

Racial diversity in cannabis use disorder research

Title: Racial diversity in cannabis use disorder research: A systematic review

Highlights

- People of color have a heightened CUD prevalence
- People of color endure unique risk factors for CUD
- People of color are underincluded in CUD clinical research
- There are no interventions for people of color's unique issues
- CUD research is likely not generalizable or applicable to people of color

Abstract

Background

Several groups of people of color have a higher prevalence and more severe cases of cannabis use disorder (CUD) compared to White people. They also endure unique issues like racial discrimination, which are linked with an increased likelihood of CUD. We conducted a systematic review to identify the number of people of color in CUD behavioral health RCTs and whether researchers designed interventions to address people of color's unique challenges.

Methods

We systematically searched PubMed, PsycINFO, and ClinicalTrials.gov for CUD behavioral health RCTs implemented in the United States for adults. We identified 14 out of 966 from 1994 to 2025 for review (12 published, two in ClinicalTrials.gov, completed but not published).

Results

White people comprise ~64% of all participants, and were included at rates 49 times greater than their share of CUD cases. Black people comprise ~19%, Latiné people 5%, multiracial/other 0.8%, Asians 0.6%, and Indigenous people 0.4%. No studies were culturally adapted or were designed to address people of color's unique challenges (e.g., racial discrimination). Racial sample diversity has not improved over time.

Discussion

People of color are significantly underincluded in CUD RCTs despite their heightened prevalence and CUD severity. This limits research's generalizability and applicability to people of color. Further, the lack of research into people of color's unique challenges may hinder therapists from meeting the full range of people of color's needs. Finally, despite decades of calls

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to increase racial sample diversity in RCTs, people of color's inclusion has remained low in CUD RCTs.

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Keywords

Cannabis; Cannabis Use Disorder; Racial Disparities; Race; Diversity; Substance Use; Substance

Abuse

Introduction

It is estimated that ~7% of adults in the United States experience cannabis use disorder (CUD) during their lifetime (Boness et al., 2024), and that past year CUD prevalence varies by race among adults 18 and older. According to national data, 3% of multiracial people, 2.3% of American Indian/Alaska Natives (AI/AN), 2.2% of Black people, 1.6% of Latiné¹ people, 1.3% of White people, and 0.8% of Asian Americans had CUD (Ali et al., 2023)². Further, AI/AN, Black, and Latiné people are also more likely to experience moderate and severe CUD compared to White people, who are more likely to experience mild CUD (Hasin et al., 2016). Thus, people of color have the highest prevalence rates of CUD and endure worse clinical cases. Moreover, they face various risk factors associated with CUD more frequently than White people.

Key risk factors for developing CUD are mental health disorders (Hayatbakhsh et al., 2009; Hunt et al., 2020; Kevorkian et al., 2015), poverty (Taylor et al., 2019), and adverse childhood experiences (LeTendre & Reed, 2017). Notably, AI/AN, Black, Latiné, and multiracial people (herein people of color) often endure poverty, adverse childhood experiences, and some mental disorders at higher rates than White people (McLaughlin et al., 2019; United States Census Bureau, 2020). This is primarily due to systemic inequities caused by racism, including criminal justice disparities, housing and healthcare segregation, and labor market discrimination (National Academies of Sciences, 2024). Moreover, people of color endure group-specific risk factors linked with substance misuse, including racial discrimination, racial trauma, and microaggressions (Desalu et al., 2019; Skewes & Blume, 2019). In fact, racial discrimination is increasingly linked with an increased likelihood of cannabis use and potentially CUD (Ahuja et

¹ Spanish traditionally assigns gender to nouns. We use "Latiné" to adopt the use of a gender-neutral term within the grammatical structure of Spanish.

² Ali et al. (2023) used Latiné adults as the reference group for tests of statistical significance, as this group had the median prevalence of CUD. This choice affects the interpretation of statistical comparisons reported in their paper but does not affect the raw prevalence estimates reported here.

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al., 2022; Buckner et al., 2024; Mattingly et al., 2024; Mattingly et al., 2023). This is particularly alarming given findings that up to 75% of Black, Latiné, and Asian people report experiencing some form of racial discrimination in their lifetime (Lee et al., 2019), and at least 50%–60% of Black Americans report regularly experiencing racial discrimination (Blendon & Casey, 2019).

Despite these issues, substance use disorder (SUD) research more broadly has yet to adequately address matters of race and racism (Compton et al., 2023; Jordan et al., 2020). In fact, substance use researchers have found that substance use disorder treatments are less effective for Black people than White people, possibly because they are poorly represented in research (Windsor et al., 2015). Importantly, clinical research on CUD has grown over the years (Connor et al., 2021), and behavioral health interventions show promise in supporting recovery, whereas pharmacological interventions have yet to demonstrate efficacy (Sabioni & Le Foll, 2018). However, given that people of color are significantly absent in clinical research across the social sciences (Geller et al., 2018; Knepper & McLeod, 2018), they may also be underincluded in CUD research. Further, research shows that matters of race(ism) impact substance use and that people of color want to address these issues in therapy (Reid, 2024). Yet there is limited research into how clinicians can address these issues, which renders clinicians less effective and sometimes harmful when addressing matters of race in therapy (Lee et al., 2018; Reid, 2024; Sue & Spanierman, 2020). Taken together, it is plausible that people of color are underrepresented in CUD research and that this field is not attending to people of color's unique risk factors. If so, CUD research may be less generalizable and applicable to people of color, and clinicians will not have adequate tools to address matters of race in therapy.

Current Study

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This systematic review had two primary objectives. First, we examined the racial/ethnic diversity of participants in CUD behavioral health research to determine the representation of people of color in clinical trials. Second, we analyzed the content and design of these studies to assess whether researchers have developed culturally adapted interventions or addressed the unique risk factors (e.g., racial discrimination) affecting people of color's cannabis use.

Method

Search Strategy

We systematically searched PubMed, PsycINFO, and ClinicalTrials.gov for behavioral health randomized controlled trials (RCTs) treating CUD. Our procedures followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Page et al., 2021). Our search terms were “Cannabis Use Disorder” OR “Cannabis” OR “Marijuana” AND “Randomized Controlled Trial.” We had no publication date restrictions, as we sought to scope the entire field of CUD behavioral health RCTs. We uploaded all articles into Covidence (Veritas Health Innovation Ltd, Melbourne, Australia), an online literature review management software.

Study Selection and Data Extraction

We included RCTs conducted in the US on adults (18+) diagnosed with CUD. Studies must have evaluated a behavioral health intervention on CUD and must have been published in English. We sought original research whose outcomes measured the intervention's effects on CUD outcomes (e.g., recovery, abstinence, symptom reduction). We excluded studies that did not meet these criteria. Two reviewers (MRR and BR) reviewed each article independently at the levels of title and abstract and full text according to these search criteria. Any disagreements were planned to be resolved by a third author (OA); however, the authors had no disagreements.

Data Analysis

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Authors MRR and BR developed an Excel spreadsheet (Microsoft Corp., Redmond, WA) to compile racial/ethnic demographics reported in CUD RCTs. They recorded the total sample size for each study and extracted participant information on racial/ethnic identity. This information was designated according to the racial groups researchers reported in their publication. Multiracial and Other were combined, as most studies collapsed these categories; however, we acknowledge that “Other” is not a distinct racial identity. If studies did not report racial demographics, these were coded as “Unknown, Not Reported (UNR)”. We calculated the racial/ethnic composition of CUD research by adding participants from each group across all studies and determining the proportion of the total research sample they represented. Additionally, we identified each study outcome to assess whether studies addressed matters specific to people of color (e.g., racial trauma). Authors (JC, ZA, and HA) reviewed and validated the data in the spreadsheet.

Additionally, we calculated the ratio of RCT inclusion to population-level CUD prevalence, comparing the ratio of the population prevalence data reported by Ali et al (2023) and the RCT inclusion rates of people of color by group in RCTs. We did this to determine the extent to which people of color and White people are under- or over-included in CUD research concerning CUD prevalence data. Finally, we assessed whether the inclusion of participants of color has improved over time in CUD behavioral health RCTs. We calculated the proportion of participants of color for each study (i.e., one minus the proportion of White participants), excluding studies that did not report racial data. Then, we plotted these percentages against publication year. We then created a scatterplot with a linear trend line to visually inspect any temporal patterns in representation.

Results

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Our search yielded 966 studies for initial screening. During the title and abstract screening phase, we excluded 905 studies unrelated to CUD or CUD treatment, resulting in 61 studies for full-text review. After the full-text review, we kept 14 studies for analysis. Twelve studies have been published over a 26-year period, with the earliest study published in 1994 and the most recent study published in 2020. Two studies in this review were collected from ClinicalTrials.gov (Stanger and Sherman). Stanger and Sherman have yet to publish their findings; however, their results were uploaded to ClinicalTrials.gov's website in 2024 and 2025, respectively. Figure 1 details our PRISMA flow chart.

Overall, 2,025 people have participated in CUD behavioral health RCTs over the past 31 years. White people comprised 63.75% of the total sample. Black people were the second-most included at 19.16%, followed by Latiné people at 9.33%, multiracial people at 2.31%, Asian people at 0.30%, and Indigenous people at 0.10%. One study (Sinha et al., 2003) reported the total number of White people in their study, yet grouped all other 50 participants of color into one group labeled “minorities”. Therefore, these 50 participants could not be categorized into any particular group. Three studies reported the total number of White participants in their sample but did not specify the total number of people who were not White by group (Budney et al., 2015; Litt et al., 2008; Stephens et al., 1994). White people were the majority sample group in 71.42% of the studies. Finally, no studies were culturally adapted or sought to address any of the unique risk factors associated with cannabis use among people of color. Table 1 identifies these studies, their racial demographics, and the primary outcomes each study assessed.

Next, our calculation of the ratio of RCT inclusion to population-level CUD prevalence revealed notable data regarding the under- and over-inclusion across racial and ethnic groups in CUD research (Figure 2 and Table 2). White participants had the highest inclusion-to-prevalence

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ratio at approximately 49.04, meaning that for every 1% of White people affected by CUD, they represented nearly 49% of RCT samples. Put simply, their inclusion in trials was about 49 times greater than their share of CUD cases. Black participants had a ratio of 11.02, indicating they were included about 11 times more than their CUD prevalence. Latiné participants had a ratio of 5, and multiracial participants had a ratio of 0.83. Asian participants had a ratio of 0.62, and American Indian/Alaska Native (AI/AN) participants had a ratio of 0.43. Finally, our assessment of whether the inclusion of participants of color has improved over time revealed that, although the line of best fit shows a slight downward slope over time, suggesting a modest decrease in inclusion over time, the results were highly variable across studies (Figure 3).

Discussion

Overall, we found that White people comprise the majority of participants in CUD research and that they are significantly overrepresented relative to their prevalence rates. They were also almost always the majority racial group within each CUD behavioral health RCT. Further, there is no robust trend of racial inclusion over time. Perhaps most strikingly, multiracial and AI/AN people have the highest national prevalence rates of CUD, respectively, yet were each underincluded across all studies and comprise the smallest percentage of people included in the last 30 years of CUD research relative to their prevalence rates. Their meaningful underinclusion significantly illustrates the field's failure to recognize and attend to racial and ethnic health differences and disparities.

There are several plausible explanations for why White people have been overrepresented in CUD research. Although, on average, people of color are equally likely to want to participate in research as White people (Wendler et al., 2006), researchers often fail to design their studies in ways that ensure their participation. For instance, studies are frequently conducted in

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predominantly White regions and institutions, which increases the likelihood of recruiting mostly White participants (Reid & Buchanan, 2024). Researchers also rarely oversample for people of color or attend to the racial composition of their research teams, which are factors that reduce racial diversity (Versavel et al., 2023). Moreover, none of the studies in our review acknowledged racial variation in CUD prevalence, indicating a lack of attention to the need for representative samples. Thus, our findings suggest that CUD researchers may not be considering where and how they recruit, which may be limiting racial sample diversity in studies.

Another factor that may shape representation in CUD RCTs is the requirement of a formal diagnosis for study inclusion. Diagnostic thresholds have shifted across DSM editions (e.g., DSM-IV vs. DSM-5), which may result in somewhat different populations being identified as eligible for treatment research (Hasin et al., 2013). Further, diagnosis depends on access to healthcare and the quality and congruence of diagnostic tests and practices with people of color's experiences and needs, all of which are shaped by structural inequities that negatively impact people of color (National Academies of Sciences, 2024). These dynamics may contribute to differential inclusion across groups, such that those with the highest CUD prevalence rates are less likely to appear in RCT samples. This leaves several questions open for future research, including whether shifts from DSM-IV to DSM-5 criteria differentially affect racial and ethnic RCT inclusion, how the kind of healthcare access different groups have shapes CUD diagnosis rates, and whether community-based recruitment models might mitigate the exclusionary effects of diagnosis-based eligibility criteria.

A related contextual factor is state-level marijuana legalization, which may also shape recruitment into RCTs. In states where cannabis is legalized, people may feel more comfortable responding to recruitment ads for CUD, but the data is not yet clear on this matter. However, the

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legacy of the War on Drugs continues to drive racialized patterns of surveillance and arrest for cannabis use that persist even in legalized settings. Research shows that Black people are more likely to be arrested for cannabis possession regardless of its legal status (American Civil Liberties Union [ACLU], 2020). Therefore, it is possible that, even when cannabis is legal, people of color may still be hesitant to respond to and engage with recruitment for CUD research, though further research is needed. Indeed, some data indicate that while legalization is associated with increased CUD treatment admission for Black and Latiné people (Bass et al., 2024), their increase in treatment is facilitated through the criminal justice system. Consequently, if researchers are to recruit more people of color, they may need to recruit in settings where treatment is accessed through criminal justice referrals. Overall, these structural factors highlight the need to interpret findings regarding the lack of diversity in cannabis RCTs with caution, as the representativeness of study populations may be constrained by diagnostic practices and broader policy and policing issues.

Furthermore, the underinclusion of people of color is particularly striking given that CUD research has advanced alongside several decades of institutional initiatives calling for greater racial representation in research (National Academies of Sciences, 2002, 2024). National research institutions have urged increased inclusion of marginalized populations since at least the early 1990s (Geller et al., 2018); however, our findings indicate that CUD researchers have not heeded these calls. In fact, there appears to be a downward trend over the years regarding racial diversity in CUD RCT samples. However, the variation in racial representation throughout the years is too broad, and our sample of studies is too small to render definitive conclusions about field-wide trends. Yet, what is evident is that improvements in racial diversity are more study-dependent than time-dependent, likely influenced by investigators, funding sources, or

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recruitment contexts. For instance, while people of color represented over 60% of the sample in Carroll et al. (2012) and Budney et al. (2015)'s studies, other studies from the same or later years (e.g., Mason et al., 2018) had substantially lower proportions.

These structural and epistemic failures likely contribute to unequal treatment outcomes. Studies show that Black people are less likely to reduce their substance use after receiving substance use disorder (SUD) treatment compared to White people (Sahker et al., 2020). Additionally, people of color are less likely to complete SUD treatment (Mennis et al., 2019), and SUD treatment is less effective for people of color than for White people (Windsor et al., 2015). This may be linked to people of color's underinclusion in SUD research (Amaro et al., 2021). Drawing from this, the underinclusion of people of color in CUD research may mean that interventions are less generalizable and effective for people of color. Consequently, those with the highest prevalence and most severe CUD may not benefit from the treatments being tested.

Further, none of the studies we reviewed employed a culturally adapted intervention or specifically sought to address the social determinants (e.g., racial discrimination) that uniquely influence cannabis use among people of color. This omission is an epistemic and public-health issue that risks the further entrenchment of racial disparities in SUD treatment (Amaro et al., 2021). These interventions may be lacking because no studies to date have examined the association between discrimination and CUD. Yet, discrimination has been associated with cannabis use initiation, frequency, and heavy use (Ahuja et al., 2022; Buckner et al., 2024; Lanaway & Burlew, 2021; Mattingly et al., 2023). When this literature is considered with findings that most people of color endure discrimination over the course of their lifetime (Blendon & Casey, 2019; Lee et al., 2019) and that cannabis use is increasing among nearly all groups, particularly Black and Latiné people (Martins et al., 2021; Montgomery et al., 2022), the

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absence of CUD research that targets discrimination or other race-related issues is notable.

Therefore, CUD researchers must consider designing interventions to address race-related issues, whether by designing interventions specific to racism or adapting interventions that train clinicians to acknowledge, identify, and treat issues like discrimination.

Some may argue that tailoring interventions for people of color requires multiple study arms (including additional controls) and that securing funding for such complex trials can be difficult. However, substance use researchers routinely employ multi-arm studies. Further, entire federal research institutes and grant programs explicitly support trials for women, veterans, sexual- and gender-minorities, and tribal communities³. Moreover, efficient trial designs (e.g., factorial experiments, within-study moderator analyses with oversampling) enable rigorous tests of cultural adaptations without prohibitive arm proliferation. Thus, the issue is unlikely to be due to methodological or financial restrictions, but rather a failure to prioritize racial health equity.

To address these issues, researchers must adopt equity-oriented research approaches, such as community-engaged research (CEnR). The Centers for Disease Control and Prevention define CEnR as research that “work(s) collaboratively with and through groups of people... to address issues affecting the well-being of those people” (National Institutes of Health [NIH], 2011, p. 7). This approach focuses on increasing research participation from marginalized groups and ensures it is relevant to their needs (NIH, 2011). It has been shown to enhance racial sample diversity (Las Nueces et al., 2012) and the relevance, rigor, and reach of research (Balazs & Morello-Frosch, 2013; Warren et al., 2018). There are multiple examples of community-engaged RCTs (e.g., Sirek et al., 2024), including for substance use (Carrico et al., 2016), demonstrating that this approach is feasible and impactful. Moreover, CEnR tends to maintain its effectiveness in

³ Indeed, it is important to note that federal support for matters related to equity, diversity, and inclusion have severely been limited if not completely eliminated since the Trump presidency.

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real-world contexts (Balazs & Morello-Frosch, 2013; Collins et al., 2018), making it well-suited to address the dual challenges of equity and generalizability in CUD research. However, given that equity-focused research is likely to remedy the issues identified in our review most effectively, it is important to note the ongoing issues with federal support for equity research.

Recent federal and state actions targeting diversity, equity, and inclusion (DEI) have created a policy environment that may unintentionally sustain the underinclusion of people of color in CUD research. More than two dozen states have already curtailed or eliminated DEI programs in public universities (Bowker, 2025; Jackson, 2025; Lange & Lee, 2024; Smith & Gasman, 2025), and at the federal level, Executive Order 14151 (2025) terminated DEI initiatives and restricted the use of federal funds for activities deemed to “advance or promote” DEI. Following the executive order, the NIH issued corresponding guidance (NOT-OD-25-090) requiring grantees to certify that their work did not support DEI, with the possibility of grant termination for violations. Although NIH rescinded this notice on June 12, 2025, and is “awaiting further Federal-wide guidance,” the broader political intent to regulate or limit DEI-related activity remains. As a result, there now exists ambiguity regarding the funding researchers might expect for projects that seek to oversample or recruit specific groups of people of color. This current climate risks maintaining the underinclusion documented in this review.

Therefore, new accountability mechanisms must emerge to counteract this. Professional societies like the College on Problems of Drug Dependence, substance use journals, and peer reviewers can help mitigate this risk by increasingly calling for and requiring preregistration of recruitment targets for underrepresented groups, enforcing transparent reporting of racial/ethnic composition in studies, and compelling authors to discuss the limits of generalizability when their samples lack diversity (Buchanan et al., 2021). Moreover, researchers can use open-science

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practices to share de-identified, racially disaggregated datasets in publicly accessible repositories such as the Inter-university Consortium for Political and Social Research (ICPSR) or the National Addiction & HIV Data Archive Program (NAHDAP), enabling secondary analyses even when primary studies are not explicitly equity-focused. It is also unlikely that researchers will receive federal funding to study culturally adapted interventions or to evaluate the health impacts of issues like racial discrimination directly. Therefore, researchers could embed validated measures of discrimination (e.g., the *Everyday Discrimination Scale*; Williams et al., 1997) or racial trauma (e.g., *The UCONN Racial/Ethnic Stress and Trauma Survey*; Williams et al., 2018) into otherwise conventional CUD studies. Overall, there are practices that can promote health equity and ensure that people of color's needs and experiences are addressed in research.

Limitations

We sought peer-reviewed RCT research in PubMed and PsycINFO; therefore, our search may have limited our findings. Future research could move beyond investigating racial inclusion in RCTs and explore racial sample diversity in observational and qualitative studies. Second, although our dataset includes all published and completed US-based behavioral RCTs of CUD treatment for adults, only six studies have been published in the last ten years, and two have been completed in the last two years. This means only approximately 42% of CUD RCTs have occurred in the last 10 years. This may cause some to consider that, if more studies had been published after 2020 (a major year of racial reckoning in the US in research and abroad; Jackson, 2025), racial diversity may be greater. However, we caution against assuming that racial representation has or will improve over time. In fact, our analysis of racial diversity across studies suggests no systematic upward trend; instead, racial inclusion appears sporadic and inconsistent. Notably, the most recent studies from 2024 and 2025 included only about 30%

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participants of color, which is well below the rate observed in earlier studies, such as one from 2012 that included over 80%. Data from these more recent studies have contributed to a downward trend in inclusion, undermining the assumption that more recent studies are necessarily more representative.

Importantly, calls for increasing racial diversity in RCTs have been institutionalized (e.g., The NIH Revitalization Act of 1993) since the early 1990's (Geller et al., 2018), suggesting that research should have produced enhanced racial diversity well beyond the last ten or even five years. Further, while there was a brief surge in national attention to racial equity in research following the public murder of George Floyd in 2020, this momentum has stagnated amid a growing political backlash against DEI efforts and federally funded health disparities research (Jackson, 2025). Thus, the relative recency of studies may have little to do with our findings on racial diversity. The fact that racial representation has remained uneven for over three decades reflects a lack of sustained accountability rather than any methodological or temporal factors.

Next, there were inconsistencies in how race was reported across studies. Some researchers failed to report racial data, while others collapsed categories (e.g., "minorities"). This lack of clarity hindered our ability to accurately assess demographic representation. Authors' inconsistent use of racial terms contradicts the American Psychological Association's racial reporting requirements (American Psychological Association, 2019). Authors must adhere more closely to racial reporting standards. Further, our review did not evaluate each study's rationale for including specific populations. Yet, while inclusion patterns may sometimes reflect targeted public health foci, the underinclusion of people of color in CUD research remains ethically and methodologically significant. Finally, our study was focused on US research. This is because racial dynamics within the US are unique to the country, and patterns of exclusion and inclusion

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reflect racial biases embedded within the country's fabric (Collins, 2020). However, other countries (e.g., England, Australia, etc.) have unique racial caste systems, and examining racial inclusion in research from these regions could be valuable. However, that research must embed its findings within the racial dynamics specific to each region. Overall, future research should increase its focus on addressing issues relevant to people of color in CUD.

Conclusion

Our systematic review found that, despite their heightened prevalence rates and more severe clinical cases, people of color are significantly underincluded in CUD behavioral health RCTs. Because they are significantly underincluded, it is plausible that CUD interventions may be less effective for people of color. Moreover, White people are considerably overincluded in research, and no trends suggest an increase in racial diversity over time. Furthermore, CUD researchers are not designing interventions (e.g., culturally adapted interventions or issue-specific interventions) that address people of color's needs. Yet, given people of color's unique risk factors related to substance use and CUD, they should attend to these specific health needs. Researchers must make a greater effort to include people of color and design treatments that address their specific challenges.

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Table 1*CUD Research's Demographic Characteristics and Study Outcomes*

Study	N	Race;						Primary Outcome(s)
		White	Black	Latine	AI/AN	Asian	Mltr ^o /Other	
Mason et al., 2018	30	18	8	Unknown, not reported (UNR)	UNR	UNR	UNR	Cannabis Use (days)
Litt et al., 2013	215	147	26	35	0	0	7	Cannabis Use (days) Cannabis-Related Problems
Marijuana treatment research group, 2004	450	312	55	78	0	0	5	Cannabis Use (grams/week) Relationship Problems
Budney et al., 2006	90	86	UNR	UNR	UNR	UNR	UNR	Abstinence (binary) Cannabis-Related Problems
Carroll et al., 2012	127	24	81	16	0	1	5	Cannabis Use (frequency) Cannabis-Related Problems
Budney et al., 2015	75	28	44				3	Abstinence (binary) Cannabis-Related Problems
Litt et al., 2008	240	144	UNR	UNR	UNR	UNR	UNR	Cannabis Use (days) Depressive Symptoms
Sinha et al., 2003	65 ^a	15	UNR	UNR	UNR	UNR	UNR	Cannabis Use (grams) Anxiety Symptoms
Litt et al., 2020	198	101	55	28	0	0	14	Cannabis Use (days) Motivation to Change

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Carroll et al., 2006	135	29	81	18				Cannabis use (frequency) Interpersonal Functioning
Stephens et al., 1994	212	201	UNR	UNR	UNR	UNR	UNR	Cannabis Use (severity) Anxiety Symptoms
Mason et al., 2018	96	74	9	2	0	4	7	Cannabis Use (days) Abstinence (binary) Relationship Conflict
Stanger et al., (results submitted to NIH 2024, unpublished)	53	42	1	12	0	1	5	Cannabis craving (assessed 0-10 scale assessed five times daily for 28 days)
Sherman et al., n.d. (results submitted to NIH 2025, unpublished)	104 ^a	70	28	0	2	0	2	Cannabis craving (assessed via self reporting tool with 12 items ranked on 7-point Likert scale)
Total	2025	1291	388	189	2	6	48	
Percentage		63.75%	19.16%	9.33%	0.10%	0.30%	2.37%	

Note. ^jTotals may exceed 100% because some studies did not disaggregate Latiné participants by race (e.g., reporting participants as both Latiné and White). ^oMultiracial. ^a50 participants from this study were labeled as “minorities” and are not displayed in any other racial category. [•]Two participants in this sample did not report or did not know their racial identity.

Table 2

Comparison of Cannabis Use Disorder (CUD) Prevalence and Inclusion in CUD Treatment

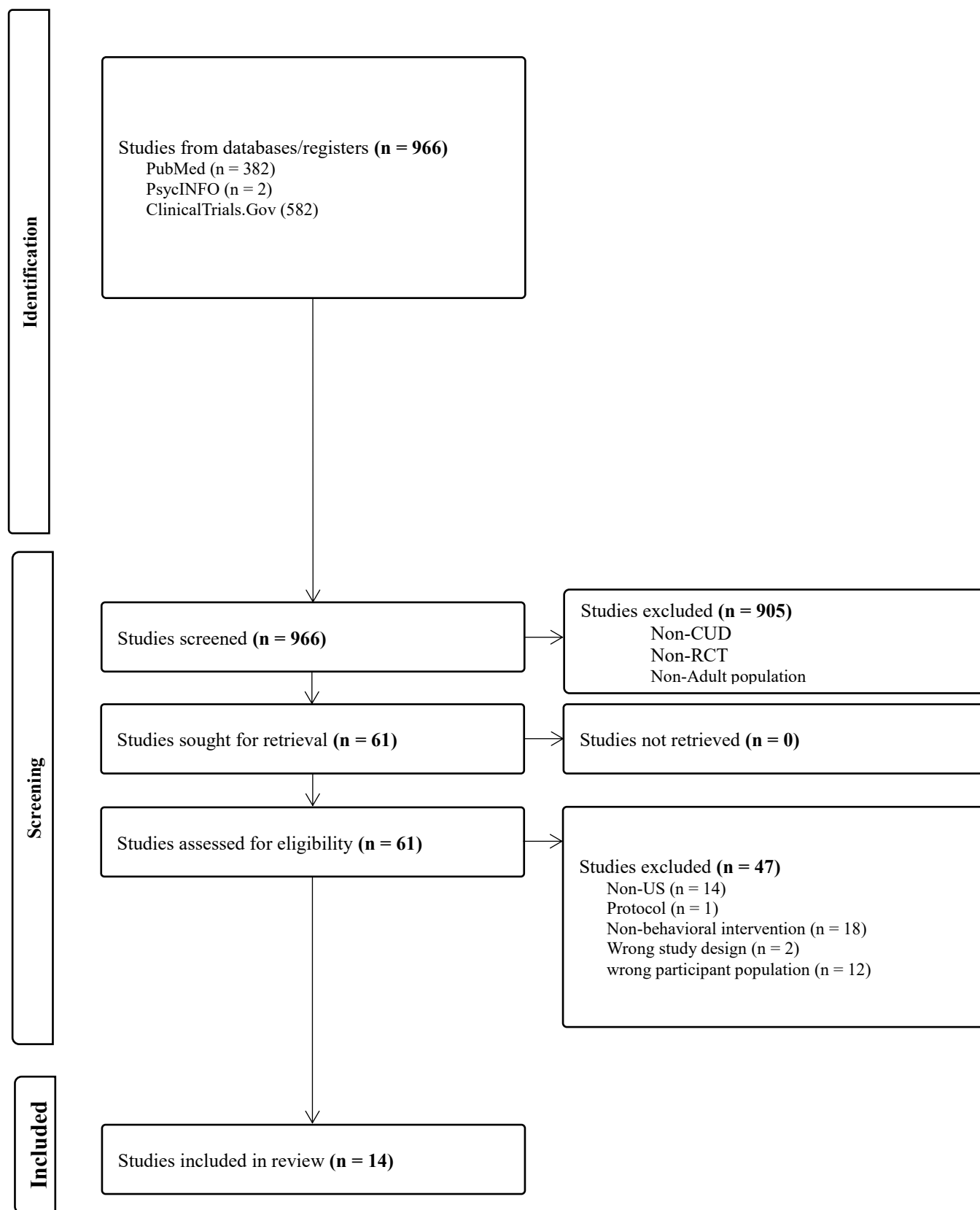
RCTs by Race/Ethnicity

Race/Ethnicity	CUD Prevalence (%)	RCT Sample (%)	Risk Ratio (CUD Prevalence vs White)	Risk Ratio (RCT Inclusion vs. White)	Representation in RCTs
White	1.3	63.75	1.00 (ref)	1.00 (ref)	Overrepresented
Black	2.2	19.16	1.69	0.30	Underrepresented
Latíné	1.6	9.33	1.23	0.15	Underrepresented
Multiracial	3.0	2.37	2.31	0.04	Underrepresented
Asian	0.8	0.30	0.62	0.00	Underrepresented
AI/AN	2.3	0.10	1.77	0.00	Underrepresented

Note. This table presents risk ratios comparing CUD prevalence and RCT inclusion rates across racial/ethnic groups. Though several groups have higher CUD prevalence than White people, they remain underrepresented in treatment trial samples. Additionally, White participants are used as the reference group for comparative purposes; however, this approach can risk reinforcing White populations as the normative baseline and may obscure structural factors driving underrepresentation in other groups.

Figure 1

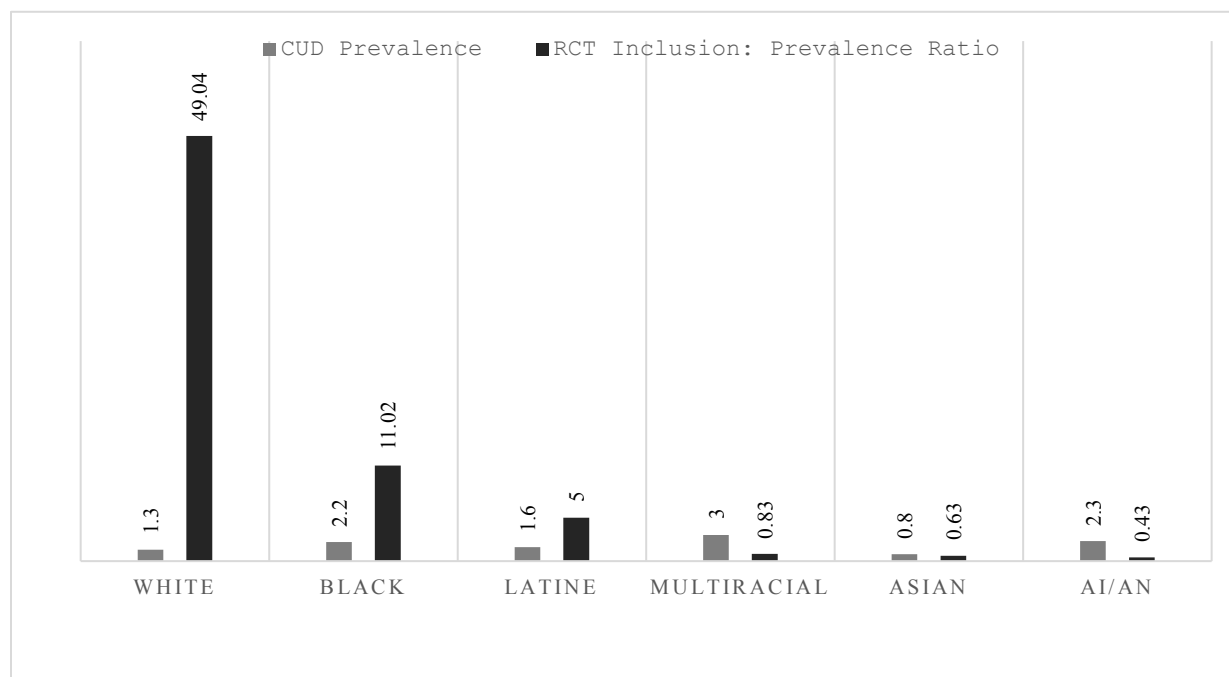
PRISMA Flow Diagram



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Figure 2

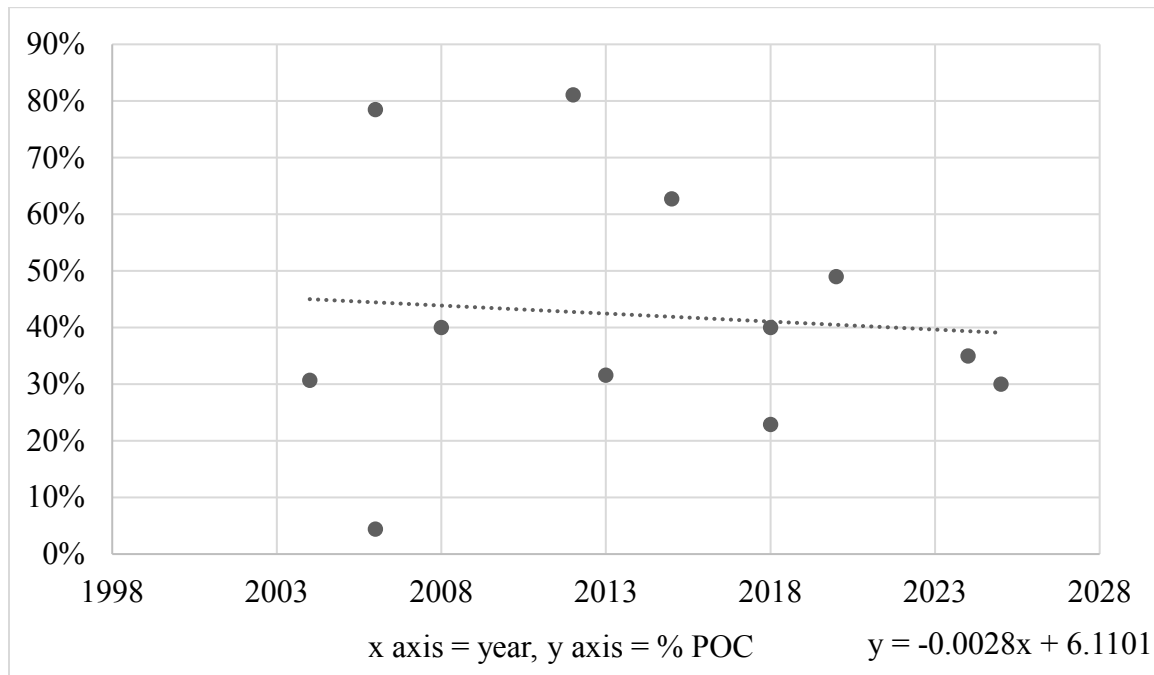
Cannabis Use Disorder Prevalence and Inclusion-to-Prevalence Ratios in RCTs by Race/Ethnicity



Note. The population prevalence data comes from the national past year CUD population prevalence among different groups of people of color aged 18+ published by Ali et al., 2023.

Figure 3

Scatterplot Proportion of POC Participants by Study Year



Note. While some studies have included high proportions of participants of color, the trend over time is inconsistent. Variation between studies, even within the same year, suggests that racial diversity is more reflective of individual study design choices than of a broader temporal shift toward inclusion.