

# Trends and Disparities in Mental Health Among Cannabis Users in the U.S., 2016–2023

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## Short Report

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# Abstract

This study examined national trends in poor mental health among cannabis users and explored disparities by consumption mode, age, sex, races and ethnicities. Between 2016 and 2023, the prevalence among cannabis users increased from 54.54% to 67.88%. Prevalence was highest among vaping users (76.96%) and dabbing users (77.18%). Females reported higher rates than males (77.08% vs. 60.14%), and young adults aged 25–34 showed the largest increases (from 51.42% to 77.67%). Hispanic (69.17%) and multiracial users (67.25%) exhibited the highest prevalence in 2023. Findings underscore the need for preventive mental health screening and targeted counseling as cannabis legalization expands.

## Introduction

Cannabis is the most commonly used federally illicit substance in the U.S.,<sup>1</sup> and its use has increased rapidly over the past decade. As more states legalize medical and recreational cannabis, access has expanded nationwide, accompanied by a notable increase in the potency of  $\Delta$ 9-tetrahydrocannabinol (THC) in consumer products.<sup>2</sup> These shifts have increased the risks of cannabis use disorders (CUD), raising concern over the potential adverse mental health consequences.

Prior research has shown associations between cannabis use and symptoms of depression, anxiety, and psychosis,<sup>3</sup> but population-level data examining recent mental health trends among cannabis users are limited. Moreover, disparities in cannabis-related mental health outcomes across demographic and behavioral subgroups remain poorly understood. Understanding these trends is critical for prevention and public health policy as legalization continues to expand. This study aimed to (1) evaluate national trends in the prevalence of poor mental health among cannabis users between 2016 and 2023 and (2) identify disparities by mode of consumption, age, sex, races and ethnicities using nationally representative data.

## Methods

### Data Source and Study Population

We analyzed 2016–2023 data from the nationally representative Behavioral Risk Factor Surveillance System (BRFSS),<sup>4</sup> which is a nationally representative and state-based survey conducted by the U.S. Centers for Disease Control and Prevention (CDC). The analytic sample included adults  $\geq 18$  years who responded to questions on cannabis use and mental health status.

### Measurements

Cannabis use was measured by the survey question, “During the past 30 days, on how many days did you use marijuana or cannabis?”. Respondents who reported using cannabis on at least one day in the past 30 days were classified as cannabis users. Those who answered “none” were categorized as non-

users, while responses of “don’t know,” “refused,” or missing values were excluded from analyses. Cannabis users were further classified by consumption mode: smoking, eating, vaping, dabbing, or other.

Poor mental health was assessed by the question “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?”. Respondents who reported one or more days of poor mental health were classified as having poor mental health. Those reporting none were categorized as having good mental health. Participants who responded, “don’t know,” “refused,” or had missing values were excluded from analysis.

## Data Analysis

This study incorporated BRFSS sampling weights to account for the complex survey design and generate nationally representative estimates. Analyses were stratified by mode of use, age, sex, races and ethnicities.

## Results

Cannabis users reported consistently higher prevalence of poor mental health than non-users, increasing from 54.54% in 2016 to 67.88% in 2023. (Figure A) Prevalence rose across all modes of use, with the largest increases among vaping (76.96% in 2023) and dabbing (77.18% in 2023), suggesting sharper increases with higher-potency consumption. (Figure B)

The prevalence of poor mental health increased rapidly across all age groups. (Figure C) Alarming, among those aged 18–24, the prevalence rose from 67.74% to 80.49%; while rates among those aged 25–34 experienced the largest rise, from 51.42% to 77.67%, a 51% increase over just 7 years. Prevalence also rose to 68.69% among those aged 35–44 and 63.39% among those aged 45–54.

Female cannabis users consistently reported a higher prevalence of poor mental health compared with males, but the difference was decreasing. (Figure D) From 2016 to 2023, prevalence among females increased from 69.54% to 77.08%, while among males it rose from 44.95% to 60.14%.

Prevalence increased across all racial and ethnic groups. (Figure E) In 2023, Hispanics reported the highest prevalence (69.17%), followed by non-Hispanic Whites (68.48%). The greatest relative increase occurred among other races (45.26% in 2016 to 67.25% in 2023, a 48.60% increase), while non-Hispanic Blacks showed the slowest growth and the lowest overall prevalence (64.96% in 2023).

## Discussion

From 2016 to 2023, cannabis users experienced a rising and disproportionate burden of poor mental health, with the highest prevalence among those using high-potency modalities, young adults, females,

and Hispanics. Use of vaping and dabbing—modes associated with higher THC exposure, was linked to greater prevalence, underscoring potential risks of high-potency products.<sup>5</sup>

Younger adults (18–24) reported the highest prevalence of poorer mental health, consistent with the neurodevelopmental vulnerability of the brain during young adulthood.<sup>6</sup> Poorer outcomes among females may reflect hormonal influences, metabolic differences, and endocannabinoid variation.<sup>7</sup> Hispanic users had the highest burden, likely reflecting both baseline disparities in mental health<sup>8</sup> and structural barriers to care, including unfair treatment and limited awareness of services.<sup>9</sup>

Adults aged 25–34 showed the largest relative increase, possibly due to increased life stressors, perceived safety, peak cannabis use, and limited mental health supports. Other racial groups, including Asian, Native American, Pacific Islander, and multiracial individuals, experienced the steepest increases, probably linked to expanded cannabis availability after legalization and persistent barriers to culturally competent care.<sup>9</sup>

This study has several limitations. First, the cross-sectional design of the BRFSS limits causal inference; it cannot determine whether cannabis use preceded poor mental health. Second, the BRFSS relies on self-reported data, which may be subject to recall bias and social desirability effects, potentially underestimating true cannabis use or mental distress. Third, the survey does not measure cannabis potency, dosage, or type of product, limiting the ability to disentangle potency-related effects. Finally, because state-level policy data were not linked at the respondent level, variations by legalization environment should be interpreted cautiously.

Clinicians should incorporate systematic screening for cannabis use and related mental health symptoms into routine care, especially for younger adults, females, and individuals using high-potency products. The sharpest increases observed among adults aged 25–34 and among Hispanic and multiracial populations underscore the need to strengthen early adult mental health programs and reduce inequities in access to culturally competent care.

Policymakers should consider implementing THC potency caps, warning labels on high-potency products, and restrictions on marketing directed toward youth and young adults. Additionally, funding should be expanded for community-based mental health and substance use services, particularly in disproportionately affected minority communities. Targeted public education campaigns should address misconceptions about the safety of cannabis, highlight risks of frequent and high-potency use, and promote help-seeking behaviors. Together, these coordinated clinical, policy, and educational interventions can help mitigate the mental health burden associated with cannabis use in the context of expanding legalization.

## Conclusions

Poor mental health among cannabis users has increased substantially, with disproportionate impacts on young adults, women, and racial and ethnic minorities. As legalization expands, coordinated clinical screening, public education, and regulatory actions are urgently needed to address the mental health risks associated with frequent and high-potency cannabis use.

## Declarations

**Ethics approval and consent to participate:** The University of South Carolina Institutional Review Board approved this study. Because we used deidentified data from the Behavioral Risk Factor Surveillance System (BRFSS), the University of South Carolina Institutional Review Board has waived the need for informed consent for this study. Specifically, the Office of Research Compliance, on behalf of the Institutional Review Board, approved the referenced study. This study was conducted in accordance with the Declaration of Helsinki.

**Consent for publication:** Not applicable.

**Data Sharing Statement:** The data that support the findings of this study are publicly available from the U.S. Centers for Disease Control and Prevention (CDC) through the Behavioral Risk Factor Surveillance System (BRFSS). No additional unpublished data are available from the authors.

**Competing interests:** The authors declare that they have no competing interests.

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**Author Contributions:** Conceptualization: GLV, ZKL, JY; Data curation: XJ, ZKL; Formal Analysis: XJ, ZKL; Methodology: GLV, XJ, ML, JY, ZKL; Project administration: ZKL; Writing, review & editing: GLV, XJ, ML, JY, ZKL.

**Clinical trial number:** Not applicable.

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## Figures

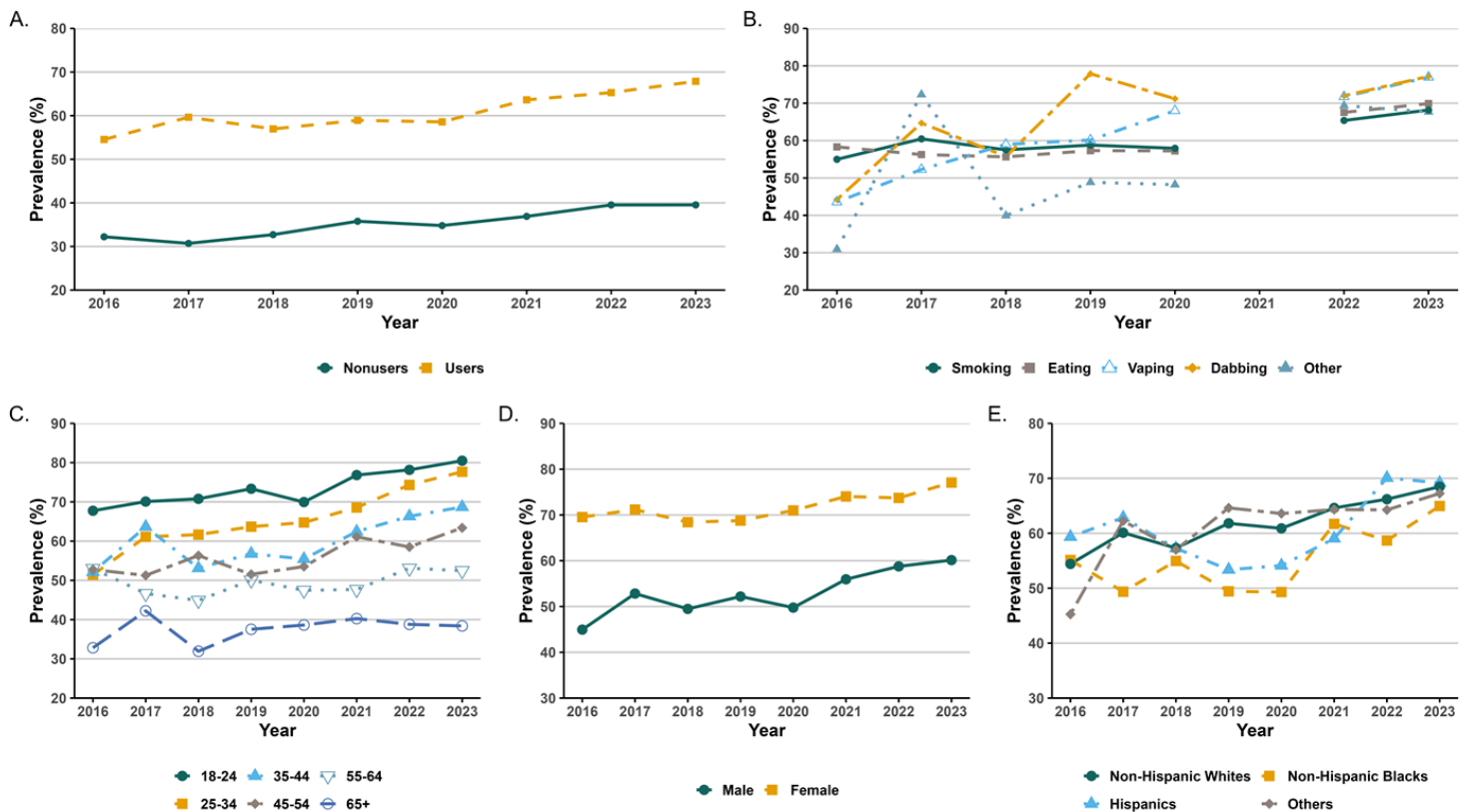


Figure 1

Trends in Weighted Prevalence of Poor Mental Health among U.S. adults, 2016–2023. A. Trends by cannabis use status; B. Trends by consumption modes; C. Trends by age group; D. Trends by sex; E. Trends by races and ethnicities.