Tobacco Quitline Callers Who Use Cannabis and Their Likelihood of Quitting Cigarette Smoking

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ABSTRACT

Introduction: Cigarette smoking continues to decline in the U.S., but cannabis use is increasing. Many people who smoke cigarettes also use cannabis. This study examines characteristics of persons who co-use and those who do not co-use, and the likelihood of quitting cigarettes for callers to Kick It California (KIC), a large state tobacco quitline.

Methods: Data were examined from KIC callers from January 2020 through December 2023 (N=45,151) including those from a sub-group randomly sampled and reached for evaluation at 7 months after quitline enrollment (N=3,545). The rate of cigarette smoking cessation at 7 months post-enrollment for people who co-use cannabis compared with that for people who do not. Analyses started in 2023 and concluded in January 2024.

Results: More than a quarter (27.2%) of KIC callers co-used cannabis. They were more likely to be male, younger, and have a mental health condition than those who did not. Those who co-use cannabis and those who do not have similar rates of receiving quitline counseling or using FDA-approved cessation aids. Controlled for effects of personal characteristics and use of smoking cessation services, people who co-use cannabis were less likely to quit cigarette smoking than those who do not at 7 months post-enrollment, 23.2% versus 28.9% (p<0.001). Among those who co-use, 42.9%, intended to quit using cannabis in the next 30 days.

Conclusions: A substantial percentage of tobacco quitline callers use cannabis. Those who do co-use quit cigarette smoking at a lower rate than those who do not. Over forty percent of people who co-use reported intention to quit cannabis, making tobacco quitlines a rich environment to learn about people who co-use and develop strategies for intervention.

INTRODUCTION

Rates of cigarette smoking for adults in the U.S. have decreased significantly in recent years, reaching an all-time low of 11.5% in 2021, down from 15.1% in 2015.[1,2] However, cannabis use continues to rise. For instance, the National Survey on Drug Use and Health (NSDUH) showed that the percentage of U.S. adults reporting past-month cannabis use reached 13.7% in 2021, up from 8.4% in 2015.[3,4]

Co-use of tobacco and cannabis is common.[5–9] While co-use broadly refers to both tobacco and cannabis consumption, it also refers to concurrent administration like the use of blunts (hollowed-out cigars filled with marijuana) or successive administration called "chasing," using one product right after the other.[10–12] Tobacco and cannabis are often entwined. Tobacco use is more prevalent among people who use cannabis. For example, according to the 2015 NSDUH, people who use cannabis daily and non-daily reported tobacco use at rates of 54.6% and 40.2%, respectively, compared to 15.1% for people who did not use cannabis at all.[13] Also, cannabis use is more common among people who use tobacco than among those who do not use tobacco.[9,14,15] In California for example, the 2022 California Health Interview Survey[16] showed that adults who had smoked cigarettes in the past month were more than twice as likely to report past-month cannabis use as adults who did not smoke cigarettes (37.6% vs. 16.0%, respectively).[17]

It is well established that cigarette smoking is the leading cause of preventable disease, disability, and death in the U.S.[18,19] The health risks of cannabis use, however, are not as well-documented

and clear as those of tobacco use.[20,21] The lack of a simple public health message on cannabis is in part attributable to the medicinal use of cannabis.[22] However, mixing tobacco and cannabis smoking is likely to lead to worse health outcomes than using either alone.[23–26] The present study focused on assessing the prevalence of co-use in a tobacco quitline setting and intended to examine if co-use of cannabis affects cigarette smoking cessation rates.

Studies on the effects of cannabis use on tobacco cessation have reported conflicting results.[27–29] Some have found that cannabis use impedes tobacco cessation efforts,[9,14,30–34] while others have not.[35–37] Some of these studies were based on clinical samples while others were on population surveys. For the studies that are based on clinical samples, the question of whether cannabis use impedes tobacco cessation is often motivated by another related question, which is whether tobacco cessation programs should encourage people who co-use to quit both substances or focus on tobacco alone.

This study is based on a large sample of people who smoke who called a state tobacco quitline. State quitlines in the U.S. offer evidenced-based tobacco cessation services[38] and receive calls from clients who use a variety of tobacco products, many of whom have co-morbid substance use or mental health conditions.[39,40] Specifically, there is a sizable number of people who co-use cannabis calling tobacco quitlines.[31,35,41] One study from New York, a state where recreational cannabis was illegal at the time, reported 8.3% of the quitline callers used cannabis.[31]Another study of three quitlines in states that had legalized recreational use of cannabis found that 1 in 4 callers used cannabis.[41] As legalization of cannabis for recreational use increases in the U.S.,[42] it may be easier for clients to talk about cannabis use when engaging with tobacco quitlines. State

quitlines across the U.S. collectively serve a very large number of people who use tobacco and are in a good position to study cannabis co-use and aid in the understanding of cessation considerations for those who co-use.

The present study examined four years of data (2020–2023) from California's tobacco quitline. Recreational use of cannabis was legalized in California in 2018. On the heels of this legislation, the state tobacco quitline added a question about cannabis use to its standard tobacco cessation intake for all callers. This allowed for an examination of the trend of cannabis use in a tobacco quitline setting, as well as characteristics of those who use cannabis and tobacco cessation services received by those who co-use cannabis and tobacco and those who do not. A key issue in the analysis was whether people who co-use had a different cigarette-cessation rate than those who do not.

METHODS

Study Population

This study uses data from Kick It California (KIC), formerly the California Smokers' Helpline. Since 1992, KIC has provided services at no cost to California residents who use tobacco, including those who smoke cigarettes, vape nicotine and chew tobacco, as well as their family and friends (a.k.a., proxy clients), and offers support to health professionals.[43] The services are based on the results of multiple trials that demonstrated the efficacy of its telephone counseling protocol for smoking cessation.[44,45]

All participants in the current study initiated calls to KIC and completed the standard telephone intake session, which assessed individual needs and determined a course of action (e.g., telephone counseling/coaching, self-help materials, referral to other programs). All participants provided oral consent for participation. The study, including consent procedures, was approved by the Human Research Protections Program of the University of California, San Diego (#171562). This study includes callers who enrolled in KIC services from January 2020 to December 2023. A total of 45,231 callers were assessed about their present marijuana use; those who responded with "don't know" (n=27) and those who declined to answer (n=53) were excluded from the analysis. Therefore, the effective sample size for this study was 45,151.

Measures

The intake session at KIC starts with a review of confidentiality and consent followed by a series of questions, including basic demographics, type of tobacco or vape used, self-reported physical and mental health conditions, interest in telephone counseling, and interest in cessation pharmacotherapy.

In December 2019, a question about cannabis use was added to the intake reading, "Do you use marijuana?" In March 2023, this question was refined to enhance precision and now reads, "Have you used marijuana in any form in the last 30 days?" Clients could answer "Yes," "No," "Don't know," or could refuse to answer. In July 2023, a follow-up question was added asking those who used cannabis about their intention to quit, "Do you plan to quit using marijuana in the next 30 days?" with callers answering "Yes," "No," "Don't Know." On rare occasions, clients

were not asked the cannabis use question (45 out of 45,276 clients). This happened when clients struggled to process and answer questions, if clients were overly challenging or combative, or if calls became disconnected before reaching the question.

For clients who reported co-use and went on to counseling, coaches offered information on topics such as health risks of cannabis, co-use of cannabis and tobacco, the potential for one substance to trigger cravings for the other, and intentions to quit cannabis. For callers who wanted to quit cannabis, referrals were provided to substance use treatment programs.

For the four-year study period, a random sample of participants who answered the cannabis use question was selected to be followed up at 7 months post-enrollment. A total of 8,619 participants were sampled during this period, and 3,545 were reached, for a response rate of 41.1%. The response rate was lower for those who used cannabis than for those who did not use cannabis at baseline (38.9% and 42.0% respectively). For those reached from this subsample, evaluators (independent of counselors) assessed callers' current cigarette use, attempts to quit cigarette smoking, use of counseling services and smoking cessation pharmacotherapy, and satisfaction with the program.

Statistical Analysis

Descriptive analysis examined the characteristics of callers who co-use cannabis and tobacco and callers who do not, along with 95% confidence intervals for comparison purposes. These descriptive analyses were planned for everyone who answered the question about cannabis use at baseline. The analysis of smoking cessation focused only on those who were randomly sampled

for follow-up and were reached by evaluators. A multiple regression analysis was conducted to compare the difference in smoking cessation rate between cigarette-only callers and those who co-use, controlling for the effects of baseline covariates such as gender, age, and ethnicity and participants' use of counseling and pharmacotherapy. Finally, the intent to quit cannabis was examined only for those who called the quitline after July 2023 when the question was added to intake. Analyses were conducted in 2023-2024 using SAS 9.4 software.[46]

RESULTS

Over the four-year period, 27.2% of KIC callers reported cannabis use, with percentages in each year as follows: 25.9% in 2020, 28.0% in 2021, 27.6% in 2022, and 27.6% in 2023 (data not shown in tables). In March 2023, the cannabis use measurement was refined from the original "Do you use marijuana?," to, "Have you used marijuana in any form in the last 30 days?" When compared over the same length of time, ten months before and after the wording change, there was no significant difference in the percentage of those reporting cannabis use(27.3% from May 2022 to February 2023 vs. 27.7% from March to December 2023; p=0.53).

Table 1 compares those who reported cannabis use with those who did not. Clients who used cannabis were more likely to identify as male, another gender or choose not to disclose their gender identity than to identify as female. Clients who used cannabis were more likely to be younger; more likely to have some college education (but without the 4-year degree); more likely to be White, Black or American Indian/Alaska Native, and more likely to have multi-racial

ethnic background, but less likely to be Hispanic or Asian American/Pacific Islander. Table 1 also shows that people who used cannabis were more likely to report having a mental health condition. Clients who used cannabis and those who did not were similar in the number of cigarettes they smoked, but those who used cannabis were more likely to vape nicotine.

Table 2 compares the likelihood of these two groups receiving telephone counseling from KIC or using any FDA-approved pharmacotherapy during the 7 months following their enrollment at KIC. These data were obtained from those who were randomly sampled and completed the evaluation at 7 months post-enrollment. Clients who used cannabis and those who do not have similar rates of completing at least one counseling call with KIC counselors (72.0% vs 74.5%, p=0.12) and similar rates of using any FDA-approved pharmacotherapy for tobacco cessation (64.1% vs. 64.9%, p=0.68).

Table 3 shows the 30-day quit rate at 7 months. Clients who used cannabis were less likely to succeed in quitting smoking than those who did not use cannabis, 23.2% versus 28.9% (p<0.001). A multiple logistic regression controlling for the effects of baseline characteristics and the use of counseling, pharmacotherapy and nicotine vaping confirmed that the difference in quit rate remained statistically significant (p<0.001).

The multiple logistic regression analysis also revealed that gender identity did not predict cigarette cessation outcome. Younger clients (those under 25 or between 25 and 44, compared to those aged 65 and older) were more likely to quit cigarette smoking. Regarding race/ethnicity, Black participants had lower odds of successful cessation compared to White participants. No

other racial/ethnic group had a lower probability of quitting than White participants. Clients with mental health conditions also had lower odds of quitting cigarettes. Clients who smoked 15 or more cigarettes per day at baseline were less likely to quit smoking than those who smoked fewer. In contrast, those who reported vaping nicotine at baseline were more likely to quit smoking than those who did not vape. Those who received counseling were more likely to quit than those who did not receive counseling, and those who used any FDA-approved quitting aid had higher odds of quitting compared to those who did not.

Since March 2023, KIC callers who reported cannabis use were asked if they planned to quit using marijuana in the next 30 days (N=697). Among these callers, 42.9% responded with "Yes." Intention to quit for females was lower than for males, but not significantly (40.6%, vs. 45.9%, p=0.16). Callers who identified as "other gender" (or declined to state their gender identity) also had a lower rate (33.3%) than males, but the difference was not statistically significant.

DISCUSSION

This study with over 45,000 people who smoke cigarettes calling the California state quitline found that more than a quarter of them (27.2%) used cannabis. This percentage is similar to that reported from several other state quitlines where recreational cannabis use is also legal.[41] Compared to cannabis use prevalence among Californians who smoke cigarettes at large, however, this is substantially lower. About 37% of those who smoke cigarettes in California use

cannabis.[17] This was somewhat expected given that the state quitline, KIC, is advertised as a tobacco cessation program, not a cannabis cessation program. Still, the fact that a large number of people who co-use tobacco and cannabis call the state tobacco quitline each year affords an opportunity to understand this group and to develop strategies to help them.[47]

The quitline caller profile for people who co-use tobacco and cannabis largely reflects the population profile of people who co-use.[8,48,49] Quitline callers who co-used tended to be younger, had some college experience, were more likely to vape nicotine, and were more likely to report mental health conditions. These findings are consistent with those reported in survey studies investigating co-use of cannabis and tobacco in the general population.[8,48,49]

The people who co-use in this study were also found to have a lower rate for quitting cigarettes. Longitudinal studies with population-representative samples of U.S. adults have found that co-use of cannabis at baseline was associated with reduced odds of stopping cigarette smoking at follow-up,[34,50] although one population study reported that people who co-used were no less likely to quit cigarettes than those who do not.[37] Among the studies with individuals who seek help to quit cigarette smoking, including those with quitline callers, most have found that people who co-use tend to be less likely to succeed in quitting cigarette smoking than those who do not co-use. [9,31–33,35]

The present study found that in addition to co-use being a predictor of a lower rate in quitting cigarettes, several demographic and behavioral variables also predicted quitting. Black participants had a lower rate than White participants, and older participants had a lower rate than

younger participants. Higher cigarette consumption level and having self-reported mental health conditions predicted lower quit rates. A multiple regression model controlling for the effects of these baseline variables, however, showed that cannabis use was still associated with lower odds of quitting cigarettes.

The reason people who co-use had a harder time quitting cigarettes in this study is not obvious. It might have been that cannabis intoxication or the method of administration enhanced the positive effects of nicotine.[23,51–54] It is also possible that since both cannabis and tobacco have shared use pathways, cannabis use may serve as a behavioral cue or trigger for nicotine use.[23,55–58] People who co-use are also more likely to have mental health conditions, which makes it harder to quit any substance.[23,51–54,58] Additionally, smoking cessation often requires a shift in self-image from smoker to nonsmoker.[59,60] It is difficult to view oneself as a nonsmoker while continuing to smoke other substances such as cannabis. All these possible reasons are worthy of examination in future studies.

If cannabis use and smoking are in fact intertwined and trigger one another, then it begs the question as to whether programs should encourage people who co-use to quit both substances at once. Research on co-use of tobacco and other substances have indicated that giving up both substances at once may be a good approach and that quitting tobacco can enhance recovery from other substances.[61–63] However, quitting both substances at once can be overwhelming. This requires clinicians to discuss the pros and cons of a “one-at-a-time” versus an “all-at-once” approach with those interested in quitting both substances. Whether it is better to encourage

concurrent quitting of cannabis and tobacco or to tackle one substance at a time is another compelling direction for additional research.

Limitations

This study has a few limitations. The study found an association between cannabis use and the probability of quitting cigarette smoking. The underlying causal link is not identified. Also, at intake, cannabis use was not assessed in detail, such as modality, quantity, frequency of use, and history of cannabis cessation. As a tobacco cessation quitline, these topics could be seen as outside of scope, but they certainly have clinical relevance given that the use of cannabis was linked with a significantly lower tobacco cessation rate. Finally, most of the evaluation calls in this study were attempted in the throes of the COVID-19 pandemic, which might have contributed to a low response rate in follow-up evaluation. Of note, the group using both substances had a lower response rate. An analysis that assumed those lost to follow-up as "continued to smoke cigarettes" would have made the group difference in quit rate even larger than what was currently reported. Thus, it was decided not to make this assumption in the analysis, rendering the result more conservative.

Limitations notwithstanding, this study reports two statistics that merit the attention of public health programs, especially those that serve a large number of people who smoke cigarettes such as state quitlines. Cannabis use is associated with a lower probability of cigarette cessation and 42.9% of those using cannabis who were queried of their intention (N=697) expressed intent to quit using cannabis in the next 30 days. Another quitline study found a similar percentage of people who smoke wanting to quit cannabis.[41] These findings suggest that state tobacco quitlines

across the U.S. may need to consider creating special protocols to help these people who co-use improve their tobacco cessation rate or to help them stop using cannabis, rather than only referring clients to substance use treatment programs for cannabis cessation. In other words, it would be more efficient if quitlines could help them when they are already on the line, and interested in making a cannabis cessation plan. Given that there are shared behavioral patterns in using tobacco and cannabis, the psychological principles and behavioral change techniques used in tobacco cessation programs could be adapted to assist people who co-use both substances.[64]

CONCLUSIONS

More than a quarter of callers to the California tobacco quitline were people who co-use cigarettes and cannabis, and nearly half of them intended to quit using cannabis soon. People who co-use quit cigarette smoking at a lower rate than those who did not use cannabis. Given that cannabis use is on the rise even as tobacco use declines, the proportion of people who co-use among those using tobacco seeking help in places like quitlines is likely to increase. The state quitlines, which collectively serve a very large number of people who use tobacco in the U.S. every year,[65] represent a unique place to understand the co-use condition and to develop corresponding programs to help those who co-use stop using both substances.

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Table 1. Baseline Characteristics of Quitline Clients Seeking Help to Quit Smoking by Cannabis Use Status, 2020-2023

Characteristic	**Cannabis Users**	**Non-Users**
	N=12,283	**N=32,868**
	% (95% CI)	**% (95% CI)**
Gender		
Male	48.4 (47.6-49.3)	44.4 (43.8-44.9)
Female	49.2 (48.4-50.1)	54.0 (53.4-54.5)
Other Gender/Decline	2.3 (2.0-2.6)	1.7 (1.5-1.8)
Age Group (years)		
<25	3.4 (3.1-3.7)	1.6 (1.5-1.8)
25-44	32.7 (31.9-33.5)	26.1 (25.7-26.6)
45-64	47.7 (46.9-48.6)	49.7 (49.1-50.2)
≥ 65	16.1 (15.5-16.8)	22.6 (22.1-23.0)
Race/Ethnicity		
White	52.1 (51.2-53.0)	44.7 (44.2-45.3)
Black	18.4 (17.7-19.1)	14.6 (14.2-14.9)
Hispanic	13.6 (13.0-14.2)	26.3 (25.8-26.8)
Asian American/Pacific Islander	2.5 (2.2-2.8)	3.8 (3.6-4.0)
American Indian/Alaska Native	1.7 (1.5-2.0)	1.2 (1.1-1.3)
Other	2.7 (2.4-3.0)	3.0 (2.8-3.2)
Multiple Race	9.0 (8.4-9.5)	6.3 (6.1-6.6)
Education		
High School and Lower	44.8 (43.9-45.7)	49.4 (48.8-49.9)
Some College	43.4 (42.5-44.3)	37.5 (36.9-38.0)
College degree and above	11.8 (11.2-12.4)	13.1 (12.8-13.5)
Any Mental Health Condition		
No	38.3 (37.4-39.1)	47.9 (47.4-48.5)
Yes	61.7 (60.9-62.6)	52.1 (51.5-52.6)
Cigarettes per Day at Baseline		
<15	53.9 (53.0-54.8)	54.2 (53.7-54.7)
≥ 15	46.1 (45.2-47.0)	45.8 (45.3-46.3)
Currently Vaping Nicotine		
No	86.9 (86.3-87.5)	91.1 (90.8-91.4)
Yes	13.1 (12.5-13.7)	8.9 (8.6-9.2)

Table 2. Counseling and Quit Aid Use Rates among Quitline Clients by Cannabis Use Status

Use of Cessation Services	**Cannabis Users**	**Non-Users**
	N=964	**N=2,581**
	% (95% CI)	**% (95% CI)**
Received Counseling	72.0 (69.2-74.8)	74.5 (72.9-76.2)
Used Any Quit Aids	64.1 (61.1-67.1)	64.9 (63.0-66.7)

528 **Table 3**. 30-Day Abstinence Rate at 7-Month Evaluation, 2020-2023 (N= 3,545)
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Effect	**Quit Rate** **% (95% CI)**	**Multiple Logistic Regression** **Odds Ratio (95% CI)**
Cannabis Use		
No	28.9 (27.2-30.7)	Ref
Yes	23.2 (20.6-25.9)	0.73 (0.61-0.88)
Gender		
Male	29.0 (26.9-31.2)	Ref
Female	25.7 (23.7-27.7)	0.88 (0.75-1.03)
Other Gender	35.0 (20.2-49.8)	1.15 (0.52-2.58)
Age Group (years)		
<25	39.4 (30.3-48.6)	1.73 (1.10-2.72)
25-44	32.3 (29.7-35.0)	1.37 (1.09-1.73)
40-64	24.0 (21.9-26.1)	0.95 (0.76-1.18)
≥ 65	24.7 (21.3-28.0)	Ref
Race/Ethnicity		
White	27.3 (25.1-29.6)	Ref
Black	21.8 (18.2-25.4)	0.69 (0.53-0.88)
Hispanic	29.5 (26.5-32.4)	0.94 (0.77-1.15)
Asian American/Pacific Islander	37.0 (28.9-45.0)	1.06 (0.72-1.55)
American Indian/Alaska Native/Other	29.1 (21.9-36.4)	1.02 (0.70-1.48)
Multiple Race	25.8 (20.5-31.0)	0.81 (0.60-1.11)
Education		
High School and Lower	26.3 (24.1-28.4)	Ref
Some College	27.7 (25.3-30.0)	1.08 (0.91-1.29)
College Degree and above	31.0 (26.9-35.0)	1.17 (0.93-1.48)
Any Mental Health Condition		
No	30.6 (28.3-32.9)	Ref
Yes	25.0 (23.1-26.9)	0.74 (0.63-0.87)
Cigarettes per Day at Baseline		
<15	31.4 (29.3-33.4)	Ref
≥ 15	22.2 (20.1-24.2)	0.60 (0.51-0.71)
Currently Vaping Nicotine		
No	26.0 (24.4-27.6)	Ref
Yes	32.3 (29.0-35.6)	1.28 (1.06-1.54)
Receiving Counseling		
No	23.9 (21.1-26.6)	Ref
Yes	29.4 (27.7-31.1)	1.26 (1.05-1.51)
Used Any Quit Aids		
No	23.7 (21.4-26.0)	Ref
Yes	30.3 (28.5-32.2)	1.46 (1.24-1.72)

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