

Cannabis Consumption and Psychosis Vulnerability Across Age Groups



Sebastian Kristal, Quantitative Analysis Center, Wesleyan University

Introduction

- Cannabis use in the U.S. has risen sharply due to legalization, cultural acceptance, and higher-potency products; past-year use increased 120 percent and days of use 218 percent from 2008–2022 (Caulkins, 2024).
- Concerns have grown about cannabis’ mental-health effects, especially its debated link to psychosis, including schizophrenia, manic depressive disorder, and schizoid personality disorder (NIDA; NIMH).
- Risk of psychosis is higher with early cannabis use, frequent use, and high-potency THC products, and is further shaped by genetic factors (COMT, AKT1) and environmental factors such as trauma and family history (Murray et al.; Manseau, 2015).
- Most studies focus only on first-episode psychosis; this project uses NESARC data to examine broader psychotic disorders and tests whether age of onset modifies the cannabis-psychosis relationship.

Methods

Sample

- Adults who participated in the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) were included in the study; NESARC is a nationally representative survey of non-institutionalized U.S. adults (N=43,093).
- The analytic sample consisted of respondents who reported ever using cannabis (n=8,172), representing about 19 percent of the full NESARC sample.

Measures

- Psychosis-related disorders were assessed in NESARC using DSM-based diagnostic items for schizoid personality disorder, schizophrenia, and manic depressive disorder, each originally coded as binary (0/1).
- Cannabis use was measured through NESARC’s medicine-use module, which includes items on lifetime use, past-12-month use, and frequency of use (“How often used cannabis in the last 12 months?”).
- Additional cannabis-related measures included age of first use, age of cannabis abuse, and quantity consumed (“Number of joints usually smoked per day”), with duration of use constructed by subtracting age of initiation from current age.

Research Questions

- What is the relationship between marijuana usage and a risk of psychosis?
- How does the person's age heighten or diminish that risk?

Results

Univariate

- A total of 19.13% of the sample population recorded have using cannabis before.
- A total of 3.3% of the sample population recorded yes to being diagnosed with schizoid personality disorder.
- A total of 0.92% of the sample population recorded yes to being diagnosed with schizophrenia.
- A total of 3.6% of the sample population recorded yes to being diagnosed with manic depressive disorder.

Bivariate

- Chi-square analysis showed a significant association between cannabis use and psychosis-related disorders, $\chi^2(3, N = 8,172) = 698.24, p < .0001$. Cannabis users were far more likely to meet criteria for a psychosis-related disorder (13.4%) than non-users (5.2%).
- Bonferroni-corrected post-hoc tests showed significant differences across almost all disorder levels ($p < .05$). The most common disorder among cannabis users was mild psychotic disorder, meaning only having 1 psychotic disorder (10.8%).
- As expected, cannabis use was significantly associated with psychosis-related disorders.

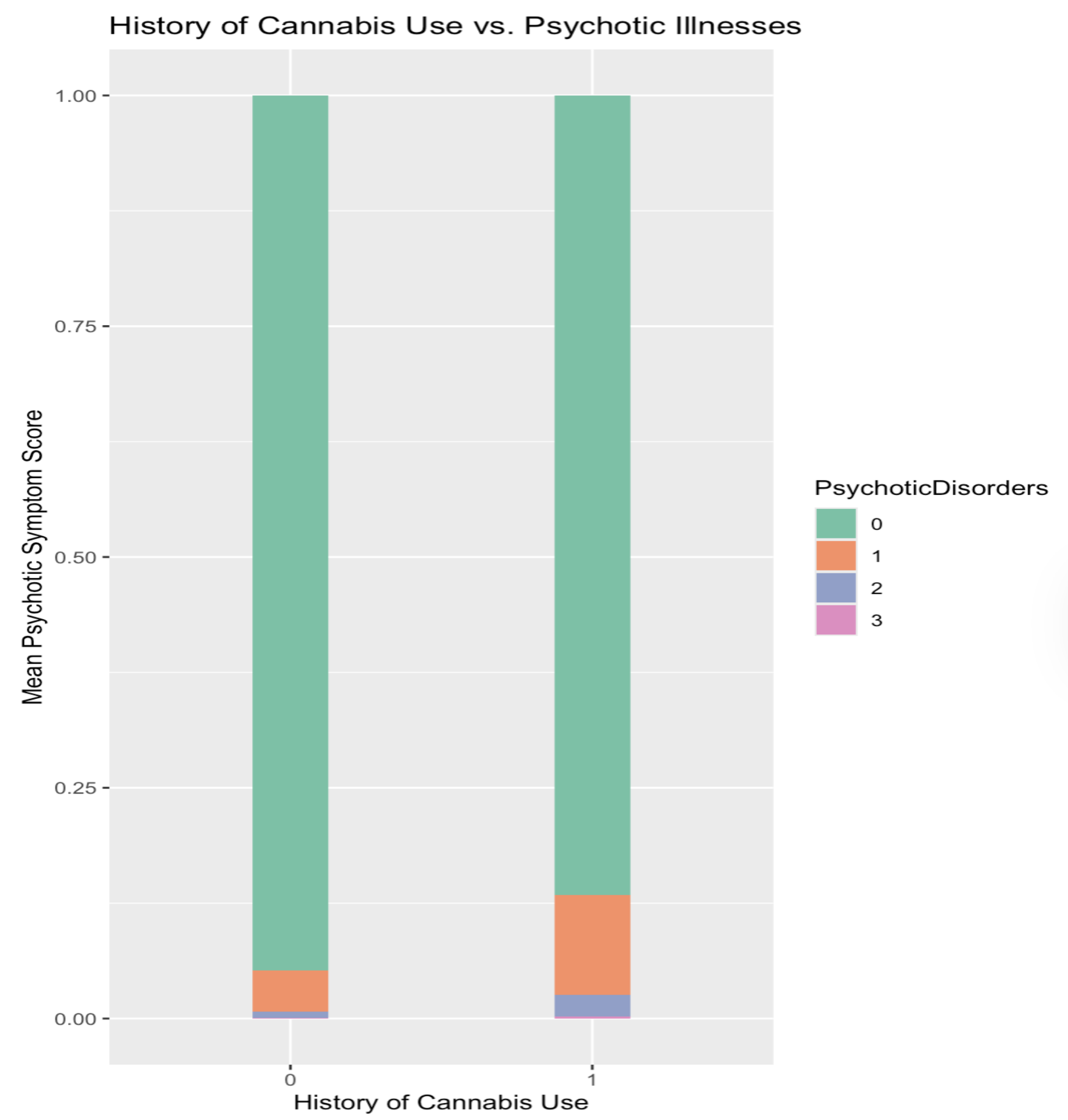


Figure 1: Mean Psychotic Disorder Score by Cannabis Use, Displaying Proportion of Individuals With 0–3 Diagnosed Psychotic Conditions

Multivariate

- Cannabis use was significantly associated with higher psychotic symptom scores after adjusting for age, indicating that individuals who reported cannabis use showed slightly elevated symptom levels compared to non-users.
- Age demonstrated a small but significant negative association with psychotic symptoms, suggesting that older adults tended to report fewer symptoms when cannabis use was held constant.
- At each level of age, the expected probability of psychotic symptoms remained higher among cannabis users than non-users, though the overall effect size was small.

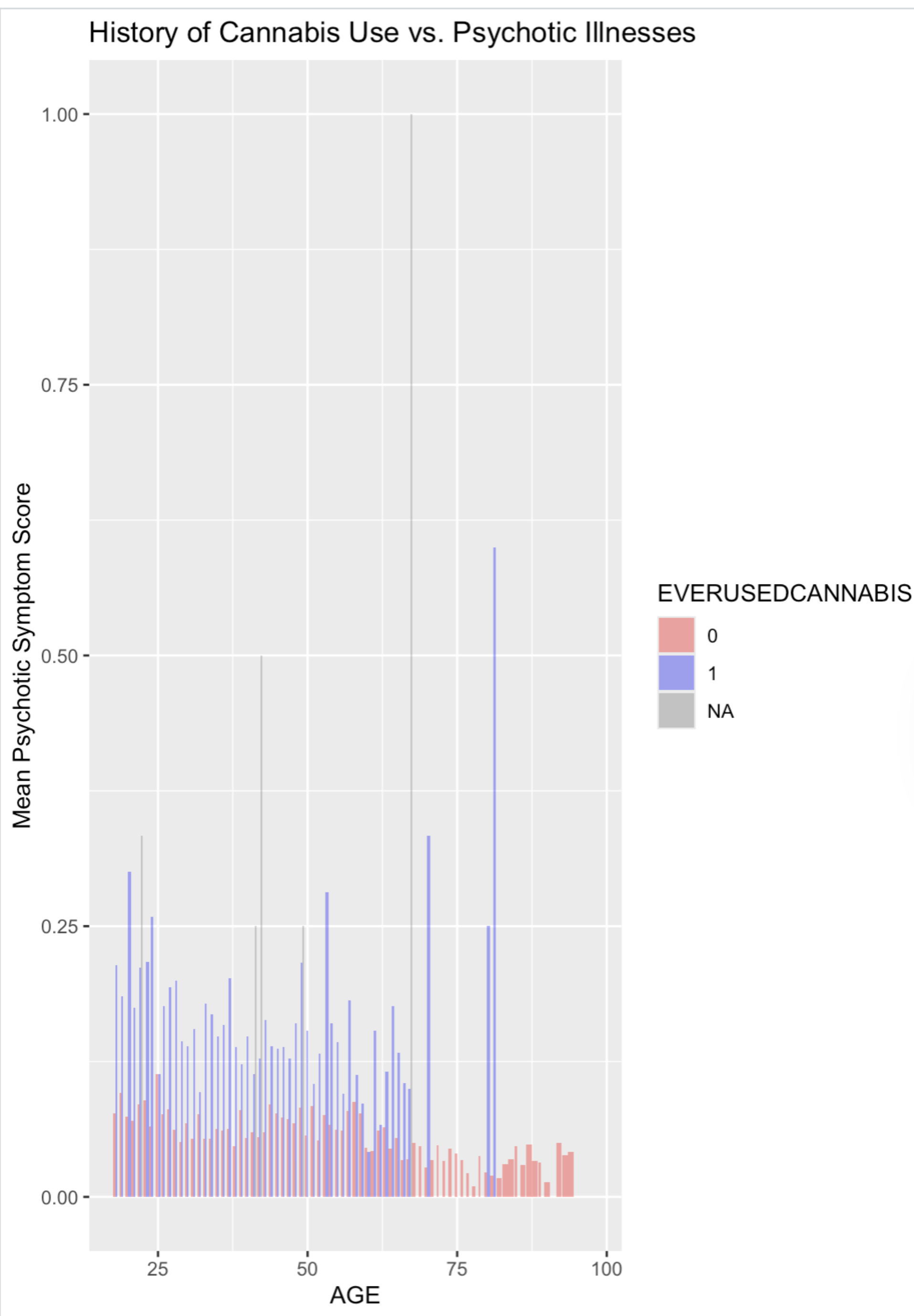


Figure 2: Mean Psychotic Symptom Score by Age Stratified by Lifetime Cannabis Use Status.

Discussion

- After accounting for age, cannabis users demonstrated slightly elevated psychotic symptom scores compared to non-users, indicating a modest but consistent increase in symptom risk.
- Cannabis users showed greater fluctuation in psychotic symptom severity across age, including noticeable peaks in late adulthood, around 80 years old, indicating that elevated symptoms are not limited to early-age onset.
- Age showed a small but significant negative association with psychotic symptoms overall, yet visible symptom spikes among older cannabis users indicate that declines with age are not uniform and may intensify later in life.
- Prevention messaging may still prioritize delaying cannabis use in adolescents, but findings also indicate that symptom vulnerability may persist or re-emerge later in adulthood, broadening the window for public-health intervention.
- Longitudinal studies are needed to determine whether cannabis use itself leads to psychotic symptoms, or if people who are already more vulnerable are both more likely to use cannabis and develop symptoms later in life.

Caulkins, J. P. (2024). Changes in self-reported cannabis use in the United States from 1979 to 2022. *Addiction*, 119(9), 1648–1652. <https://doi.org/10.1111/add.16519>

Manseau, M. W., & Goff, D. C. (2015). Cannabinoids and schizophrenia: Risks and therapeutic potential. *Neurotherapeutics*, 12(4), 816–824. <https://doi.org/10.1007/s13311-015-0382-6>

Murray, R. M., Quigley, H., Quattrone, D., Englund, A., & Di Forti, M. (2016). Traditional marijuana, high-potency cannabis and synthetic cannabinoids: Increasing risk for psychosis. *World Psychiatry*, 15(3), 195–204. <https://doi.org/10.1002/wps.20341>

National Institute on Drug Abuse. (2024, September). *Cannabis (marijuana)*. National Institute on Drug Abuse. <https://nida.nih.gov/research-topics/cannabis-marijuana>

Understanding psychosis | National Institute of Mental Health (NIMH). (n.d.). Retrieved September 26, 2025, from <https://www.nimh.nih.gov/health/publications/understanding-psychosis>