



What Factors Increase Risk of Alzheimer's Disease and Related Dementia?

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Alzheimer's disease is the most common form of dementia and ranks 7th in the leading causes of death in the United States (U.S.) In this study, we applied machine learning techniques to a nationwide dataset of 3,155 counties in the U.S. to identify the factors that best predict county-level rates of ADRD in 2018. We then ranked these factors by their relative contribution to ADRD prevalence rates and examined how different socioeconomic groups are affected by ADRD. The figure below shows the ranking of the top 15 factors predicting county-level ADRD prevalence in the U.S. Among the leading factors were insufficient sleep, consuming less than one serving of fruits and vegetables per day, having no high school diploma, Black population percentage, and social vulnerability (captured by multiple socioeconomic indicators). Our findings indicate that social and behavioral risk factors play crucial roles in the prevalence of ADRD. Fortunately, a large window of time between the preclinical stage of ADRD and the onset of its symptoms offers an opportunity to address modifiable risk factors. As the U.S. population ages, interventions to curtail ADRD should include educational materials geared toward behavioral modifications (e.g., diet, sleep) and structural interventions to reduce poverty and social vulnerability.

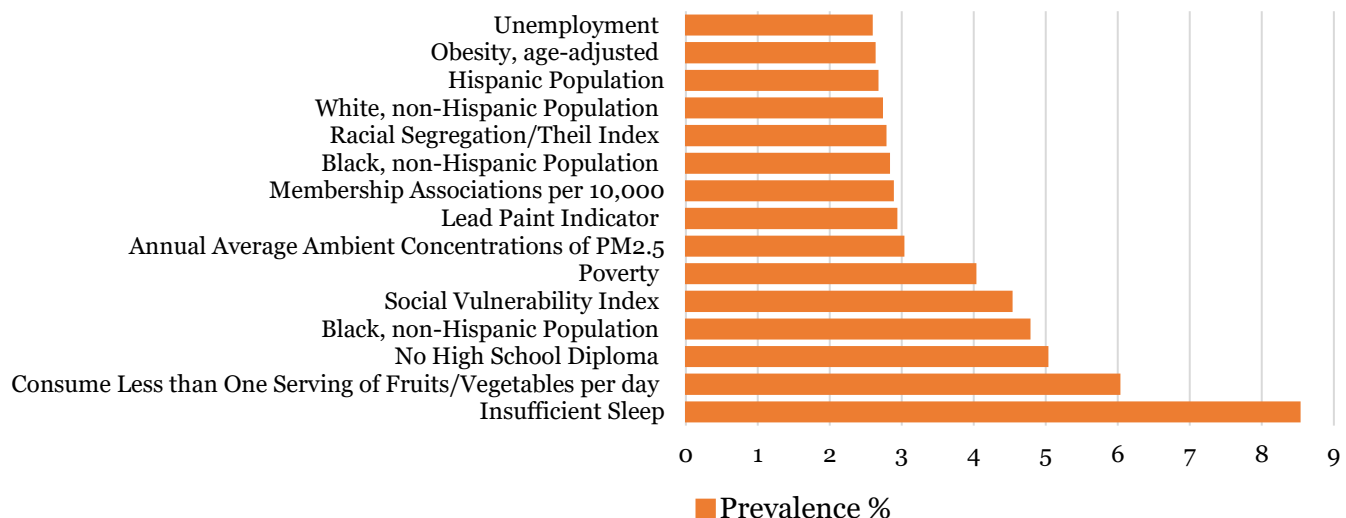


Figure 1: Ranking of the Top 15 Predictors Associated with County-Level ADRD Prevalence in the U.S., 2018

Data Source: We combined 11 data sources at the county level encompassing 2010 to 2021 that included 50 potential risk factors for ADRD. We used the machine learning method eXtreme Gradient Boosting to rank the importance of these factors by their relative contribution to the model performance. Additional methodological details and findings can be found in the [peer-reviewed paper](#).

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