

Short review

EXPLORING THE ASSOCIATION BETWEEN PSYCHOLOGICAL DISTRESS AND CANNABIS EDIBLE USE AMONG U.S. ADULTS: A SHORT REVIEW

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ABSTRACT:

Cannabis edibles have become increasingly popular in the United States (U.S), however, limited research has explored their relationship with mental health. This study examined whether adults experiencing past-month psychological distress were more likely to use cannabis edibles compared with those without distress. Data were drawn from the 2023 National Survey on Drug Use and Health (NSDUH). Adults aged ≥ 18 years were included. Past-month cannabis edible use (IRMJMONEAT) was the dependent variable, and past-month psychological distress (SPDPSTMON) was the primary predictor variable. Weighted prevalence estimates and survey-weighted logistic regression models were applied, adjusting for relevant sociodemographic and behavioral factors. The Weighted prevalence of edible use was 5.6% (95% CI 5.2–5.9) among adults without distress and 13.5% (95% CI 12–15) among those with distress. In the adjusted regression models, psychological distress was significantly associated with edible use (AOR = 1.44, 95% CI 1.21–1.71, $p < 0.001$). In conclusion the psychological distress was independently associated with high cannabis edible use among U.S. adults. These findings underscore the importance of integrating mental-health screening and harm-reduction strategies into cannabis prevention and treatment frameworks.

Keywords: Psychological distress, cannabis edibles, substance use, mental health

INTRODUCTION

Cannabis legalization across the United States has contributed to the growing availability and acceptance of alternative cannabis products, including edibles such as gummies, chocolates, and beverages. These products are often perceived as more discreet and potentially safer alternatives to smoking or vaping, attracting both novice and regular consumers (1,2,3). However, the pharmacological characteristics of edibles differ markedly: oral ingestion leads to delayed onset and prolonged duration of psychoactive effects, increasing the likelihood of accidental overconsumption, anxiety, and impaired judgment (4,5).

Psychological distress—comprising symptoms of anxiety, depression, and emotional suffering—has been consistently associated with higher cannabis use and misuse (6,8). Individuals experiencing distress often report using cannabis for self-medication or to manage psychological symptoms (9,10). Yet, frequent or high-potency cannabis consumption may exacerbate anxiety and depressive symptoms, suggesting a potential bidirectional relationship between cannabis use and mental health (12,13). Opioid and other drug use can further intensify mental health challenges and often overlaps with cannabis behaviors, including marijuana edible consumption. National data show that approximately 48% of individuals with opioid use disorder experience co-occurring depression or anxiety, and nearly 32% report serious psychological distress or suicidal ideation (7,14). Among people engaging in polysubstance use involving opioids, alcohol, and cannabis, the prevalence of depressive symptoms rises to over 55%, and anxiety disorders exceed 40%, compared with less than 15% among non-users. Marijuana edibles, often perceived as safer alternatives, are increasingly used for emotional regulation or relief of withdrawal symptoms, yet their delayed onset and prolonged psychoactive duration frequently lead to overconsumption, panic, or mood destabilization. Evidence suggests that individuals with prior opioid or stimulant use are two to three times more likely to consume high-potency cannabis products or edibles, heightening risks of paranoia, cognitive decline, and depressive relapse (8,11). This convergence of substance uses and psychological distress illustrates a reinforcing, cycle in which self-medication perpetuates emotional dysregulation, underscoring the urgent need for integrated, dual-diagnosis prevention and treatment strategies.

Despite these findings, limited research has explored how psychological distress relates specifically to cannabis edible use, a distinct consumption method with unique pharmacological risk and behavioral patterns. This study aims to assess the association between past-month psychological distress and cannabis edible use among U.S. adults using 2023 NSDUH data. It was hypothesized that adults with psychological distress would have significantly greater odds of edible use compared with those without distress.

METHODS

This cross-sectional study utilized data from the 2023 National Survey on Drug Use and Health (NSDUH), conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA). The NSDUH employs a multistage, stratified probability sampling design to represent the civilian, noninstitutionalized population of the United States aged ≥ 12 years. Data collection was performed using computer-assisted personal human-subject review because the data are fully de-identified. The analytic sample was restricted to adults aged ≥ 18 years (CATAG3 $\neq 1$). Participants were included if they provided valid responses for both variables: psychological distress (SPDPSTMON) and cannabis edible use (IRMJMONEAT). Cases with missing, incomplete, or invalid responses were excluded from the analysis. Sampling weights, strata, and primary sampling units (PSU) were applied to produce nationally representative estimates.

The dependent variable in this study was *past-month cannabis edible use*, assessed using the NSDUH item *IRMJMONEAT*, which asked respondents whether they had consumed cannabis-infused food products or beverages during the past 30 days. Responses were dichotomized as 1 = yes and 0 = no.

The primary independent variable was *past-month psychological distress*, measured using the *SPDPSTMON* item derived from the six-item Kessler Psychological Distress Scale (K6). Respondents reporting moderate-to-severe psychological distress during the past 30 days were coded as 1 (yes), while those reporting no psychological distress were coded as 0 (no).

Covariates included a range of sociodemographic and behavioral characteristics previously associated with cannabis use. These comprised age group, gender, race/ethnicity, sexual identity, educational attainment, annual household income, and metropolitan residence status. Policy-related and behavioral factors were also considered, including state-level medical marijuana law (MML) status, *past-month tobacco use*, and *past-month alcohol use*. All variables followed the definitions provided in the NSDUH public-use codebook to ensure comparability with prior national analyses. Survey design variables (weights = ANALWT2_C, strata = VESTR_C, and PSUs = VEREP) were incorporated using the survey and srvyr packages in R (version 4.3.3). Weighted prevalence estimates were calculated using `svyby()`, and survey-weighted logistic regression models were performed using `svyglm()` to estimate adjusted odd ratios (AORs) and 95% confidence intervals (CIs). A p-value of < 0.05 was considered statistically significant.

RESULTS

Among U.S. adults aged ≥ 18 years, the weighted prevalence of past-month cannabis edible use was 5.6% (95% CI 5.2–5.9) among those without psychological distress and 13.5% (95% CI 12–15) among those with distress (Figure 1). This represents a more than twofold difference in prevalence between groups. Adults experiencing psychological distress were significantly more likely to have used cannabis edibles within the past month, suggesting a meaningful association between emotional suffering and non-inhaled cannabis use.

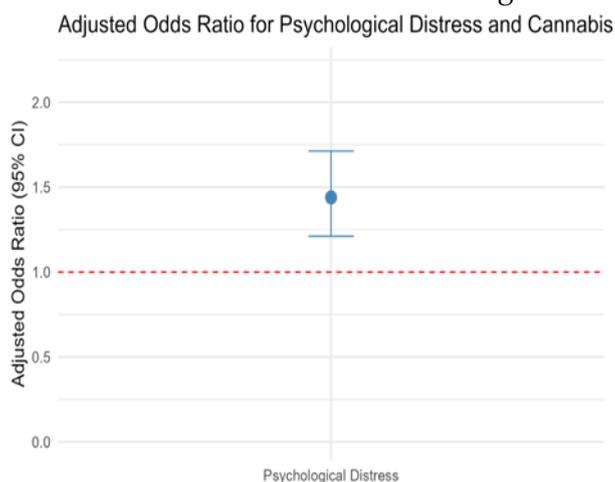


Figure 1. The adjusted odds ratio for the association between psychological distress and past-month cannabis edible use among U.S. adults. The plot shows that individuals experiencing psychological distress had significantly higher odds of consuming cannabis edibles (AOR = 1.44, 95% CI: 1.21–1.71) compared to those without distress. The confidence interval lies entirely above the null value of 1.0, indicating a statistically significant and positive relationship. This finding reinforces that psychological distress is an independent and consistent predictor of cannabis edible use, even after adjusting for demographic, behavioral, and policy-level covariates.

When examined across sociodemographic categories, edible use was highest among young adults aged 18–34 years and progressively declined with age. Women demonstrated slightly higher rates of edible use than men, while sexual-minority adults exhibited disproportionately higher prevalence compared with heterosexual adults. Edible use was also more common among individuals with some college education and those living in metropolitan areas. Additionally, respondents from states with medical marijuana laws (MMLs) reported higher use, reflecting greater product accessibility and social acceptance.

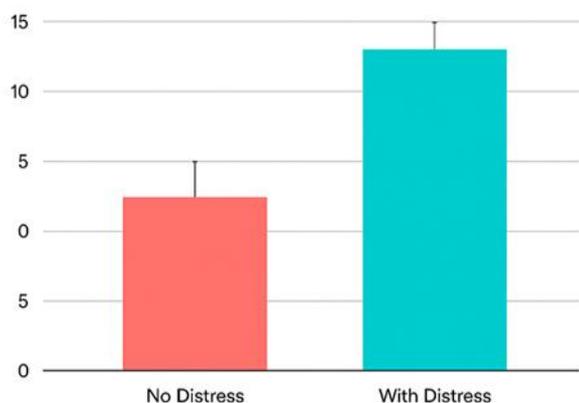


Figure 2. Weighted prevalence of past-month cannabis edible use by psychological distress among U.S. adults (NSDUH 2023)

Figure 2. The weighted prevalence of past-month cannabis edible use among U.S. adults, comparing individuals with and without psychological distress based on 2023 NSDUH data. The results show a marked difference between groups—those without distress reported an edible use rate of approximately 5.6%, while individuals experiencing psychological distress reported a substantially higher rate of 13.5%. The error bars reflect narrow confidence intervals, indicating reliable national estimates. This clear visual pattern demonstrates that adults facing psychological distress are more than twice as likely to consume cannabis edibles, underscoring a strong association between emotional distress and non-inhaled cannabis behaviours. Behavioural analysis revealed that tobacco users were nearly three times more likely and alcohol users twice as likely to consume edibles compared to non-users. Furthermore, individuals who had received mental-health treatment or support in the past year reported higher edible use, suggesting overlap between psychological-care engagement and substance use.

DISCUSSION

This nationally representative analysis demonstrates that adults experiencing psychological distress have significantly higher odds of cannabis edible use compared with those without distress. The strength of the association remained significant even after adjusting for demographic, behavioural, and policy-related variables, suggesting that psychological distress plays a substantial role in shaping cannabis-use behaviours. These findings extend the existing literature linking psychological distress with general cannabis use [12,13] by specifically examining edible consumption, a modality that has become increasingly prevalent in legalized cannabis markets. Several behavioral and psychological mechanisms may explain this association. Individuals experiencing psychological distress may perceive edibles as a safer and less stigmatizing option for self-managing symptoms of anxiety or depression. The delayed onset and prolonged psychoactive duration of edibles may create a perception of sustained symptom relief. However, these same characteristics can also increase the risk of overconsumption and dysphoric experiences, such as anxiety, depersonalization, or paranoia which may potentially exacerbate mental health symptoms among vulnerable individuals (5,8). In addition, inconsistent product labeling and variability in THC concentrations further complicate dosage control and increase the likelihood of unintended psychoactive effects.

The sociodemographic differences observed in this study, particularly higher prevalence of edible use among younger adults, women, and sexual minorities, are consistent with previously reported national trends in cannabis use and mental health disparities (8,9,10). These populations often face greater psychosocial stressors and may be more frequently exposed to social environment where cannabis products are normalized. During the COVID-19 pandemic, evidence indicate that global rates of mental health problems and substance use increased substantially, with anxiety and depressive symptoms nearly tripling to affect about 30–35% of adults, compared with pre-pandemic levels below 10%. Concurrently, alcohol and drug use increased by approximately 25–30%, and nearly one in four adults reported heavier or more frequent consumption as a coping mechanism for stress, isolation, or financial strain (17). These findings highlight how pandemic-related disruptions amplified psychological distress and reinforced substance-use behaviors, thereby contributing to a sustained public health burden. The positive association between edible use and residence in states with medical marijuana law (MML) further underscores the influence of policy environments on behavioral health, as legalization broadens access and shapes public perceptions of safety and risk (18,19).

The strong association observed between edible use, concurrent alcohol and tobacco suggests polysubstance behavior patterns, reinforcing the need for integrated prevention and treatment approaches that address multiple

substances and underlying psychological conditions simultaneously (15,16). Routine screening for psychological distress among cannabis users could allow clinicians to identify individuals at higher risk for dependence or adverse reactions, improving early intervention strategies. Moreover, individuals living with HIV frequently face intersecting challenges of substance use and partner violence, with studies showing that up to 35–40% report drug or alcohol misuse and nearly one in three experience intimate partner violence, both of which substantially heighten psychological distress and increase vulnerability to marijuana and other substance use (20,21).

Several limitations of this study should be acknowledged, the cross-sectional design, which limits causal inference, reliance on self-report data, and the absence of detailed metrics on THC dosage, frequency of use, or medical versus recreational intent. Future research should employ longitudinal designs to establish temporal directionality, explore neurobiological mechanisms linking distress and edible use, and examine the role of marketing, accessibility, and product diversity in shaping use patterns and mental-health outcomes.

Despite these limitations, the results carry significant public health and policy implications. As cannabis edibles continue to expand in availability, potency, and consumer appeal, public health campaigns should prioritize evidence-based education on delayed onset, safe dosing practices, and potential psychological and cognitive risks associated with high-THC formulations (22,23). Policymakers should prioritize labeling accuracy, potency regulation, and consumer education to minimize unintended consequences among vulnerable populations.

CONCLUSION

Psychological distress is independently associated with an increased likelihood of past-month cannabis edible use among U.S. adults. As edible products become more potent and accessible, mental-health and substance-use frameworks must evolve to address the intersection between emotional distress and cannabis-use behaviors. Integrating mental-health screening, counselling, and harm-reduction education into public-health and clinical settings is essential. Future studies should further investigate causal pathways, product characteristics, and the influence of cannabis policy on psychological well-being.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

Public-use NSDUH data are freely available from the Substance Abuse and Mental Health Services Administration (SAMHSA): <https://www.samhsa.gov/data/>

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