Past-Month Cannabis Use Among Adults With Diabetes in the U.S., 2021–2022

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The effects of cannabis use on the health of patients with diabetes are inadequately understood. Cannabis may have direct effects on glucose metabolism and insulin sensitivity (1), but current studies show contradictory outcomes. Cannabis has also been associated with adverse cardiovascular outcomes (2). Despite the unclear clinical significance of cannabis on health outcomes, the growing legalization and interest in cannabis for health purposes have led to its increased use among individuals with diabetes (3). This study estimates the most recent national prevalence of cannabis use among adults with diabetes and delineates their characteristics.

We examined aggregated data from the 2021–2022 National Survey on Drug Use and Health (NSDUH) (4), an annual cross-sectional nationally representative survey in the U.S. We limited the sample to adults (aged ≥18 years) who reported lifetime diagnosis of diabetes (n = 6,816). Past-month ("current") cannabis use was assessed by asking about the use of marijuana and cannabis products "excluding CBD or hemp products, and used by smoking, vaping, dabbing, eating or drinking, or applying as a lotion" (4). Covariates included sociodemographic characteristics, perception of great risk of smoking cannabis monthly, past-year all-cause emergency department (ED) use, past-year major depression, past-month misuse of opioids and/or stimulants, tobacco use, and binge drinking.

Characteristics of adults with diabetes who used cannabis were compared with those of individuals who did not use it. Comparisons were made using Rao Scott χ^2 tests. Multivariable logistic regression was used to examine the association between covariates and cannabis use. We used weights to account for the complex survey design, selection probability, nonresponse, and population distribution, while imputation-revised variables were used when available to limit missing data (4). This secondary analysis was exempt from review by the NYU Langone Medical Center institutional review board.

Among adults in the U.S. with diabetes, 9.0% (95% CI 7.9–10.3%) were estimated to have used cannabis in the past month. The prevalence increased from 7.7% (95% CI 6.6–9.0%) in 2021 to 10.3% (95% CI 8.5–12.5%) in 2022, a 33.7% increase (P = 0.01). Nearly half (48.9%) of the people with diabetes who used cannabis were under age 50, whereas 20.4% of people under the age of 50 did not use cannabis. In the multivariable analysis (Table 1), residing in states where cannabis is legal (adjusted odds ratio [aOR] 2.76; 95% CI 2.10–3.62), history of hepatitis (aOR 3.87; 95% CI 1.58–9.49), past-year major depressive episode (aOR 1.58; 95% CI 1.03–2.43), and past-year ED use (aOR 1.46; 95% CI 1.04–2.05) were associated with higher odds of past-month cannabis use. Odds were also higher among those with past-month tobacco use (aOR 2.90; 95% CI 2.13–3.96), binge drinking (aOR 2.21; 95% CI 1.62–3.02), opioid misuse (aOR 6.37; 95% CI 2.45–16.56), and stimulant misuse (aOR 4.14; 95% CI 1.39–12.32).

We present the most recent national estimates of current cannabis use and its correlates among adults with diabetes. Cannabis use increased sharply from previous estimates (3) and between 2021 and 2022, warranting careful monitoring. While the use of cannabis by people with diabetes is slightly lower than national estimates of the general U.S. population (∼13.9%–15.9%) (4), people with diabetes may be at heightened risk for potential harms associated with cannabis use. Concerningly, among individuals with diabetes who used cannabis, we found a higher prevalence of the use of other psychoactive substances. While we cannot determine if these substances were used concurrently, these results suggest there may be a population of adults with diabetes who engage in unsafe polysubstance use. Furthermore, in addition to cannabis, use of some substances, including tobacco and excess alcohol use, are established risk factors for cardiovascular disease and could impact glucose metabolism. Additionally, cannabis may complicate diabetes management, adversely affecting glycemic control and self-management behaviors (5). Our results emphasize the importance of comprehensive substance use screenings in diabetes care, with a specific focus on cannabis.

This study has several limitations. The NSDUH does not distinguish the type of diabetes or type(s) of cannabinoid products used. NSDUH relies on self-report and is

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Table 1—Past-month cannabis use among adults with diabetes, U.S. 2021–2022

Characteristic	Full sample of respondents with diabetes, *n* = 6,816, weighted % (95% CI)	No past-month cannabis use among adults with diabetes, *n* = 6,017, weighted % (95% CI)	Past-month cannabis use among adults with diabetes, *n* = 799, weighted % (95% CI)	χ^2 *P* value	Correlates of past-month cannabis use among adults with diabetes, aOR* (95% CI)
Survey year					
2021	49.5 (47.3–51.7)	50.2 (47.9–52.6)	42.2 (36.5–48.2)	0.02	Reference
2022	50.5 (48.3–52.7)	49.8 (47.4–52.1)	57.8 (51.8–63.5)		1.35 (1.00–1.81)
Reside in state where legal	70.3 (67.4–73.0)	68.9 (66.0–71.7)	83.9 (79.6–87.5)	<0.001	2.76 (2.10–3.62)
Perceived great risk of cannabis use once per month	30.2 (28.0–32.4)	32.9 (30.6–35.3)	2.8 (1.2–6.2)	<0.001	0.08 (0.03–0.20)
Age-group (years)					
18–34	7.0 (6.3–7.8)	5.9 (5.1–6.7)	18.6 (15.0–22.8)	<0.001	Reference
35–49	15.9 (14.6–17.3)	14.5 (13.1–16.0)	30.3 (24.6–36.7)		0.67 (0.45–1.00)
50–64	34.9 (32.8–37.1)	34.8 (32.6–37.1)	35.6 (29.6–42.1)		0.38 (0.26–0.54)
≥65	42.2 (39.8–44.6)	44.8 (42.3–47.3)	15.5 (11.2–21.1)		0.17 (0.10–0.28)
Sex					
Male	50.8 (48.4–53.2)	50.1 (47.6–52.5)	58.4 (52.6–63.9)	0.01	Reference
Female	49.2 (46.8–51.6)	49.9 (47.5–52.4)	41.6 (36.1–47.4)		0.84 (0.64–1.10)
Race/ethnicity					
Non-Hispanic White	59.4 (56.3–62.4)	59.0 (55.9–62.1)	63.7 (57.8–69.1)	0.07	Reference
Non-Hispanic Black	13.6 (12.1–15.2)	13.4 (11.9–15.1)	15.5 (12.3–19.4)		0.95 (0.68–1.33)
Hispanic	17.8 (15.5–20.2)	18.4 (16.0–20.9)	11.8 (8.3–16.4)		0.67 (0.43–1.03)
Asian or other race	9.2 (7.7–10.9)	9.2 (7.6–11.1)	9.0 (5.8–13.9)		0.92 (0.49–1.73)
Annual household income					
<$20,000	18.9 (17.1–20.9)	18.9 (17.0–20.9)	19.2 (15.1–24.2)	0.48	Reference
$20,000–$49,999	31.3 (29.2–33.4)	30.9 (28.7–33.1)	35.4 (29.0–42.3)		1.37 (0.88–2.12)
$50,000–$74,999	16.1 (14.5–17.9)	16.2 (14.6–18.1)	14.9 (10.2–21.4)		0.98 (0.56–1.69)
≥$75,000	33.7 (31.5–35.9)	34.0 (31.7–36.3)	30.4 (25.2–36.3)		0.91 (0.60–1.38)
Chronic disease					
Asthma	11.6 (10.6–12.8)	11.6 (10.5–12.8)	12.3 (9.0–16.5)	0.70	0.76 (0.46–1.25)
Cancer	9.8 (8.6–11.0)	9.9 (8.7–11.3)	8.5 (5.3–13.2)	0.53	1.05 (0.60–1.86)
Chronic obstructive pulmonary disease	10.2 (8.9–11.8)	10.1 (8.7–11.6)	12.0 (8.2–17.2)	0.36	0.94 (0.55–1.61)
Cirrhosis	1.8 (1.3–2.6)	1.8 (1.2–2.7)	2.0 (0.9–4.4)	0.83	0.80 (0.25–2.53)
Heart disease	24.2 (22.4–26.0)	24.1 (22.3–26.1)	24.4 (18.5–31.4)	0.95	1.23 (0.79–1.92)
Hepatitis B or C	2.2 (1.5–3.2)	1.9 (1.2–2.9)	4.9 (2.9–8.2)	0.001	3.87 (1.58–9.49)
Hypertension	45.0 (43.2–46.8)	45.6 (43.3–47.9)	39.4 (33.4–45.7)	0.12	0.79 (0.45–1.40)
Kidney disease	6.8 (5.7–8.1)	7.0 (5.8–8.4)	4.8 (2.7–8.4)	0.20	0.83 (0.41–1.71)
2 or more chronic conditions	56.8 (54.8–58.8)	57.1 (54.8–59.4)	53.5 (46.4–60.4)	0.35	1.16 (0.60–2.21)
Other substance use					
Tobacco use, past month	18.6 (16.9–20.5)	15.6 (13.9–17.5)	48.6 (42.4–54.9)	<0.001	2.90 (2.13–3.96)
Binge drinking, past month†	13.0 (11.7–14.4)	11.1 (9.8–12.5)	32.3 (27.7–37.2)	<0.001	2.21 (1.62–3.02)
Opioid misuse‡	1.2 (0.8–1.7)	0.6 (0.4–1.0)	6.7 (4.1–10.7)	<0.001	6.37 (2.45–16.56)
Stimulant misuse§	1.2 (0.8–1.8)	0.6 (0.4–1.1)	7.1 (4.4–11.5)	<0.001	4.14 (1.39–12.32)
Mental health					
Past-year major depressive episode	7.1 (6.1–8.2)	6.1 (5.1–7.2)	17.1 (13.2–21.9)	<0.001	1.58 (1.03–2.43)
Health care utilization					
Past-year ED use	32.8 (30.6–35.1)	31.4 (29.1–33.7)	46.8 (39.7–54.1)	<0.001	1.46 (1.04–2.05)

*Adjusted for all presented characteristics. †Defined as ≥5 alcoholic beverages on the same occasion for men and ≥4 for women. ‡Includes heroin use and prescription opioid misuse. §Includes cocaine use, methamphetamine use, and prescription stimulant misuse.

subject to limited recall and social desirability bias. NSDUH also samples only the noninstitutionalized U.S. population.

The increased use of cannabis in the U.S. for managing health-related symptoms has led to its increased use among individuals with chronic diseases, including millions of people with diabetes. However, due to the difficulties of conducting studies with cannabis, including the number of cannabinoids and various routes of administration, as well as federal restrictions, there is limited research on its effect on glucose metabolism, lipid profiles, and cardiovascular risk for people with diabetes. Therefore, clinicians must discuss with their patients with diabetes the potential harms of cannabis use on diabetes-related outcomes without a clear understanding of its benefits. Further, screening for and education about the potential risks

of its use and other psychoactive substances must be done with all patients with diabetes and discussed in the context of managing and monitoring their diabetes.

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