

Minorities' diminished psychedelic returns

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Abstract

Although there is a growing support for the use of psychedelics to improve the health of marginalized groups, there are some critical gaps. First, no empirical studies have examined the effects of psychedelics on Black Americans. Second, there is little research on population effects of psychedelics. Third, little research has tested how cultural set and setting may affect the relationship between psychedelics and health. Specifically, how could economic inequality or the criminal justice system jeopardize the relationship between psychedelics and health for Black people. This study tests race and gender differences in multiple aspects of lifetime classic psychedelic use, specifically drug use, arrest history, economic inequality, and psychological distress. This project uses pooled data of Black and White respondents from the National Survey of Drug Use and Health (2008–2019) ($N=490,586$). The analysis includes a series of logistic and ordinary least square regression models conducted in Stata 17. Results demonstrate that Black people are policed more even though they use less drugs than Whites. Higher class White men are more likely to use psychedelics, while class does not predict use among Black people. Finally, for White men and women, the positive association of psychedelics are enhanced by class, while the negative effect of arrest history on health are buffered by psychedelics. However, Black people do not gain health benefits from psychedelics regardless of class or arrest history. Results suggest that systemic inequality deters use and eliminates all health benefits of psychedelics for Black people.

Keywords

psychedelics, race, health inequality

Introduction

Ever-expanding research analyzes psychedelics as a viable option for treating health problems, including depression, anxiety, suicidality, posttraumatic stress disorder (PTSD), drug dependency, and other behavioral addictions (Barnett, Parker, et al., 2022; Davis, Barrett, et al., 2021; dos Santos et al., 2018; Mithoefer et al., 2019; Penn et al., 2021; Ronan Peck, 2021; Roseman et al., 2018; Yaden et al., 2021; Zeifman et al., 2021). Population studies have confirmed mainly clinical research showing that various psychedelics and 3,4-methylenedioxymethamphetamine (MDMA), commonly known as “ecstasy,” are associated with better physical health and mental health as well as with decreasing negative social behaviors, including committing larceny and domestic violence (Barnett, Ziegler, et al., 2022; Hendricks et al., 2014, 2015a, 2015b, 2018; Jones and Nock, 2022a; Mellner et al., 2022; Sexton et al., 2019; Simonsson, Hendricks, et al., 2021; Simonsson, Osika, et al., 2021; Simonsson, Sexton, et al., 2021; Simonsson et al., 2022; Walsh et al., 2016a, 2016b).

Because of the impressive health results, there have been dramatic legal and cultural shifts around psychedelic use. Results from the latest wave of the monitoring the future panel study found recreational psychedelics use increased

from 5% to 9% among college students between 2019 and 2021 (NIH, 2021). A 2022 NPR report found that thousands of mothers across the USA are microdosing with “magic mushrooms” to cope with parent-related stress (Sherry, 2022). On the legal front, the US Food and Drug Administration (FDA) has designated psilocybin and MDMA with the “breakthrough” therapy designations, which fast tracks further federally funded research (Lamkin, 2021). In 2020, Oregon became the first state to legalize psilocybin for medical usage (Ollove, 2022). Other states and jurisdictions—including Connecticut, New Jersey, Colorado, California, Washington, Utah, and Texas—have followed suit by passing various legislative or ballot initiatives on a broad spectrum of decriminalization from personal use to state-funded research (Marks, 2023).

Most recently, researchers have begun to analyze the potential of psychedelics to positively impact the health

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of people of color who, compared to their White counterparts, continue to suffer both mentally and psychologically with higher rates of all-cause morbidity, which results in a lower life expectancy (Assari, 2017a, 2018a, 2020; Assari, Lapeyrouse, et al., 2018; Assari and Mistry, 2018; Assari, Preiser, et al., 2018b; Assari, Chalian, et al., 2019; Assari, Farokhnia, et al., 2019). But results are proving mixed. On a positive note, research has found that psychedelics significantly moderate the negative effects of ethnic and race-based discrimination on anxiety and distress (Ching et al., 2023; Williams et al., 2021). A follow-up study suggests racial trauma symptoms may be moderated through an increase in psychological flexibility conferred by psychedelic use (Davis, Xin, et al., 2021). On the other hand, nationally represented data have found that while psilocybin and MDMA use was associated with better health outcomes for White users, there were little to no association among users who were race or ethnic minorities (Jones, 2023; Jones and Nock, 2022b).

Despite the few studies on race/ethnicity, the relationship that marginalized groups have with psychedelics is largely unexplored. More specifically, we do not know whether (1) marginalized people will gain the same health benefits as their White counterparts and (2) how psychedelics will affect health disparities. This is unknown in large part because marginalized people are often not the focus in health studies and are often underrepresented in clinical trials. There are many reasons why race and ethnicity are understudied in psychedelic research, including (1) lack of diversity in clinical psychedelic trials; (2) a lack of cultural inclusivity and racial diversity within the research community; (3) stigma related to mental disorders and lack of treatment access among Black, Indigenous, and People of Color (BIPOC); (4) recruitment methods that do not emphasize recruitment of BIPOC; and (5) a history of racist and unethical research practices, most notably the Tuskegee syphilis study (Thrul and Garcia-Romeu, 2021).

The lack of diversity extends to current clinical psychedelic research. Pooled analyses of contemporary clinical trials on psychedelics have found that White individuals comprise over 80% of study participants, substantially underrepresenting BIPOC, and according to Thrul and Garcia-Romeu (2021), call into question the generalizability of findings to non-White populations (Garcia-Romeu et al., 2021; Michaels et al., 2018). For instance, in one phase 2 trial on the effects of psilocybin on treatment-resistant depression that was concluded in 10 countries in Europe and North America, 215 (92%) of the 233 participants were White (Goodwin et al., 2022). In another study on the effects of MDMA on eating disorders, about 90% of participants were White (Brewerton et al., 2022). Even in research trying to analyze the efficacy of these drugs for marginalized people, results may not paint an accurate picture of marginalized people's experiences. In their

study of the effects of ethno-racial differences of MDMA therapy on PTSD, not only was the sample size of BIPOC sample (29%) admittedly too small to detect "ethno-racial group differences" (Ching et al., 2022: 984), their entire ethno-racial sample was a combination of all non-Whites whereby Asians (mostly middle and upper class) were overrepresented. Additionally, Blacks and Indigenous—two race groups with consistently the worst mortality and morbidity rates—were underrepresented. As demonstrated by scholars who study the interactionally of race and gender (Collins and Collins, 2015), the lived experiences of marginalized people vastly differ. Thus, results from a sample of mostly class-privileged Asians are probably not applicable to Black and Indigenous people's lives.

Despite a lack of research and history of medical racism, some researchers have made the argument that psychedelics could positively impact BIPOC's health. They may even be a viable solution to ameliorate the negative psychological effects of racism itself. According to Smith et al. (2022: 11), the "trauma and PTSD caused by racism are serious and widespread psychological issues," and psychedelics can be a viable solution in addressing consequences of negative race-based experiences. Drawing on the need for inclusivity, a MAPS Bulletin documents two events that provided MDMA therapy training for communities of color (Carlin, 2020). Although the program faced many challenges, they believe that programs like theirs are key to making psychedelic therapy more accessible to people of color (Carlin, 2020: 15).

Because of the rapid legal changes and the growing discussion around using psychedelics to address health problems faced by marginalized people, it is all the more imperative to study the impact of psychedelics on minority health. To address the gaps, this study draws upon two theoretical frames to analyze race and gender difference in psychedelic use and health: cultural set and setting and minorities' diminished return (MDR). First, the cultural set and setting frame takes a critical approach, which argues that the effects of psychedelics are "fundamentally reliant on context – both in the psychological and environmental sense" (Carhart-Harris et al., 2018: 725).

This theory will provide evidence that those with the highest socioeconomic status (i.e. education and income) will gain the most benefits from psychedelic use. On the other hand, MDR provides evidence that compared to Whites, race and ethnic minorities have smaller health gains even with high education and income. MDR highlights that health disparities, particularly between Black and White Americans, (1) have increased and (2) are widest at the highest level of education and income. Most importantly, MDR demonstrates that (3) higher economic status does not lead to better health for Black Americans (Olshansky et al., 2012). These two theories suggest that psychedelic use will be associated with better health

outcomes among higher class Whites, and there will be no association between psychedelic use and health among Black people, regardless of income or education.

This study contributes to the literature by investigating how inequality affects race and gender differences in lifetime classic psychedelic use (LCPU) and subsequent outcomes (psychological distress using the Kessler Psychological Distress Scale (K6)) (Kessler et al., 2010). This study agrees with previous research that argues racial identification may contribute to the framing and interpretation of psychedelic experiences, but it expands upon the theory by examining drug use patterns. Specifically, while other research suggests that cultural differences will affect health outcomes, this study proposes racism—economic inequality and unequal treatment in the justice system—will also create different race relationships with psychedelics. In other words, systemic racism will affect the entire relationship that people have with psychedelics, both upstream before use and downstream after use. More specifically, prior to using psychedelics, systemic racism will affect Black people's relationship with, perceptions of, and access to psychedelics, all of which could alter psychedelic health efficacy. Structural racism will also affect health after use because of different access to other resources that could affect the efficacy of the drugs, or exposure to trauma that more quickly diminishes the efficacy of the drugs.

This research largely focuses on the disparities between Black and White Americans for a few reasons. First, we will see that the driving mechanism behind MDR is racism, with much of the current scholarship focused on Black Americans. This is not to say that there is no discrimination against other minorities in the USA. There are also many disparities between race/ethnic groups in other nations and across Europe. However, the health disparity, income disparity, and mistreatment in the American justice system of Black people in the USA are particularly striking given America's history of slavery, racism, and Jim Crow (segregation) laws. For instance, Black Americans are the largest imprisoned racial group in the world (Sabol and Johnson, 2022). There are more Black Americans in prison today than there were enslaved persons at the height of American slavery (Pettit and Western, 2004). Furthermore, White and Black health- and wealth-related disparities have increased since the elimination of Jim Crow laws in the 1960s (Priest and Williams, 2018). While we should expect that many of these similar patterns related to race-diminished health will be applicable across various groups and that addressing such patterns constitutes critical research, our research frame is narrow. Specifically, we are focusing on health disparities between White and Black Americans and explore whether psychedelics can positively impact those disparities.

In addition to examining effects of racism on use and outcomes, this study takes an intersectional approach by

examining gender differences (i.e. White men, Black men, White women, and Black women). After reviewing the literature on psychedelic set and setting, class and health, and MDR and racism, we develop a series of theoretical arguments linking psychedelics with systemic racism through arrest history, class inequality (education and income), and distress. The analysis is driven by four questions. (1) Who uses more psychedelics? (2) Who gets policed more? (3) Does class inequality (education and income) or racism in the criminal justice system affect psychedelic use? (4) Does education, income, or criminal history moderate the relationship between psychedelics and health? Most importantly, (5) will psychedelics positively impact health inequality, or will it lead to more disparities?

To answer these questions, we analyze pooled data from the National Survey of Drug Use (2008–2019), which is reduced to only White and Black respondents ($n = 490,586$). Results demonstrate that Black people are policed more even though they use less of all drugs than Whites. Higher class White men are more likely to use psychedelics while class does not predict use among Black respondents; regardless of class, Black people are less likely to use drugs. Finally, there were positive associations between psychedelics and health among White men and women at different levels of education, income, and arrest history. On the other hand, Black people do not see a reduction in distress associated with psychedelic use regardless of class or criminal history. We will argue that systemic inequality deters psychedelic use and eliminates psychedelic health benefits for Black people. We end with a discussion of the implications, the importance of population studies, and future avenues of inquiry.

Theoretical and empirical background

Cultural set and setting

To understand why Black and White people will have different relationships with psychedelics, we have to understand the effects of cultural set and setting on the psychedelic experience. The perspective on cultural set and setting recognizes two key definitions. Setting refers to the physical and social environment where psychedelics are consumed. In contrast, set “refers to the internal conditions of the person using the psychedelics, including factors such as mood, attitudes, preparation, personal history, personality, expectations, motivations for using, and beliefs about themselves and the use of drugs” (Neitzke-Spruill, 2019: 52). How set and setting affects a person may have something to do with the promotion of neurogenesis, the process by which new neurons are formed in the brain (Ly et al., 2018). The current consensus is that because meaning-making is derived from set and setting and psychedelics arouse psychophysiological changes, context

can be manipulated to enhance the effectiveness of psychedelics (Hartogsohn, 2017).

While the clinical perspective views everyone through the same therapeutic lens whereby users can be positively manipulated to create unified positive outcomes (Dummit and Sanabria, 2022), the cultural position states that set and setting do not exist independently of culture (Hartogsohn, 2017). According to Hartogsohn (2016), the individual level where the psychedelic is consumed sits “atop of a more fundamental collective level, which frames and gives shape” to set and setting available to the (Hartogsohn, 2016: 2). To be sure, different social groups (i.e. gender and class) will have access to different types of resources that will affect the setting. Moreover, cultures and subcultures provide “distinct types of environments for hallucinogenic experimentation” (Hartogsohn, 2022: 8). For instance, evidence suggests that psychedelic trips may produce better outcomes when consumed in natural settings (Rose, 2022), which are not always available in urban environments. Therefore, because of difference, for instance, in the structure of the community, cultural music preferences, the strength of social support, relationships with drugs, and the availability of comfortable physical setting, all of which affect the psychedelic trip, different groups will have different outcomes after psychedelic use.

But more fundamental than how a lived experience can shape a setting is how it shapes a set—the internal conceptions that create the lens to interpret psychedelic experiences. Key to the cultural perspective is understanding the long-range “personality characteristics” that could be derived from individual and cultural histories (Neitzke-Spruill, 2019). The psychedelic experience is not universal; it is a “mind-manifesting” experience that reflects the self and enlarges a person’s lived reality (Noorani, 2021). To be sure, lived realities vary radically. Different social groups experience different types and levels of trauma and inequalities. Most importantly, different lived experiences create different cognitive processes, access to psychological resources, and even mental illness. All of these different cognitive processes can interact with the psychedelic experience. The reality of a person’s experience will affect not only what they see in the psychedelic experience but how they may understand it. For instance, one study found conservative groups have used psychedelics to justify beliefs, including harmful ideas around racism and authoritarianism (Pace and Devenot, 2021).

Overall, set and setting could be hypothesized as sitting on a spectrum from the most optimal to the least optimal. Those with the most optimal set and setting have the conditions (i.e. psychological, biological, and social) that create the best sustained health outcomes. Conversely, those with the least optimal set and setting have less of the necessary conditions to create optimal or sustained health outcomes associated with psychedelic

use. Most importantly, culture will interact with different aspects of set and setting, putting people on different ends of the spectrum. All things being equal, any disparate outcomes associated with psychedelics suggest one has a better set and setting than another although the direct cause of the disparity may be unknown. For instance, one quantitative study documented how religious beliefs can interact with psychedelics affecting mental health. The study found that psychedelics can interact with strong religious beliefs, creating better health outcomes, but only when religious attendance was also high (Viña, 2022). Those who had strong beliefs, but low attendance, had higher levels of distress. The findings suggest that culture (levels of religiosity) and social interactions (amount of religious attendance) alter set and setting which affects psychedelics on health. So what other conditions are likely to compromise set and setting?

Class inequality and psychedelics

Overall, cultural set and setting suggests that class inequality will be a major facilitator of different psychedelic health outcomes. Recall, better set and setting creates the best outcomes, but class inequality is consistently associated with health inequality. In 2021, those in the lower class had a higher risk factor for all the top 10 leading causes of death in America, which include heart disease, cancer, COVID, and accidents (Murphy et al., 2020). Those who live in the lower classes have higher rates of stress; are more likely to use harmful substances, including tobacco and alcohol (Bohm et al., 2021); and are less likely to have healthy diets or exercise (Bryan et al., 2021). Those in the lower classes are also more likely to be segregated into neighborhoods with serious structural problems, including crumbling infrastructure, and pollution (Williams and Collins, 2001).

The magnitude of illness and stress within the lower classes illustrates why they will have a less than optimal set and setting and thus benefit less from psychedelic use. This group has higher rates of mental illness, distress, and anxiety, which may make it harder to get into a positive mindset before a psychedelic trip. The amount of distress also suggests that the lower class will have many negative conceptions that could interfere with the psychedelic trip, including guilt or shame of using these drugs. Several studies have found that the most fulfilling psychedelic experiences were those that drew upon personal experiences or relationships (Maclean et al., 2011). Because of chronic negative experiences, they will simply have fewer positive experiences to draw upon to interpret the trip, or the positive effects of psychedelics will be eliminated over time. In other words, it is tough to positively conceptualize a mind-altering psychedelic trip on an empty stomach.

MDR and psychedelics

While we expect that belonging to a higher class will be key to the efficacy of psychedelics on health, it is unlikely that Black people will gain as many—if any—benefits as Whites. Ample evidence shows diminished returns for economic/class achievement for Black people. Compared to Whites, increased education among Black people is not associated with better mental or physical health, including self-reported health or depressive symptoms (Assari, 2020; Assari et al., 2018a), emotional well-being (Assari et al., 2018b), obesity (Assari, 2018b), or chronic obstructive pulmonary disease (Assari et al., 2019a). Education was also not a protective factor against negative health behaviors, including smoking (Assari and Mistry, 2018) or alcohol binge drinking (Assari et al., 2019b). While education and income can be a huge windfall for White people's lives, education does not improve Black life expectancy (Assari, 2018a), does not lead to upward mobility for Black people (Assari, 2018c), and it may actually be a risk factor of depression for Black men (Assari, 2017b). Today, the race gap in life expectancy is widening and is widest at the highest level of education and income (Olshansky et al., 2012; Schwandt et al., 2021).

Why education and income provide no apparent health benefits for Black people is in large part explained by racism (Priest and Williams, 2018). While there are many ways that racism affects Black health (detailed in the discussion), because this study analyzes illicit drug use, racism in the criminal justice system will play a major role. Black Americans are imprisoned at five times the rate of Whites (Nellis, 2021). In 2020, Black people were three times more likely to be imprisoned for nonviolent drug offenses or spend more time in jail for the same crimes (Sabol and Johnson, 2022). Black people are twice as likely than Whites to experience a threat of force from police or be handcuffed (Harrell and Davis, 2020). Despite marijuana's decriminalization across various US jurisdictions, Black people are still four times more likely than Whites to be arrested for marijuana possession even if they have a legal prescription or when living in a state where marijuana has been legalized for personal use (Edwards et al., 2020). Black Americans are almost three times more likely than Whites to be killed by police (Buehler, 2017), partially explained by the fact that White police officers are four times more likely to use their guns in Black neighborhoods (Peeples, 2020). At present, 41% of Black adults report their police encounters are not pleasant, twice that rate of the total population (Lloyd, 2020).

Not surprisingly, the negative impact of the criminal justice system on Black health is profound. And, just like class that does not benefit Black people at any level, the criminal justice system negatively impacts all Black people even if they have never been personally arrested. For instance, increased negative police encounters are

associated with higher rates of anxiety and depression among Black people (Geller et al., 2014). Each additional police killing was associated with poorer mental health days for Black people indirectly exposed to police killings, an effect that did not harm Whites (Bor et al., 2018). There is even evidence that Black children health erodes because of policing on their parents; Black children are more likely to develop psychosis because of early parental death (Misra et al., 2019). Overall, because of fear of criminal prosecution that could harm themselves and the community, Black people are unlikely to have a positive relationship with psychedelics, or even attempt to use the drug.

Current intersectional study and hypotheses

This study examines race differences in the relationship between psychedelics, systemic inequality, the criminal justice system, and health outcomes. While we expect there will be some universal constants related to race inequality that affects drug use and health outcomes, the intersectionality approach suggests that general patterns may vary by both race and gender (Collins and Bilge, 2016). The fact remains that there are relevant race/gender patterns for which to account. For instance, although the entire Black community will be negatively impacted by the criminal justice system, Black men are most likely to end up in prison, have negative police encounters, and die earlier than the other groups due to the criminal justice system; Black men's cumulative loss of life is over 2.5 times that of White men's (Wrigley-Field, 2020). And despite systemic race inequality, White people have higher rates of mental illness than Black people, with White women having the highest rates, and Black women often having the lowest (Rieker et al., 2010).

Thus, this study takes an intersectional approach to bridge the gaps between sociological and psychedelic studies. Applied to the present study, we assess six empirical predictions on the relationship between race, class, criminal history, health, and psychedelics. First, we expect that (1) Black people will use less psychedelics than Whites. Despite less use, (2) Black people are policed more than Whites, because of systemic racism. (3) While different levels of education and income or criminal record will predict psychedelic use among Whites, it will not predict use among Black people. (4) While increased psychedelic use will predict less distress among White people, it will not predict less distress among Black users. (5) While the positive association between psychedelics on health will be larger among White people with higher education and income, there will be no association between psychedelics and health at any level of education and income for Black people. And (6) the negative association between being arrested and health will be

smaller for White psychedelics users, but not for Black users.

Data and methods

This present study used pooled data from the National Survey of Drug Use and Health (NSDUH) (2008–2019). The NSDUH is an annual survey designed to measure the prevalence of substance use and mental health issues in the USA, conducted in all 50 states and the District of Columbia. The data were weighted to reflect the civilian noninstitutionalized population. One key variable (psychological distress using the Kessler 6 scale) was not asked in the years 2002–2007. This analysis focuses on differences between White and Black people. Thus, all other race/ethnic groups were also dropped for a final sample size ($n = 490,586$). Table 1 shows the descriptive statistics for dependent, independent, and control variables. All variables are derived from responses to publicly available data. Full sampling techniques can be found at their website: https://nsduhweb.rti.org/respweb/about_nsduh.html.

Key dependent and predictor variables

This analysis includes three key dependent variables. First, we replicated previous research and created a measure of LCPU: classic psychedelics are a subclass of psychedelics that have little toxicity (dos Santos et al., 2018). Classic psychedelics include *N*-dimethyltryptamine (DMT), the DMT-containing admixture ayahuasca, psilocybin, lysergic acid diethylamide (LSD), mescaline, and the mescaline-containing cacti peyote. Respondents reported if they had ever used, even once, the following drugs: DMT, ayahuasca, psilocybin, LSD, mescaline, or peyote. Consistent with previous literature (Simonsson, Osika, et al., 2021; Simonsson, Sexton, et al., 2021), the six variables were used to create a dummy variable indicating any LCPU (yes vs no).¹ The next dependent variable is arrest history. Respondents reported if they had ever been jailed in their lifetime (yes vs no). Finally, we included one variable measuring psychological distress that was provided within the NSDUH. Respondents reported their level of distress in the past month using the K6 (Kessler et al., 2002, 2010). Participants indicate how often they have had six different feelings or experiences during the past 30 days using a 5-point Likert scale: 4 (All of the time), 3 (Most of the time), 2 (Some of the time), 1 (A little of the time), and 0 (None of the time). The feelings and experiences for this first item are the following: “nervous,” “hopeless,” “restless or fidgety,” “so depressed that nothing could cheer you up,” “that everything was an effort,” and “worthless.” Psychological distress in the past month created the variable by adding all measures into one scale that ranges from 0 to 24, with higher scores indicating higher levels of distress.

Table 1. Descriptive statistics for dependent variables, independent variables, and controls (2008–2019) (weighted).

	Mean	SD	<i>n</i>	%/min–max
Key variables				
Psychological distress in the last month (K6)	9.49	6.06	122,633	0–24
LCPU			69,745	14.22
Educational attainment	2.81	0.99	359,097	1–4
Annual household income	5.09	1.99	490,586	1–7
Ever arrested			84,944	17.37
Race and gender variables				
Women			253,917	51.76
White			414,096	84.41
Black			76,489	15.59
White men			201,721	41.12
White women			212,374	43.29
Black men			34,946	7.12
Black women			41,542	8.47
Control variables				
Age	13.86	3.84	490,586	1–17
Marital status				
Single, never married			125,641	29.39
Married			215,960	50.52
Widowed			27,054	6.33
Divorced/separated			58,846	13.77
Religious attendance	1.92	1.89	356,849	0–5
Religiosity	4.88	2.60	351,814	0–9
Lifetime drug use				
Cocaine			78,665	16.04
Marijuana			232,893	47.47
MDMA/ecstasy			33,627	6.86
PCP			13,210	2.69
Inhalants			46,522	9.50
Stimulants			52,581	10.72
Sedatives			42,399	8.64
Tranquilizer			83,476	17.02
Heroin			9,643	1.97
Pain relievers			179,351	36.56
Smokeless tobacco			95,515	19.47
Pipe tobacco			73,792	15.04
Cigar use			180,570	36.81
Cigarette			187,877	38.30
Age of first alcohol use	2.87	1.20	490,586	1–5
Self-reported risky behavior	0.03	0.21	485,369	0–3

Source: 2008–2019 NSDUH, $n = 490,586$.

Key independent variables

Socioeconomic class is measured by two continuous variables: (1) annual household income (less than \$10,000, \$10,000–\$19,999, \$20,000–\$29,999, \$30,000–\$39,999, \$40,000–\$49,999, \$50,000–\$74,999, and \$75,000 or more) and (2) educational attainment (high school degree, some college, college degree or higher, and less than a

high school degree, serving as the reference category). Taking an intersectional approach, we combined gender and race into one variable with four categories: Black men, White women, Black Women, and White men serving as the reference category.

Control variables

Other sociodemographic control variables include age as a continuous measure (18, 19, 20, 21, 22–23, 24–25, 25–29, 30–34, 35–49, 50–64, and 65+) and marital status (married, widowed, divorces/separated, and single-never married serving as the reference category). The regression analysis also controls for the year of the survey, based on previous research using the NSDUH.

Previous research has found a strong correlation between drug use, risky behavior, and mental illness. Therefore, this study follows the guidance of similar research that uses the NSDUH by including controls for other drug use (Simonsson, Osika, et al., 2021; Simonsson, Sexton, et al., 2021; Viña, 2022). We include the following binary control variables: lifetime use of cocaine, marijuana use, MDMA/ecstasy, phencyclidine (PCP), inhalants, other stimulants, sedatives, pain relievers, smokeless tobacco, pipe tobacco, cigar, and daily cigarette use. Age of first alcohol use and self-reported engagement in risky behavior are continuous variables.

Finally, there are two religiosity variables. First, religious attendance measures how often a person attended religious services in the last year with the following option: (0=) 0 times, (1=) 1–2 times, (2=) 3–5 times, (3=) 6–24 times, (4=) 25–52 times, and (5=) more than 52 times. Religious salience is an index of the following three variables: (1) my religious beliefs are very important, (2) my religious beliefs influence life, and (3) it's important that my friends are religious (Cronbach's $a = 0.82$).

Analytic strategy

To address this study's questions, we began by calculating the means of each variable in the sample by the four race/gender groups. Then, we conducted a post-estimation LINCUM (non-linear combination) commands, which compute the statistical difference of two subpopulation means (Long and Freese, 2014). We calculated the statistical mean difference of White men minus (–) White women, Black men minus (–) Black women, White men minus (–) Black men, and White women minus (–) Black women (Table 2). We then used a series of logistic regression and ordinary least square (OLS) regression models to test the relationship between race/gender, LCPU, class, arrest history, and health (Tables 3–5).² Table 3 predicts LCPU among the

total sample, and by race and gender. Table 4 predicts arrest history in the total sample, and by race and gender. Table 5 predicts psychological distress by the total sample and with interaction terms (LCPU \times race/gender). Supplemental Tables 4–7 (available online) predict psychological distress, each table by a race/gender group. Each of the race/gender tables includes a series of nested regression models to test mainline and interaction terms. Model 1 is the full model with all controls. Model 2 tests interactions between LCPU and family income. Model 3 tests interactions between LCPU and education. Model 4 tests interactions between LCPU and arrest history. Finally, Models 5 and 6 test three-way interactions between LCPU and arrest history with education and family income, respectively.

Using the intersectional approach that understands different groups have substantially different lived experiences (i.e. White men vs Black women), we follow recommendations to run individual models by race/gender to compare substantially meaningful profiles (Long, 2009). To facilitate the analysis of race/gender differences across regression models, we assessed the statistical difference of coefficients by running post-estimation SUEST (seemingly unrelated estimation) commands, which combine regression estimation results and allow for generalized Hausman specification tests (Oberfichtner and Tauchmann, 2021). The post-estimation commands are appropriate when the estimates were obtained on the same or overlapping data. NSDUH created weights by adjusting the single-year weights by a scalar factor (i.e. the number of years of data used) so that the estimated number of individuals reported is representative of the national population. All analyses incorporate the sampling weights provided by the NSDUH and conducted in STATA 17. Finally, as with previous research on psychedelics using the NSDUH, there was no control for multiple comparisons in the present study (Mellner et al., 2022; Simonsson, Osika, et al., 2021; Simonsson, Sexton, 2021). However, according to Armstrong (2014), a Bonferroni correction is not needed for this study because we meet the following requirements: (1) we do not require a single test of the universal null hypothesis, (2) we do not need to avoid a type I error, and (3) we have extensive preplanned hypothesis that drives our analysis.

Results

Descriptive statistics

Mean differences by gender and race (Table 2) demonstrate that White men have higher LCPU than other groups, followed by White women, Black men, and Black women ($p < 0.001$). White women also have the highest level of distress, followed by Black women

Table 2. Mean differences of key variables and control variables by the intersection of race and gender (weighted).

	Mean				Mean difference ^a							
	White men	Black men	White women	Black women	White men (-) white women	Black men (-) black women	White men (-) black men	White women (-) black women				
Lifetime classic psychedelic use	0.20	0.06	0.11	0.02	0.08 ***	0.04 ***	0.14 ***	0.04 ***				
Psychological distress in the past month (K6)	9.26	9.26	9.67	9.38	-0.41 ***	-0.11	0.00	-0.11				
Annual household income	5.41	4.26	5.15	3.89	0.26 ***	0.36 ***	1.15 ***	0.36 ***				
Educational attainment	2.85	2.42	2.89	2.57	-0.03 ***	-0.14 ***	0.43 ***	-0.14 ***				
Ever arrested	0.24	0.30	0.09	0.12	0.15 ***	0.18 ***	-0.06 ***	0.18 ***				
Age	13.38	12.96	14.09	13.37	-0.20 ***	-0.40 ***	0.92 ***	-0.40 ***				
Marital status												
Single, never married	0.29	0.48	0.23	0.46	0.06 ***	0.01 **	-0.18 ***	0.01 **				
Married	0.55	0.35	0.52	0.25	0.03 ***	0.08 ***	0.20 ***	0.08 ***				
Widowed	0.03	0.02	0.09	0.07	-0.06 ***	-0.05 ***	-0.01 **	-0.05 ***				
Divorced/separated	0.11	0.13	0.14	0.18	-0.03 ***	-0.04 ***	-0.01 ***	-0.04 ***				
Religiosity	4.42	5.59	4.99	6.05	-0.57 ***	-0.45 ***	-1.17 ***	-0.45 ***				
Religious attendance	1.68	1.98	2.03	2.52	-0.35 ***	-0.54 ***	-0.30 ***	-0.54 ***				
Lifetime drug use												
Cocaine	0.20	0.13	0.13	0.06	0.07 ***	0.06 ***	0.07 ***	0.06 ***				
Marijuana	0.52	0.48	0.44	0.35	0.07 ***	0.13 ***	0.03 ***	0.13 ***				
MDMA/ecstasy	0.08	0.05	0.06	0.03	0.02 ***	0.02 ***	0.03 ***	0.02 ***				
PCP	0.04	0.03	0.02	0.01	0.02 ***	0.02 ***	0.01 *	0.02 ***				
Inhalants	0.13	0.05	0.07	0.02	0.06 ***	0.02 ***	0.08 ***	0.02 ***				
Stimulants	0.12	0.04	0.11	0.04	0.02 ***	0.00	0.08 ***	0.00				
Sedatives	0.08	0.03	0.10	0.04	-0.01 ***	-0.01 ***	0.05 ***	-0.01 ***				
Tranquilizer	0.16	0.07	0.20	0.09	-0.03 ***	-0.02 ***	0.09 ***	-0.02 ***				
Heroin	0.03	0.02	0.01	0.01	0.01 ***	0.02 ***	0.01 *	0.01 ***				
Pain relievers	0.38	0.26	0.37	0.29	0.01 **	-0.03 ***	0.12 ***	-0.03 ***				
Smokeless tobacco	0.37	0.12	0.06	0.04	0.31 ***	0.07 ***	0.26 ***	0.07 ***				
Pipe tobacco	0.29	0.12	0.04	0.01	0.25 ***	0.10 ***	0.16 ***	0.10 ***				
Cigar use	0.59	0.36	0.20	0.13	0.38 ***	0.23 ***	0.23 ***	0.23 ***				
Cigarette	0.43	0.30	0.37	0.22	0.05 ***	0.07 ***	0.13 ***	0.07 ***				
Age of first alcohol use	2.62	3.13	2.94	3.48	-0.31 ***	-0.35 ***	-0.51 ***	-0.35 ***				
Self-reported risky behavior	1.89	1.56	1.55	1.37	0.33 ***	0.18 ***	0.32 ***	0.18 ***				

Source: 2008–2019 National Survey of Drug Use and Health, $n = 490,586$.

^aCalculated in STATA with LINCOM (linear and nonlinear combination) post-estimation commands.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

($p < 0.001$). Black men and White men have the same level of distress ($p < 0.001$). White men have the highest income followed by White women, Black men, and then Black women ($p < 0.001$). White women have the highest education, followed by White men, Black women, and then Black men ($p < 0.001$). Black men are

the most likely to be arrested, followed by White men, Black women, and then White women ($p < 0.001$). Lastly, White men and White women were consistently more likely to use any drug, smoke, start drinking at an early age, and engage in risky behavior than their Black counterparts ($p < 0.001$).

Table 3. Weighted logistic regression predicting using classic psychedelics with interaction terms.

	Model 1	Model 2	Model 3 White men	Model 4 Black men	Model 5 White women	Model 6 Black women
Race and gender						
Black men	-1.374*** (0.110)	-1.391*** (0.109)				
White women	-0.285*** (0.0406)	-0.271*** (0.0417)				
Black women	-1.770*** (0.124)	-1.766*** (0.127)				
Explainer variables						
Education		0.0748*** (0.0180)	-0.0442** (0.0157)	0.0105 (0.0380)	0.00212 (0.0124)	0.0371 (0.0533)
Family income		-0.0121 (0.00926)	0.108*** (0.0272)	0.189 (0.0997)	0.0399 (0.0285)	0.130 (0.114)
Ever arrested		0.175*** (0.0368)	0.314*** (0.0562)	-0.117 (0.215)	0.151* (0.0599)	-0.314 (0.249)
Constant	-5.590*** (0.175)	-5.644*** (0.180)	-4.778*** (0.298)	-6.357*** (0.923)	-6.714*** (0.245)	-7.639*** (0.988)
Observations	120,706	120,519	38,279	6216	64,254	11,770

Note: All models control for age, marital status, religiosity, drug history, psychological distress, risky behavior, and survey year. See online Supplemental Table 1 for full models. Standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

Source: 2008–2019 National Survey of Drug Use and Health, $n = 490,586$.

Are Black or White people more likely to use psychedelics?

Mean differences (Table 2) found that White people, particularly White men, were more likely to use psychedelics. In fact, they were more likely to use any drug, smoke, and drink at an earlier age than Black people. Results from the weighted logistic regression models (Table 3, Model 2), which include controls for income, education, and arrest history, demonstrate the race pattern stays the same. White men are more likely to use psychedelics than Black men ($b = -1.391$, $p < 0.001$), White women ($b = -0.271$, $p < 0.001$), and Black women ($b = -1.766$, $p < 0.001$). A post-estimation test of difference in coefficient further demonstrates that Black men had lower LCPU than White women, and Black women had lower LCPU than Black men. Results confirm psychedelics are mostly used by White people, highest among White men.

Does systemic inequality affect Black psychedelic use?

In Table 3, Models 3–6 predict psychedelic use by race and gender. Results demonstrate that for White men, increased income is associated with less psychedelic use ($b = -0.0442$, $p < 0.01$) while increased education ($b = 0.108$, $p < 0.001$) and being arrested ($b = 0.314$, $p < 0.001$) are associated with more psychedelic use. For White women, only being arrested is associated with more psychedelic use ($b = 0.151$, $p < 0.05$).

Who is more likely to be arrested?

In Table 4, Model 1 demonstrates that Black men are more likely ($b = 0.697$, $p < 0.001$) to be arrested than White men while White women ($b = -1.010$, $p < 0.001$) and Black women are less likely ($b = -0.254$, $p < 0.001$) to be arrested than White men. Model 2 introduces an interaction between LCPU and race/gender. Results show that Black men ($b = -0.358$, $p < 0.05$) and Black women ($b = -0.710$, $p < 0.01$) are less likely than White men to be arrested. On the other hand, White women are more likely to be arrested than White men ($b = 0.125$, $p < 0.05$). Post-estimation test of difference in coefficient confirms the race/gender differences.

However, when we run models by race and gender (Table 4, Models 2–9), the effects of racism in the criminal justice system become more apparent. For each group, we ran two models: the first did not include controls for other drugs while the second included all the drug controls. For White men (Model 2, $b = 1.344$, $p < 0.001$) and women (Model 6, $b = 1.337$, $p < 0.001$), LCPU predicts being arrested without controls for other drug use. When controls are added, the coefficients get smaller but still remain positively associated with being arrested for White men (Model 3, $b = 0.291$, $p < 0.001$) and women (Model 7, $b = 0.162$, $p < 0.001$). For Black men (Model 4, $b = 0.976$, $p < 0.001$) and Black women (Model 8, $b = 0.662$, $p < 0.01$), LCPU is only positively associated with being arrested without the other drug use control variables. When drug use controls are added, the significant association between LCPU and arrest history disappears for Black men and women.

Table 4. Weighted logistic regression predicting being arrested: full sample and by race and gender.

	Model 1 Full sample	Model 2 White men	Model 3 White men	Model 4 Black men	Model 5 Black men	Model 6 White women	Model 7 White women	Model 8 Black women	Model 9 Black women
Race and gender									
Black men	0.697*** (0.0540)								
White women	-1.010*** (0.0319)								
Black women	-0.254*** (0.0522)								
Explainer variable									
LCPU	-0.0978*** (0.00762)	1.344*** (0.0390)	0.291*** (0.0529)	0.937*** (0.149)	-0.247 (0.221)	1.337*** (0.0457)	0.163*** (0.0575)	0.662** (0.214)	-0.432 (0.248)
Constant	-2.186*** (0.108)	-2.499*** (0.156)	-2.683*** (0.178)	-1.813*** (0.329)	-2.132*** (0.398)	-2.423*** (0.154)	-2.653*** (0.181)	-2.610*** (0.292)	-2.609*** (0.362)
Observations	120,519	38,304	38,279	6226	6216	64,280	64,254	11,775	11,770

Source: 2008–2019 National Survey of Drug Use and Health, $n = 490,586$.

Note: All models control for education, income, age, marital status, religiosity, drug history, risky behavior, psychological distress, and survey year. See online Supplemental Table 2 for full models. Standard errors in parentheses.

** $p < 0.01$, and *** $p < 0.001$.

Table 5. Weighted ordinary least square regression predicting psychological distress with interaction terms.

	Model 1	Model 2
Race and gender		
Black men	−0.367*** (0.101)	−0.429*** (0.106)
White women	0.873*** (0.0644)	0.725*** (0.0703)
Black women	0.269* (0.109)	0.150 (0.105)
Explainer variables		
LCPU	−0.231** (0.0758)	−0.598*** (0.0975)
Two-way interaction terms		
LCPU × black men		−0.0103 (0.337)
LCPU × white women		0.678*** (0.132)
LCPU × black women		0.937 (0.597)
Constant	17.96*** (0.213)	18.05*** (0.214)
Observations	120,519	120,519

Source: 2008–2019 National Survey of Drug Use and Health, $n = 490,586$.

Note: All models control for age, marital status, religiosity, drug history, risky behavior, psychological distress, and survey year. See online Supplemental Table 3 for full models. Standard errors in parentheses.

* $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

Do psychedelics affect health less for Black people?

Table 5 presents regression results from that predict levels of distress among the whole sample. Model 1 shows that LCPU is associated with less distress ($b = -0.231$, $p < 0.001$). Interaction terms (Model 2) demonstrate the slope of the coefficient of LCPU on health is larger for White women than White men ($b = 0.678$, $p < 0.001$). Results suggest that the impact of psychedelics on health is smaller for White women than White men. While these results would suggest that Black people gain about as much benefit from psychedelics as White men, when we run the models that consider lived differences by race and gender, results lend support for the diminished return hypothesis.

Does systemic inequality affect Black psychedelic health outcomes

Supplemental Tables 4–7 present regression results from models that predict levels of distress by race/gender. Results demonstrate that for Black men (Supplemental Table 5) and women (Supplemental Table 7), not only was LCPU not associated with distress, but interaction terms revealed there was no variation of LCPU across education or arrest history. Results demonstrate that LCPU

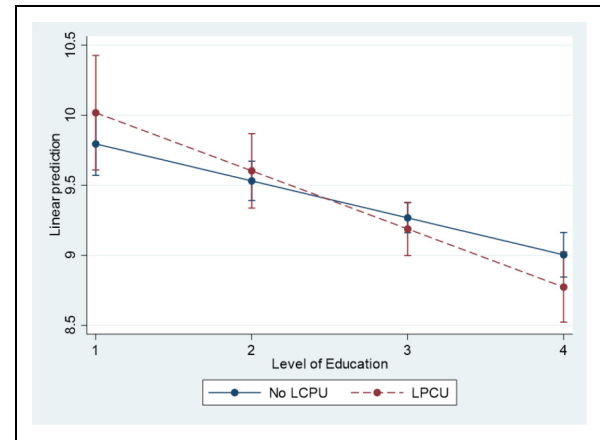


Figure 1. Predicted margins of LCPU × education on level of psychological distress among white men with 95% CIs. Source: National Survey of Health and Social Behaviors, 2008–2019. Note: based on Model 5, Supplemental Table 5, multinomial OLS regression model predicting psychological distress in the past 30 days (K6).

does not benefit Black people’s well-being regardless of class level and does not buffer against the negative consequences of being arrested.

However, results demonstrate that White men and women benefited from LCPU use, and class and arrest history matter. For White men (Supplemental Table 4, Model 6), that negative slope of the coefficient for LCPU was larger when interacting with education ($b = -0.282$, $p < 0.001$) (Figure 1). Three-way interaction found the slope of the coefficient increased for LCPU × arrest history × education ($b = 0.428$, $p < 0.05$) (Figure 2). The negative consequences of being arrested were also buffered by education ($b = -0.232$, $p < 0.05$) (Figure 2). For White women, two-way interactions demonstrate that the slope of the coefficient for LCPU was larger for higher income (Model 2, $b = -0.0916$, $p < 0.05$) (Figure 3), higher education (Model 3, $b = -0.312$, $p < 0.01$) (Figure 4), and arrest history (Model 4, $b = -0.575$, $p < 0.01$) (Figure 5). Results suggest that for White women, the positive effects of education and income on health are enhanced by LCPU, while the negative consequences of arrested history are buffered. On the other hand, for White men, the negative consequence of being arrested on health is buffered by LCPU, but only for those who have higher education.

Discussion

This study examined racial differences of psychedelics among the general population. We examined how class inequality and the criminal justice system may affect the relationship that Black Americans have with psychedelics—specifically their use as well as health outcomes. As discussed above, research has shown that psychedelics may be

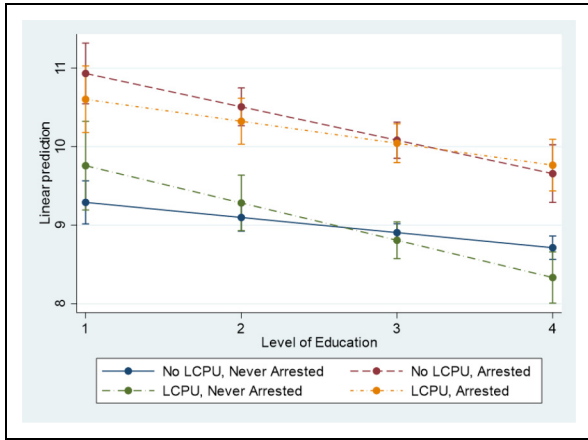


Figure 2. Predicted margins of LCPU \times education \times arrested on level of psychological distress among white men who have been arrested with 95% CIs. Source: National Survey of Health and Social Behaviors, 2008–2019. Note: based on Model 5, Supplemental Table 4, multinomial OLS regression model predicting psychological distress in the past 30 days (K6).

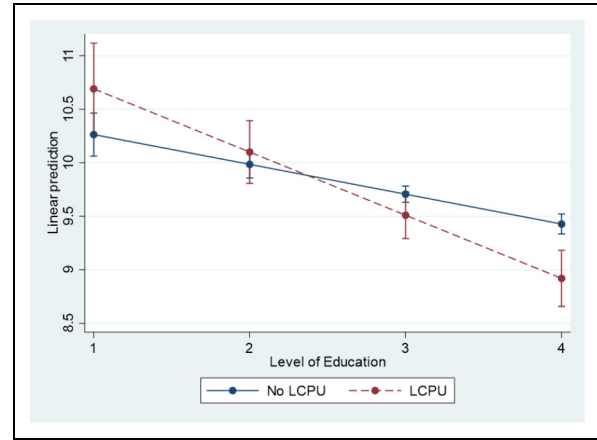


Figure 4. Predicted margins of LCPU \times education on level of psychological distress among white women with 95% CIs. Source: National Survey of Health and Social Behaviors, 2008–2019. Note: based on Model 3, Supplemental Table 6, multinomial OLS regression model predicting psychological distress in the past 30 days (K6).

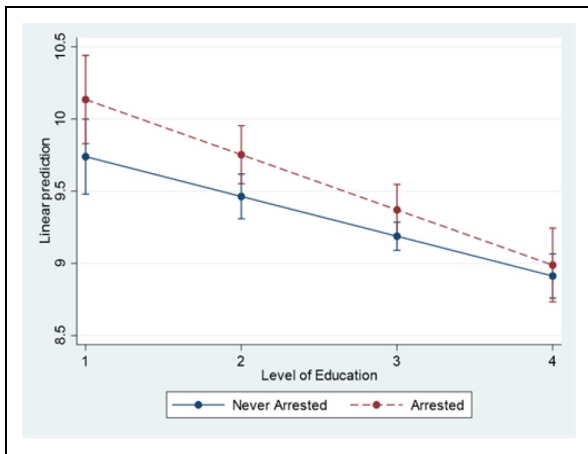


Figure 3. Predicted margins of LCPU \times family income on level of psychological distress among white women with 95% CIs. Source: National Survey of Health and Social Behaviors, 2008–2019. Note: based on Model 2, Supplemental Table 6, multinomial OLS regression model predicting psychological distress in the past 30 days (K6).

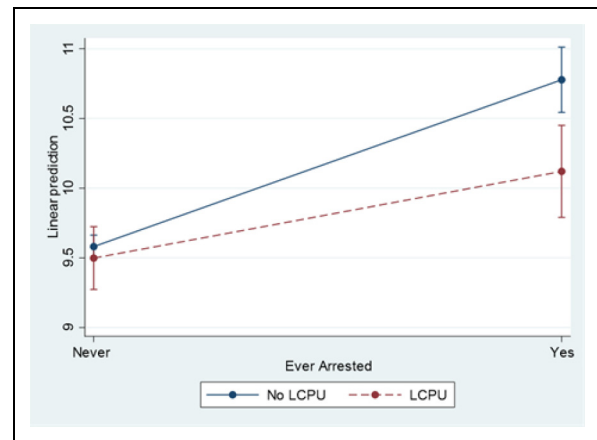


Figure 5. Predicted margins of LCPU \times arrested on level of psychological distress among white women with 95% CIs. Source: National Survey of Health and Social Behaviors, 2008–2019. Note: based on Model 4, Supplemental Table 6, multinomial OLS regression model predicting psychological distress in the past 30 days (K6).

beneficial for health and well-being. Some have hypothesized that because marginalized groups experience a confluence of distress and trauma, psychedelics may be an important tool for healing. Despite those claims, very little research has tested whether marginalized people actually benefit from psychedelics. Our paper attempted to fill that gap by testing the effects of psychedelics on race by drawing on theory of cultural set and setting and literature on MDR to argue that psychedelics will not be a windfall for race/ethnic health disparities. Furthering the scholarship, our study found evidence of Minorities’ Diminished Psychedelic Returns. (1) Black people are policed more

than Whites, a symptom of systemic racism. (2) As a result, Black people have a much more negative relationship with psychedelics, which decreases use and effectiveness of the drugs. Specifically, education, income, and criminal history do not predict difference levels of psychedelic use or different levels of distress among Black people. On the other hand, (3) education and arrest history predict use and outcomes among White men and women. In total, like previous research on MDR, psychedelics are not associated with less distress among Black people regardless of education, income, or criminal history while White men and women gain some health benefits.

Why is psychedelic use not associated with better Black health, even at higher levels of education and income while White health is? In short, “racism is considered a fundamental cause of adverse health outcomes for racial/ethnic minorities and racial/ethnic inequities in health” (Williams et al., 2019: 105). Using sophisticated scales measuring levels of discrimination (Williams, 2016), ample research has demonstrated how discrimination leads to diminished mental and physical health outcomes for minorities. Black people are more likely to experience both pervasive and everyday mistreatment (i.e. experiencing less courtesy or receiving poor commercial services), which is associated with a worse allostatic load (AL) (Ong et al., 2017; Van Dyke et al., 2020),³ poorer sleep duration and efficiency (Slopen et al., 2016), greater systemic inflammation (Ong and Williams, 2019), a greater prevalence of distress and mental illness, worse negative coping behaviors such as smoking (Agunwamba et al., 2017), and worse late-life cognitive function (Zeki Al Hazzouri et al., 2011). Since psychedelic benefits depend on set and setting, which are informed by psychosocial conditions, we should expect that the same conditions that diminish Black health at higher levels of education will also impact the efficacy of psychedelics.

Racisms likely explain different race patterns of psychedelic use. Black people are less likely to use illicit drugs in general while higher education levels are associated with higher psychedelic use among White men. Evidence suggests that all Black people suffer the consequence of racism in the criminal justice system, not just those who commit crimes. Not only are they more likely to be policed, but negative police interactions are also a major cause of their excessive mortality (Cronin and Evans, 2021). Black people are also struggling more with economic opportunity, and the evidence shows that a criminal record makes those prospects virtually impossible for most (Pager, 2003). Our results also found no gender difference among Black men and women, further demonstrating the universal harm that racism and discrimination have on the Black community, even though Black women are less likely to be arrested than White men (Wildeman and Wang, 2017).

On the other hand, results found gender differences among Whites. Our results suggest that even among White people, class privileges may be a major predictor of the efficacy of these beneficial drugs. White men, particularly those with the highest education, were more likely to use and see benefits associated with psychedelics, falling in line with other studies arguing that psychedelics are an “elitist” drug for those with minimal social consequence (George et al., 2019). Why White women are not partaking may be explained by stigma and differential familial responsibility. Regardless of education and income, women have less time for leisure activities, illustrated through the second shift (Hochschild and

Machung, 2012). There is also more stigma attached to women’s drug use. While men who drink or smoke may be perceived as masculine, the public perceives women use as having substance abuse problems (Newhart and William, 2019). It is likely that the same gendered cultural scripts that drive other social drug patterns are also affecting these patterns related to psychedelics.

Results also found that White women, compared to White men, have lower distress associated with psychedelic use at higher levels of education and income. This result falls in line with other research that finds substantive education health benefits for women; knowledge and network connections may be important for explaining why psychedelics have such a positive relationship for higher class women. Previous research has found that women at higher levels of class also to be experiencing a greater sense of control and more creativity (Hernandez et al., 2018). Some evidence finds that psychedelics produce the best effects in clinical settings when there are carefully cultivated and supportive relationships between patients and counselors (Noorani, 2021). Anthropological evidence is beginning to provide support for using psychedelics in a communal setting to optimize outcomes (Rose, 2022). The importance of sociability on psychedelics is important because not only do women have and utilize more social resources than men (Rieker et al., 2010), but higher educated women are more likely to benefit from the network effects (Halpern-Manners et al., 2022).

Results suggest that White people, particularly men, likely make drug choices based on class; those with more education are more likely to use psychedelics. Racism in the criminal justice system likely explains these results, specifically that White elites are less likely to face legal or social consequences for their drug use. On the other hand, while we could reasonably assume that these variables could also impact Black LCPU, results demonstrate that psychedelic use does not change at any level of income, education, or arrest history for Black people. The fact that they do not suggests that one or more significantly more influential variables affect Black psychedelic use, which dampens the effects of education, income, and arrest history. The most likely candidate for this variable is systematic inequality, which lends support for other research that finds inequality affects all Black people’s drug habits, even those who have some class advantages.

Importantly, the NSDUH does not provide information on the reasons for arrests, and we cannot determine if Black psychedelic users are being policed more than White psychedelic users. Rather, these results suggest that Black people are being overpoliced and arrested for many other reasons, including drug use. Unlike White psychedelic use, which may lead to an arrest in itself, Black psychedelic users, like all Black people, are simply being overpoliced. Thus, it is reasonable to suggest that one reason why Black psychedelic use is much lower than

White use is because of racism in the criminal justice system. The threat of being arrested—potentially murdered—will deter use. There are countless examples of Black people being pulled over for minor (alleged) offenses and murdered. Some prominent examples include George Floyd, Eric Garner, and Tyree Nichols. Moreover, considering the disparate repercussions among legal Black marijuana users (Edwards et al., 2020), even if psychedelics are legalized, the criminal justice system will likely remain a barrier for Black psychedelic use.

Lastly, both White men and women who were arrested had less distress if they had taken psychedelics although the effects were dependent on education for men. While it is not surprising to find that psychedelics buffer stressful circumstances, the fact that it was related to criminal history is striking considering these drugs are illegal. Many states require felon paroles to maintain a drug-free lifestyle. These results suggest that, at least for White people, psychedelics may be an important tool for helping convicts manage their stress and be productive members of society. Coupled with other research that has found psychedelics are associated with less violence (Hendricks et al., 2018; Simonsson et al., 2022), this lends support for interesting avenues of decriminalization.

Limitations and future research

While this study reveals important associational relationships between race, gender, inequality, psychedelics, and health, it also has four limitations. First, the primary limitation is the data. It is possible that minorities gain some benefit from psychedelics in the short term that are simply diminished over time. Longitudinal data that have the time of drug use would better indicate the decline in psychedelic efficacy. Third, unmeasured endogenous factors could also be driving the association among race, psychedelics, and distress. We included a host of standard control sociodemographic control variables, but this is likely not an exhaustive list. In particular, common findings in the psychedelic clinical trial literature suggest other variables could affect outcomes, including personality traits, presence of peak experience, response to peak experience, and dosage. Most importantly, given the cross-sectional study design, the results cannot be used to make conclusive causal inferences especially because we do not know the motivation for use. Those who use psychedelics in clinical setting are likely doing so for health benefits while those who use it in a naturalistic setting will have many different motivations.

Future research should ask for more precise indicators of discrimination and motivation of psychedelic use, so we can understand how structural inequality is propelling Black psychedelic use and outcomes. We also need to parse out some of our findings by gender. It is plausible

that issues like sexism in the work and household division of labor are driving the gender findings.

Conclusion: The importance of population studies

Limitations notwithstanding, this study adds a critical new piece to the burgeoning research on psychedelics and health. One may ask why research should consider race-related results from a population-level approach using a single lifetime use of classic psychedelics rather than those from clinical trials? First, these results represent how a population interacts with drugs in their everyday lives instead of in a controlled clinical environment. As psychedelics become more widely available, naturalistic use will rise faster than clinical treatment, especially in places where mental health treatment is severely underfunded.

Second and directly related, regardless of the motivation (clinical or recreational), psychedelics are associated with less distress (and many other health benefits that are found in nationally represented samples). Population studies are worthwhile so that researchers can investigate whether this holds true among all groups including Black Americans. However, here, we found that an association does not exist between Black users and decreases in distress. Indeed, we found no effect. (This said: Black users do not reap the benefit of even recreational use—which suggests causality.) Drawing on ample research into minorities' diminishing health returns, we argue that racism likely explains why, among the regular population, White people have access to the set and setting privileges that appear to create some benefits of psychedelic uses while Black users gain nothing. Thus, in communities with health disparities, not only are they less likely to have access to clinical setting but they also live in a world with a significantly less optimal set and setting, leading to few positive outcomes. Given our focus, other confounding variables may explain the race differences that we found, but our results suggest that the difference and reason for the difference (racism) still exist.

Nevertheless, at the same time, we do not deny that future clinical research may find race/ethnic minorities benefit from the treatment in very controlled clinical settings. Furthermore, we are not suggesting that decriminalization should be thwarted. Even so, MDR explores why the race–health gap continuously widens and how racism drives the gap. Ultimately, all people live in communities and social situations that directly impact the efficacy of psychedelics, even those used in a clinic, and we need to acknowledge the social situation. Therefore, even if Black people benefit within controlled clinical settings, whether they continue to enjoy those benefits in their everyday lived experiences, which are saturated with racism, remains another question.

A handful of culturally informed researchers have begun to examine race/ethnicity difference in psychedelics (Ching et al., 2022, 2023; Michaels et al., 2018). One group has even begun to directly focus on recruiting ethno/racial minorities in a MAPS-sponsored, FDA-reviewed phase II trial of MDMA with a focus on minority trauma experience, diversification of the treatment team, and community outreach (Williams et al., 2019). Carlin (2020) hypothesizes that cultural sensitivity in the clinic needs to be considered if we want to extend health benefit to marginalized groups who are most at need. This includes creating a collaborate environment that builds trust through “broadening networks of [diverse] consultants and advisors.” To be sure, these efforts are important, and we need to commend those advocates who are taking a culturally sensitive approach to try and extend access to psychedelics among marginalized people.

But our study suggests that society has a more significant role in the effectiveness of psychedelics than some scholars may be anticipating. Research on fundamental causality demonstrates that there are many structural conditions that not only affect the efficacy of any one health intervention, but it emphasizes why health inequality associated with social fault lines (race, class, and gender) persists despite new interventions (Harder and Sumerau, 2018; Link and Phelan, 2009; Phelan and Link, 2015). Psychedelics are but one intervention while social stratification affects innumerable diseases, disease risk factors, and access to resources that can assist in avoiding health risks. MDR scholars argue that enforcing civil rights will go further at reducing health inequality because these laws can grant access to social and psychological resources affect marginalized people’s sense of self-respect improve affect health and (Hahn et al., 2018). Incidentally, social and psychological resources are integral to optimal set and setting that affect the salience of psychedelics.

Therefore, psychedelics do not constitute “magic bullets” in terms of improving people’s health outcomes, especially among Black populations. This result counters the idea of psychedelic exceptionalism, which posits that psychedelics should be the focus of drug law reforms because of their potential health benefits. Much like the American “bootstrap myth”—the idea that anyone in America can increase their social mobility—psychedelic exceptionalism is another myth that neglects systemic inequality for the benefit of the status quo (Marlan, 2021; Rooks, 2012). Without addressing racism and structural inequality, which plausibly affect all aspects of the psychedelic health career, these drugs are not likely to reshape Black or other marginalized groups’ health for the better, thus widening already wide health gaps. We, as researchers, should be skeptical of findings that highlight tremendous cultural benefits from clinical intervention in light of an ongoing legacy of racism in places like the USA. Why should we expect that psychedelics will be any more

impactful than every other intervention that has not ameliorated those disparities?

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Supplemental material

Supplemental material for this article is available online.

Notes

1. The NSDUH asks two questions about the use of DMT. The first question asks about lifetime use of DMT. The second question asks about the use of “DMT, alpha-methyltryptamine (AMT), or 5-MeO-DIPT?” The second variable was excluded because neither AMT nor 5-MeO-DIPT is classified as classic psychedelics and DMT use alone could not be determined from the question.
2. We followed recommendation to run a sensitivity analysis of alternative models (i.e. probit, multinomial, and OLS regression), but results proved substantially identical (Fullerton and Xu, 2016).
3. AL is a multisystem index of biological dysregulation.

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