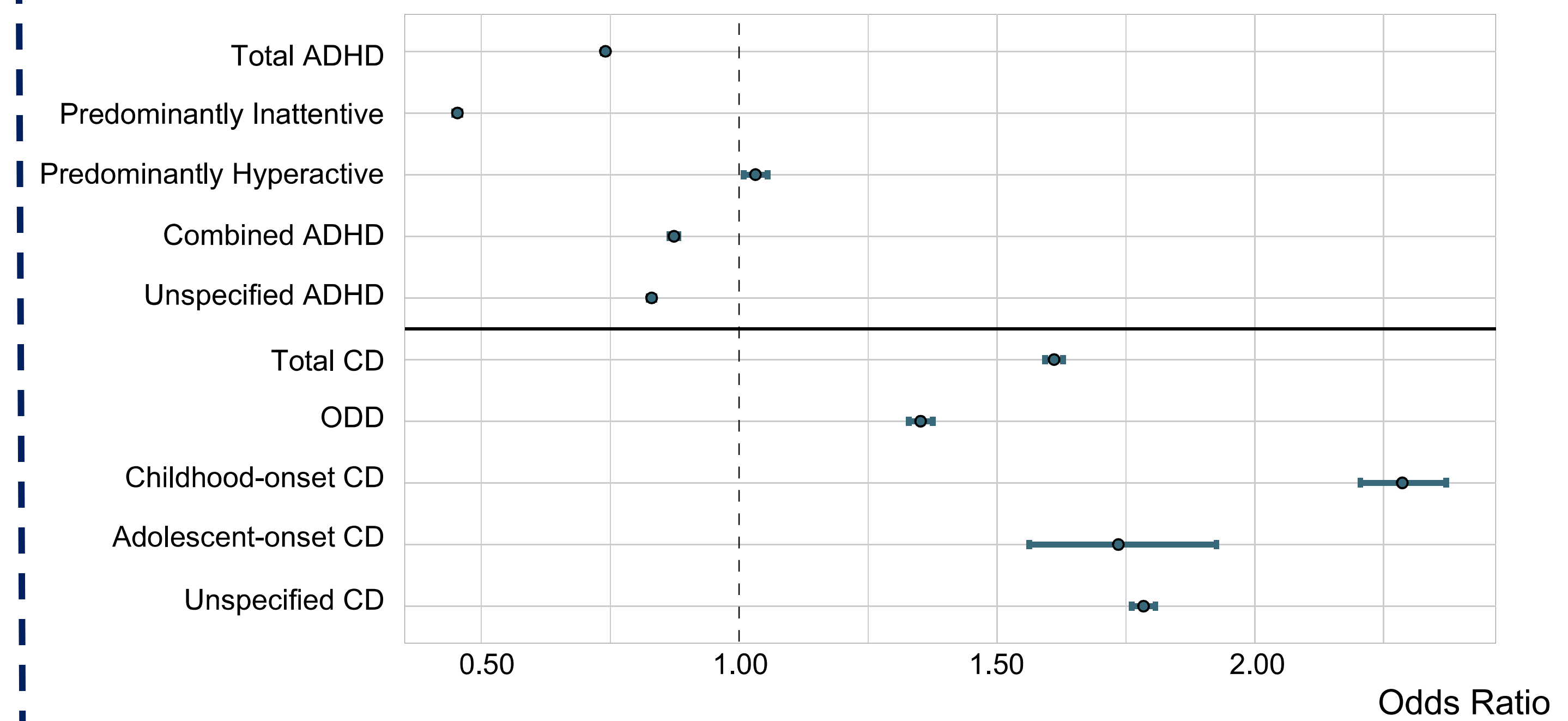## Incidence of ADHD and CD in Blacks compared to Whites

Figure 4. Odds Ratio and 95% confidence interval of the incidence of ADHD and CD and their presentations in the Black population compared to the White population.

Discussion:

Question: What is the relationship between ADHD and CD diagnoses in White and Black Americans?

Findings: In this cohort study that included 849,281 ADHD patients and 157,597 CD patients,
- non-Hispanic White patients were significantly more likely to be diagnosed with ADHD and significantly less likely to be diagnosed with CD than non-Hispanic Black patients,
- adult ADHD is diagnosed much more prominently in White adults compared to Blacks,
- Black females are the least prevalent group diagnosed with all presentations of ADHD and White females are the group least diagnosed with CDs.
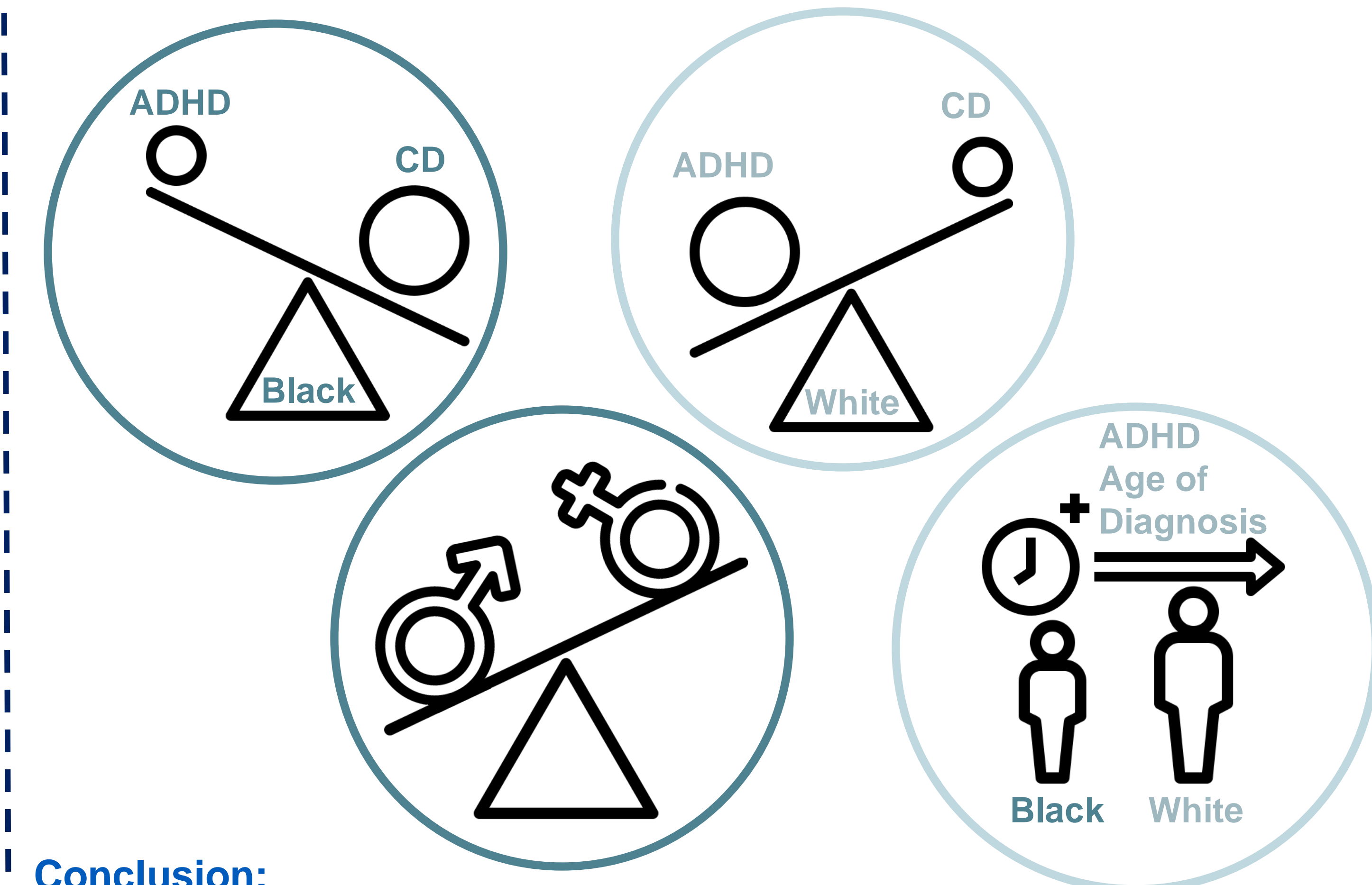
Conclusion:

- Racial and sex disparities exist in the diagnosis of ADHD and CD.
- Implicit biases and systemic racism may be key contributing factors.
- One concern related to overdiagnosis and overtreatment of ADHD is the potential harm stemming from diverting resources from other populations who may be underdiagnosed or undertreated.
- CD diagnosis could negatively impact the ability to detect inattentive or hyperactive behavior, limiting access to psychiatric evaluations, medication, and therapy. It could also lead to harsher disciplinary measures and exclusionary practices that could further compound mental and behavioral challenges.
- Presenting evidence and increasing awareness of culturally relevant diagnoses can reduce unconscious bias and move toward more informed and objective psychiatric evaluations.

Future Direction:

- Integrate patients' socioeconomic status and insurance status for a deeper understanding of racial disparities.
- Use detailed clinical symptom presentations, with quantifiable assessments compared to control cohorts, to analyze further and measure accurate rates of over- and under-diagnosis in suspected populations.