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Psilocybin use patterns and perception of risk among a cohort of Black individuals with Opioid Use Disorder

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Abstract

Background and aims: There is growing evidence that psilocybin, a serotonergic psychedelic substance, may be useful in the treatment of substance use disorders. However, there is a lack of data on the beliefs and attitudes towards psilocybin amongst Black individuals diagnosed with Opioid Use Disorder (OUD). This study characterized psilocybin use patterns and perception of risk amongst a cohort of Black individuals diagnosed with OUD.

Methods: Using a convenience sampling approach, patients were recruited from an urban methadone treatment program and paid five dollars to complete an anonymous phone-based survey.

Results: Twenty-eight patients participated (mean age 53.8; $N = 28$; 35.7% female). Most ($N = 23$; 82.1%) had "heard of" psilocybin mushrooms before taking the survey, but only five ($N = 5$; 17.8%) had ever used them. More than 80% perceived a risk or were "unsure" of the risk for sixteen of the seventeen items queried about psilocybin. Approximately half ($N = 15$; 53.6%) were willing to try therapy incorporating psilocybin and half ($N = 14$; 50%) said they would be more likely to try if it were FDA approved for OUD. Most ($N = 18$; 64.3%) preferred to stay on methadone treatment alone, 32.1% ($N = 9$) wanted to try treatment with both psilocybin and methadone, and only one participant opted for psilocybin treatment without methadone.

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Disclosure of interest:

AKD is a board member of Source Research Foundation. This organization was not involved in the design/execution of this study or the interpretation or communication of findings. AKD is also a member of the editorial board at the Journal. Peer review has been handled without his involvement, hence, he does not have a conflict with the review process.

Conclusion: Many Black individuals with Opioid Use Disorder perceive psilocybin as dangerous and may be hesitant to try psilocybin treatment. Culturally informed treatment models, educational interventions and community outreach programs should be developed to increase racial/ethnic minority representation in psilocybin research and treatment.

Keywords

psilocybin; psychedelics; ppioid use disorder; black/african-american; health disparities; risk perception

INTRODUCTION

Innovative treatment strategies are needed to address the worsening epidemics of opioid misuse and overdose deaths in America. Black communities, particularly in urban settings like Baltimore City with majority (~62.3%) Black populations (United States Census Bureau, 2021), have experienced disproportionate increases in opioid overdose death rates in recent years compared to other racial/ethnic groups (Larochelle et al., 2021; Lippold, Jones, Olsen, & Giroir, 2019). Although existing medications for the treatment of OUD (MOUD, i.e., medications with agonist, partial agonist, or antagonist activity at mu-opioid receptors) significantly improve treatment outcomes, including reduced use of opioids and overdose death rates, and improved overall health, MOUD treatment protocols have many limitations including financial barriers, burdensome regulations and daily clinic visits, and stigma surrounding pharmacotherapies (Evans, Yoo, Huang, Saxon, & Hser, 2019; Guerrero et al., 2017; Hewell, Vasquez, & Rivkin, 2017; Lagisetty, Ross, Bohnert, Clay, & Maust, 2019; Sharma et al., 2017; Truong et al., 2019).

Psilocybin is a “classic psychedelic” that exerts its psychological effects through 5-HT2A agonism and has been used by indigenous cultures around the world for hundreds if not thousands of years (Schultes and Hofmann, 1992; Tylš, Páleníček, & Horáček, 2014). Recent evidence has shown that psilocybin may be a helpful tool in the treatment of Substance Use Disorders (SUDs). For example, studies have demonstrated potential efficacy of psilocybin and other classic psychedelics to treat alcohol (Bogenschutz et al., 2015; Bogenschutz & Johnson, 2016), tobacco (Johnson, Garcia-Romeu, Cosimano, & Griffiths, 2014, 2018) and opioid use disorders (Garcia-Romeu et al., 2020; Pisano et al., 2017; Savage and McCabe, 1973). Clinical trials investigating the adjunctive effects of psilocybin and buprenorphine are currently underway (NCT04161066). Despite its growing clinical evidence base, very little is known about how people diagnosed with SUDs perceive psilocybin.

Research has revealed psilocybin has a low potential for abuse, positive effects on self-reported spiritual health and well-being, as well as increasing evidence for safety and effectiveness to treat a wide range of medical conditions (for full review see Johnson, Griffiths, Hendricks, & Henning-field, 2018). However, psilocybin is still classified as a Schedule 1 controlled substance in the same category as heroin (DEA, 1970). As a result of this designation, many people may misperceive the balance of potential risks and benefits of using psilocybin in clinical and non-clinical settings. Risk perceptions influence decision-

making and risks are frequently miscalculated in the context of health behaviors (i.e., risks of developing cancer, health effects from alcohol and smoking), which may have substantial consequences for drug use rates, treatment outcomes, acceptability, and adherence (Ferrer & Klein, 2015; Sekhon, Cartwright, & Francis, 2017).

Mounting evidence supports that people who have used psychedelics like psilocybin perceive them more favorably than those who have not (Corigan et al., 2021), and that this may play a role in treatment acceptability. In the 2019 Global Drug Survey (Winstock et al., 2019, $N > 87{,}000$), amongst individuals who reported never having used a psychedelic drug in their life, 62.1% indicated they would be “unlikely” or “very unlikely” to engage in “psychedelic-assisted therapies”, with only 17.6% indicating they would be “likely” or “very likely”. This is in strong contrast to participants who reported lifetime use of a psychedelic drug, 58.9% of whom indicated they would be “likely” or “very likely” to accept psychedelic-assisted therapy, with only 21.3% indicating they would be “unlikely” or “very unlikely” to accept psychedelic-assisted therapy (Winstock et al., 2019).

Importantly, the prevalence of psychedelic use varies across racial/ethnic groups, with Black individuals reporting the lowest rates of lifetime and past year use in the United States (Jahn, Lopez, de la Salle, Faber, & Williams, 2021). It is therefore possible that, given their lower use rates, Black individuals may view psilocybin less favorably and endorse lower treatment acceptability compared to other racial/ethnic groups. Unfortunately, the majority of participants (82.5%) in psychedelic therapy studies have been generally well educated, non-Hispanic White participants (Davis, Barsuglia, Lancelotta, Grant, & Renn, 2018, 2021; Michaels, Purdon, Collins, & Williams, 2018; Palamar & Le, 2018; Williams et al., 2019), which limits the generalizability of data to persons of color (POC).

Although psilocybin therapy shows promise for treating substance use disorders (Bogenschutz and Johnson, 2016; Dos Santos, Bouso, Alcázar-Córcoles, & Hallak, 2018; Garcia-Romeu, Kersgaard, & Addy, 2016; Johnson et al., 2018), there are no existing data on the attitudes and beliefs towards psilocybin among Black individuals diagnosed with Opioid Use Disorder (OUD)- a notably underserved population that has the least access to evidence-based OUD treatments (Hansen, Siegel, Wanderling, & DiRocco, 2016; Lagisetty et al., 2019). This is unfortunate given that POC have reported improvements in racial trauma and mental health symptoms following psychedelic experiences (Davis, Agin-Liebes, España, Pilecki, & Luoma, 2021; Williams & Labate, 2019). Better understanding of these individuals’ beliefs and perceptions towards psilocybin may help inform the development of culturally tailored research designed to reduce barriers to treatment and research participation (Weinstein, 1999; Williams et al., 2019). This study sought to address this gap in the literature by characterizing psilocybin use patterns, perception of risk, and treatment acceptability in a community sample of Black, low income, largely housing unstable individuals diagnosed with OUD currently engaged in outpatient methadone treatment in Baltimore, Maryland.

METHODS

This study was an anonymous, phone-based survey of Black individuals undergoing methadone treatment for opioid use disorder in an urban, community-based Opioid Treatment Program (OTP) located in West Baltimore, Maryland. Upon intake into the OTP, patients may opt-in to a non-human subjects-determined research protocol that allows researchers to contact them for possible participation in research studies (UMB IRB# HP-00089866). Participants for this study were recruited via this mechanism, and interested participants were contacted by telephone for a brief prescreen and verbal consent with one of the study authors (JC). We used a telephone recruitment and data collection procedure because although the study was planned prior to the COVID-19 pandemic, recruitment began during the early stages of the pandemic. This eliminated any possibility of recruiting and collecting data in-person. We chose to use a phone-based methodology (as opposed to internet data collection) to ensure comprehension in a population of individuals with low rates of literacy. Recruiting locally at the UMDTC also allowed us to organize cash payment drop-offs, which are the preferred method of remuneration for participants with unstable housing. Individuals were included in the study if they met the following eligibility criteria: (1) at least 18 years old, (2) English speaking, (3) of self-reported Black racial background, and (4) currently enrolled in methadone treatment at the OTP study site at the time of survey completion. Participants were contacted at only one time and were paid $5 cash for completing the approximate 20-min survey. Data were collected between 06/2020 and 07/2021.

MEASURES

Demographics and substance use history

Basic demographic information including age, education, living situation, health insurance, and SUD treatment history was collected from all participants. Substance use history questionnaires assessed lifetime and current (past 30 days) use of substances including alcohol, cigarettes, marijuana, synthetic cannabinoids, methamphetamines, heroin, prescription opioids, benzodiazepines, cocaine/crack, LSD, mescaline, mushrooms, DMT, salvia PCP, and MDMA (ecstasy).

Perceived risk

Participants were asked whether they had ever heard of psilocybin (aka “magic” or “psychedelic” mushrooms) or other psychedelic substances to characterize prior knowledge.

Participants were then asked questions about whether they perceived any risks or harms associated with using psilocybin mushrooms (i.e., “do you believe that ____ is a risk of using psilocybin mushrooms?”). This 17-item questionnaire was modified from a study by Rigg and Lawenetal (2018) that evaluated the perceived risks associated with MDMA use amongst Blacks. Rigg et al. (2018) utilized well-established measures from the demographic and substance use subsections of the National Survey on Drug Use and Health (NSUDH), with responses items falling into multiple categories (e.g., psychological, neurological,

physical, chemical, behavioral, and legal harms). We used a 3-point Likert scale with response options ranging from “Yes (1)”, “Unsure (0)” or No (−1)”.

Participants were then asked whether they believed psilocybin mushrooms to be relatively more or less harmful than other commonly used substances (i.e., tobacco, alcohol, heroin, MDMA/ecstasy). The questions used in our survey were modified from those used to assess comparative risk in the 2019 NSUDH.

Because media messaging surrounding psychedelics has shifted in the past century (Oliver, 2021), we asked participants if they had ever heard about psilocybin mushrooms in the media and whether that messaging was positive, negative or both.

Treatment acceptability

The concept of psilocybin treatment being used to help treat mental health conditions was briefly explained to participants before asking questions about experimental treatment acceptability. These questions were modified from the 2019 Global Drug Survey (Winstock et al., 2019).

Data analysis.—Descriptive statistics with central tendencies and spread were used to report continuous data, and frequency distributions and percentages were used for categorical variables. All data were analyzed using SPSS v28 (IBM, Armonk, NY).

RESULTS

Respondent characteristics

Table 1 shows that all participants self-identified as Black/African-American and were being treated with methadone for OUD. They were majority male (N = 18; 64.3%) with a mean age of 53.8 years (SD = 11.6). 31.2% (N = 9) had not completed high school and most reported either renting (N = 13; 46.4%) or living at a friend or family member’s home/apartment (N = 9; 32.1%). Most (N = 15; 53.6%) endorsed current heroin use and having received treatment for substance use disorder before this current treatment (N = 20; 71.4%). Most (N = 17; 60.7%) had been in treatment between 0 and 6 months at the time of survey administration and reported an average of 22 years (SD = 11.2) of lifetime opioid use. There were no differences in use patterns and treatment acceptability variables as a function of sex/gender (data available upon request from the corresponding author).

Substance use history

Table 2 shows that participants reported high rates of lifetime alcohol (N = 24; 85.7%), cigarette (N = 27; 96.4%), marijuana (N = 26; 92.9%), heroin (N = 28; 100%), cocaine/crack (N = 28; 100%), and benzodiazepine (N = 11; 39.3%) use. Most reported using heroin (N = 15; 53.6%) and cigarettes (N = 23; 82.1%) in the past 30 days, with lower rates of past 30-day use of marijuana (N = 10; 35.7%), alcohol (N = 10; 35.7%) and cocaine/crack (N = 11; 39.3%).

For psychedelic substances, participants reported having used LSD (*N* = 5; 17.9%), mushrooms (*N* = 5; 17.9%) and MDMA (*N* = 5; 17.9%). Only one participant reported using any psychedelic substance in the past 30 days.

Risk perceptions of psychedelic mushrooms

Figure 1 shows that more than 80% of participants perceived a risk or were unsure of the risk for sixteen of the seventeen items queried. Only one item, "overdosing", had >20% participants (*N* = 6; 21.4%) denying a risk. In comparing the risks of psilocybin mushrooms to more commonly used substances, Fig. 1 also shows that few participants perceived mushrooms as being less harmful than alcohol (*N* = 6; 21.4%), tobacco (*N* = 8; 28.6%), ecstasy (*N* = 8; 28.6%), or heroin/other opioids (*N* = 8; 28.6%). Participants were more frequently unsure if mushrooms were more harmful than alcohol (*N* = 13; 46.4%), tobacco (*N* = 11; 32.1%), ecstasy (*N* = 13; 46.4%), or heroin/other opioids (*N* = 13; 46.4%). Few perceived mushrooms to be more harmful than alcohol (*N* = 9; 32.1%), tobacco (*N* = 11; 39.3%), ecstasy (*N* = 7; 25.0%), or heroin/other opioids (*N* = 7; 25.0%).

Most participants (*N* = 18; 64.3%) denied hearing discussion of psilocybin mushrooms in the media (i.e., TV, internet, etc.). Four (14.3%) heard negative messaging about psilocybin mushrooms in the media, one heard only positive messaging (*N* = 1; 3.6%), and five (17.9%) heard mixed positive and negative messaging.

Psilocybin treatment acceptability

Most participants (*N* = 23; 82.1%) had "heard of" psychedelic substances (i.e., LSD) (*N* = 23; 82.1%) and psilocybin mushrooms (*N* = 24; 86%) before taking the survey. However, most participants (*N* = 23; 82.1%) had never heard of psilocybin being used as a medical treatment before taking the survey. Approximately half (*N* = 15; 53.6%) endorsed willingness to try psilocybin treatment for OUD. Most (*N* = 14; 50%) said they would be more likely to try psilocybin treatment if it were an FDA-approved treatment for OUD.

When given the theoretical option to choose between psilocybin treatment, methadone, or a combination of both, most (*N* = 18; 64.3%) participants chose to stay on methadone, 32.1% (*N* = 9) chose a combination of both psilocybin and methadone, and only one participant opted for psilocybin treatment alone.

DISCUSSION

This study sought to characterize the beliefs, perceptions, and use patterns of psilocybin mushrooms, and the acceptability of psilocybin therapy in a group of Black patients undergoing methadone treatment for Opioid Use Disorder in Baltimore, Maryland. Psilocybin therapy is a promising emerging treatment for SUD, but it will involve substantial barriers to its implementation (Noorani, 2019; Sellers and Leiderman, 2018) and POC have been largely excluded from research to date (Michaels et al., 2018). Our findings support the hypothesis that psilocybin use (either illicit or therapeutic) is relatively uncommon in Black MOUD patients in Baltimore, Maryland. The prevalence of lifetime psychedelic use in our sample is similar to rates observed in larger studies on the prevalence of psychedelic use in Black individuals (Jahn et al., 2021), who endorse the lowest rates of psychedelic

use compared to other major racial/ethnic groups in the United States; approximately7.57% of Black individuals report lifetime psychedelic use and less than 4% report past year use, although these values differ slightly in various age cohorts (Jahn et al., 2021.). Future studies should elucidate whether these disparities also exist between racial/ethnic groups in OUD patient populations.

Our study also provides evidence of stigma towards psilocybin amongst Black OUD patients. Most participants had never used psilocybin mushrooms yet associate their use with many health risks. Stigma is a substantial barrier to mental health treatment (Knaak, Mantler, & Szeto, 2017) and appears to be common surrounding psychedelics, even in professional medical communities. For example, Davis, Agin-Liebes, España, Pilecki, and Luoma (2021) recently demonstrated stigma and lack of knowledge surrounding psilocybin in a large cohort of US psychologists ($N = 366$). Psychiatrists and palliative care physicians have been shown to hold similar views (Barnett, Siu, & Pope, 2018).

However, despite their perception as dangerous, psilocybin has been shown to be quite safe. Psilocybin and other classic psychedelics cause the least amount of public harm (i.e., addiction potential, hospitalizations, social and physical harms) compared to other substances like alcohol, heroin, marijuana and cigarettes (Morgan, Muetzelfeldt, Muetzelfeldt, Nutt, & Curran, 2009; Nutt, King, Saulsbury, & Blakemore, 2007, 2010). Although the data in our study support the hypothesis that individuals who have not used psychedelics appear to view them more negatively than those who have (Winstock et al., 2019; Corrigan et al., 2021), these findings were somewhat surprising given that fact that our sample reported past and current use of a wide range of other substances. These data suggest that negative media coverage may have played a role in stigma formation towards psilocybin compared to other dangerous drugs, but it is unlikely to be the only source. Miseducation and unsubstantiated rumors about harmful effects of psychedelics within modern educational systems, political messaging, families, and communities are likely common but understudied. It is also likely that lack of familiarity amongst peer groups (i.e., fear of the unknown) contributes to the stigmatization of an unfamiliar illicit substance like psilocybin compared to other more commonly used substances that are proven to be more dangerous. The fact that their experiences of drug use did not incorporate the use of psychedelic substances high-lights the importance of the specificity of prior drug experiences that may guide acceptance of drug therapy. Future research should investigate the sources of stigma surrounding psychedelic substances, particularly in minority groups.

Approximately 50% of participants indicated willingness to try a treatment incorporating psilocybin, which suggests an openness to psilocybin treatment amongst many Black OUD patients despite perceiving psilocybin as dangerous. It is reasonable to speculate that a higher proportion of patients would try psychedelic therapy if they discussed the risks, benefits, and trajectory of treatment with a trusted provider or peer-support specialist. On the other hand, it is possible that treatment acceptability might be lower if psilocybin treatment turns out to be expensive for patients (Rea & Wallace, 2021) or is riddled with other typical treatment barriers. Our study suggests that reluctance to participate amongst Black individuals may be less a contributing factor to the underrepresentation of POC in psychedelic studies than systemic factors (i.e., poor recruitment methodology, lack of

ethnic diversity amongst research teams, economic burdens of unpaid participation) (George, Michaels, Sevelius, & Williams, 2019; Williams et al., 2019, 2020).

Interestingly, although most participants ($N = 18$; 64.3%) preferred to stay on treatment with only methadone if given the option, only one participant chose psilocybin treatment without methadone compared to nine ($N = 9$; 32.1%) choosing a combination of both psilocybin and methadone. Black OUD patients may therefore be less willing to try psilocybin therapy if they are required to come off of methadone. To the best of the author's knowledge, there are no data to suggest a physiologically dangerous interaction between MOUDs and psilocybin, although there may be undetermined, dose-related antagonistic or synergistic effects between the two substances (Domino, 1986). Given that the active use of psychiatric medications is often an exclusion criterion for psychedelic clinical trials, research teams studying psilocybin for OUD should consider removing this requirement for opioid receptor agonist medications (i.e., methadone, buprenorphine, etc.) to improve the inclusivity of treatment protocols and trial design. Future studies with larger cohorts of patients should include assessments of perceptions of the individuals' satisfaction with their current treatment, as this may impact willingness to try a novel therapy.

Limitations

This study has several limitations. The use of a small sample size limits generalizability of results. Additionally, the cross-sectional, self-report nature of the assessment makes causal interpretations of data impossible. These data relate only to Black OUD patients in one urban city on the eastern coast of the United States and may not generalize to patients with other forms of substance use disorders in a variety of geographical locations. Future studies should collect data from individuals of diverse racial/ethnic backgrounds undergoing MOUD in various urban and rural settings to better understand how stigma and experience may differ between and within racial/ethnic groups.

The closed-ended, binary/trinary structure of this survey also prevents a deeper exploration of context involved in the generation and maintenance of specific attitudes and beliefs regarding the health, spiritual, and cultural implications of using psychedelic substances. Although the surveys were conducted via phone, a factor which plausibly removed the discomfort of having to answer sensitive personal questions regarding drug use, we cannot dismiss participant under-reporting of drug use. Future studies should further examine these factors using both quantitative and qualitative methodology.

It is possible that levels of understanding about the logistical and psychological nuances of psilocybin treatment varied amongst participants and caused them to over or under-report treatment acceptability. Future studies should explain the risks, benefits, and logistical hurdles of psilocybin treatment more thoroughly to quantify treatment acceptability more accurately and better represent informed decision making.

CONCLUSIONS

Our study provides evidence of stigma and hesitation towards psilocybin-assisted therapy in Black individuals with Opioid Use Disorder in Baltimore, Maryland. The demand for

and availability of psilocybin-assisted therapy is increasing in the United States, yet the perspectives of underserved communities who may benefit from this novel therapeutic intervention continue to be underrepresented in research. Clinicians, researchers, public health officials and community members would benefit from culturally informed educational interventions on the effects of psilocybin to increase racial/ethnic minority representation in psilocybin research and treatment.

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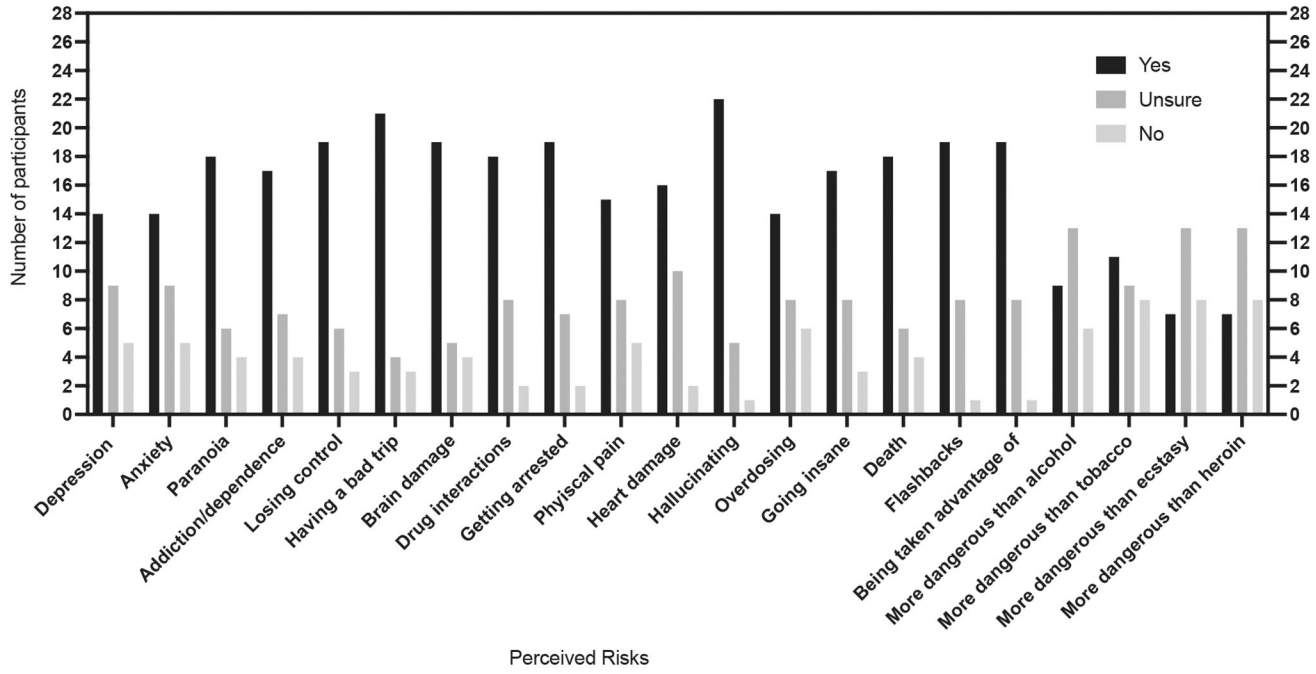

Fig. 1.

Number of participants reporting (yes, unsure, no) the perceived risks associated with taking psilocybin ($N = 28$)

Table 1.

Demographics

Characteristic	# Participants (% total, *N* = 28) or Mean (*SD*)
Age	53.8 (*11.6*)
Income	$7,081 (6,895)
Gender	
Male	18 (64.3%)
Female	10 (35.7%)
Racial Background	
Black/African American	28 (100%)
Education	
Middle School	1 (3.6%)
Some High School	8 (28.6%)
High School	8 (28.6%)
GED	4 (14.3%)
Some college or 2 year degree	7 (25.0%)
Living Situation	
Homeowner	3 (10.7%)
Renter	13 (46.4%)
At a friend or family members home/apt	9 (32.1%)
On the streets	2 (7.1%)
With others, in an abandominium	1 (3.6%)
Health Insurance	
Medicaid	19 (67.9%)
Medicare	7 (25.0%)
Unknown	2 (7.1%)
Baltimore City Residence	
Yes	27 (96.4%)
No	1 (3.6%)
Prior treatment for any SUD	
Yes	20 (71.4%)
No	8 (28.6%)
Years of Opioid Use	22 (*11.2*)
History of IV Drug Use	
Yes	12 (42.9%)
No	16 (57.1%)
Current Medication for Opioid Use Disorder	
Methadone	28 (100%)
Current heroin use	
Yes	15 (53.6%)
No	13 (46.4%)
Current treatment duration	

Characteristic	# Participants (% total, *N* = 28) or Mean (*SD*)
0–6 months	17 (60.7%)
6 months -1 year	4 (14.3%)
>1 year	7 (25.0%)

Table 2.

Substance use history

Substance	Lifetime Use # Participants (% total, *N* = 28)	Past 30-Day Use # Participants (% total, *N* = 28)
Alcohol	24 (85.7%)	10 (35.7%)
Cigarettes	27 (96.4%)	23 (82.1%)
Marijuana	26 (92.9%)	10 (35.7%)
Synthetic Marijuana	5 (17.9%)	1 (3.6%)
Cocaine/Crack	28 (100%)	11 (39.3%)
Heroin	28 (100%)	15 (53.6%)
Other Opioids	28 (92.9%)	26 (92.9%)
Methamphetamine	5 (17.9%)	2 (7.1%)
Other Stimulants	4 (14.3%)	1 (3.6%)
Bath Salts	0 (0.0%)	0 (0.0%)
Ketamine	4 (14.3%)	2 (7.1%)
PCP	5 (17.9%)	0 (0.0%)
Benzodiazepines	11 (39.3%)	3 (10.7%)
LSD	5 (17.9%)	0 (0.0%)
Mescaline	2 (7.1%)	0 (0.0%)
Mushrooms	5 (17.9%)	0 (0.0%)
MDMA	5 (17.9%)	1 (3.6%)
DMT	0 (0.0%)	0 (0.0%)
Salvia	1 (3.63)	0 (0.0%)