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An Evaluation of Opioid Use in Black Communities: A Rapid Review of the Literature

Ayana Jordan, MD, PhD[1,*], **Myra Mathis, MD**[2], **Angela Haeny, PhD**[3], **Melissa Funaro, MLS, MS**[4], **Dafna Paltin**[5], **Yusuf Ransome, DrPH**[6]

[1]Yale University School of Medicine, Department of Psychiatry, 300 George Street, New Haven, CT 06511,

[2]University of Rochester, Department of Psychiatry, 601 Elmwood Avenue, Rochester, NY 14642

[3]Yale School of Medicine, Department of Psychiatry, Division of Prevention and Community Research, and The Consultation Center 389 Whitney Avenue, New Haven, CT 06511

[4]Harvey Cushing/John Hay Whitney Medical Library, Yale University, 333 Cedar Street, New Haven, CT 06520-8014

[5]Yale University, Department of Psychiatry, 300 George Street, New Haven, CT 06511

[6]Yale School of Public Health, Department of Social and Behavioral Sciences, Studies of Religion Ethnicity Technology and Contextual Influences on Health (STRETCH)-Lab, 60 College Street, New Haven, CT 06510

Abstract

Background.—There are multiple aspects of the opioid crisis among Black people, who have been left out of the broader conversation. Despite evidence of increased opioid overdose deaths, less is known about opioid use among Black people. This review synthesizes research on Black people who use opioids; the goals are to advance knowledge, highlight research gaps, and inform clinical practice.

Methods.—This rapid review investigating opioid use among Black people utilized systematic review methods and was conducted according to a predefined protocol with clear inclusion criteria (PROSPERO ID: 177071). A comprehensive search strategy was used, including published and gray literature sources (i.e., literature that has not been formally published). A narrative summary of the results is presented.

Results.—A total of 76 works were selected for inclusion and full text review. Gender, age, geographic location, and involvement in the carceral system were associated with the use of opioids among Black individuals. Non-epidemiological factors included treatment-seeking patterns, disparate clinician prescribing, and social determinants.

[*]**Correspondence:** Ayana Jordan, MD, PhD, Yale University School of Medicine, Department of Psychiatry, 300 George Street, New Haven, CT 06511. phone 203-785-2095, fax 203 785-4207 ayana.jordan@yale.edu.

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Conclusions.—Through this rapid review we suggest three main areas of focus: (1) including culturally informed collection methods in epidemiological surveys to accurately reflect prevalences, (2) funding research that specifically addresses the importance of culture in accessing treatment, and (3) directly studying how social determinants can improve or exacerbate health outcomes. Focusing on the unique needs of Black people who use opioids is warranted to increase treatment initiation and adherence among a population less likely to engage with the traditional health care system.

Keywords

Black; disparities; ethnicity; opioid; race; social determinants

INTRODUCTION

Numerous studies have analyzed trends in opioid use within the United States. Past research has divided the opioid epidemic into three waves: 1979–mid-1990s (mortality largely driven by heroin), mid 1990s–2010 (mortality driven largely by non-heroin and non-methadone opioids, which include prescription painkillers), and 2010–15 (mortality largely driven by heroin and synthetic opioids such as fentanyl).[1] Over the past decade, opioid overdose rates among Black people have been rising, resulting in an increasing need to obtain timely information. Much of the available research has focused on opioid use among White populations, however, with fewer studies focusing on treatment access, morbidity, and mortality rates among Black people (i.e., people of African descent, including African Americans) who use opioids. Identifying prevalence of, and trends in, opioid use among the Black population is essential to inform prevention strategies, treatment, and areas of focus for research. It is therefore important to fully examine the multiple aspects of the opioid crisis among Black people, who have traditionally been left out of the broader opioid conversation.

Prior work that attempted to summarize the state of the opioid crisis among Black people has focused on drug law and policy implications.[2] This rapid review of the literature is more comprehensive and focuses on all relevant published studies related to opioid use among Black people. We synthesized these findings to provide up-to-date information to advance knowledge, highlight critical research gaps, and inform clinical practice.

METHODS

This rapid review utilized systematic review methodology and followed the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement.[3]

Eligibility Criteria

To be included in the review, articles needed to focus on the use of opioids in the Black population. Articles written in English were included. No restrictions were imposed regarding publication date or publication status. Articles needed to measure or focus on specific dimensions of opioid use, including incidence of opioid use, opioid overdose rates (both fatal and non-fatal), initiation of, and engagement with, treatment, and commonly co-

occurring substance use with opioids. We also extracted data on social determinants that predict any of those prior outcomes and identified potential emerging trends. Quantitative, qualitative, and mixed-method studies, along with descriptive articles were included to present a comprehensive account of the literature related to this topic. Articles were excluded if they did not include opioids (focused solely on other substances), focused exclusively on the treatment of pain (without opioid misuse), or did not include Black people.

Information Sources

A comprehensive search was conducted on 11 November 2019. The databases searched were PubMed, MEDLINE, Embase, PsycINFO, CINAHL Complete, Web of Science Core Collection, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, Sociological Abstracts, Dissertations & Theses Global, and Scopus. Search terms included both controlled vocabulary terms and free-text terms for the concepts of Black people and opioids. For the systematic reviews and meta-analyses only, we limited the search using Canadian Agency for Drugs and Technologies in Health (CADTH)[4] search filters[4] (see Supplemental Figure 1, http://links.lww.com/HRP/A140 for search strategy). No date filters were applied. The electronic database search was supplemented by searching Google and Google Scholar for gray-literature sources (i.e., writings that have not been formally published),[5] and scanning the bibliographies of relevant reviews. A more focused search was done to obtain articles to supplement the systematic reviews on 27 February 2020, using search terms for Black people and opioids. This search was limited to the English language in MEDLINE, Embase, and APA PsycInfo on the Ovid platform.

Selection of Sources of Evidence

Two reviewers at one time (AJ, AH, DP) screened titles, abstracts, and full text of included studies. A third person (MM or YR) resolved any conflicts).

Data-Charting Process

A data-charting form was developed collaboratively to determine which variables to extract. Two reviewers (AJ, DP) independently charted the data, discussed the results, and continuously updated the data-charting form in an iterative process.

Data Items

We abstracted data on population of interest (e.g., Black/African American), types of opioids used (e.g., carfentanil, fentanyl, heroin, prescription opioids, illicit use of prescription opioids), type of study (e.g., including but not limited to randomized, clinical trial (RCT), non-randomized clinical trial, case study, naturalistic study, or epidemiological data). We focused largely on adults (18 years and older), but a few epidemiological studies included ages 12 years and older. One study included ages 9 years and older. Given the dearth of research in this area, these studies were included. All studies were published in English. Critical appraisal of individual sources of evidence was based on criteria used in quality assessment of systematic reviews.[6]

Synthesis of Results

We grouped the studies by relevant themes based on the data that they analyzed, and we summarized the broad findings. Supplemental Figure 2, http://links.lww.com/HRP/A141 presents the PRISMA flow diagram. A synthesis of the review by key topics is included below.

RESULTS

Incidence of Opioid Use Among Black People

In this rapid review, we identified 7f6 citations (Supplemental Appendix, http://links.lww.com/HRP/A142) addressing opioid use in Black communities, with 42 being highly relevant (published between 1999 and 2020 and not duplicative) to the major themes revealed after data synthesis. Table 1 presents an overview of the 42 studies, with summary findings for Black participants. In this section we synthesize findings related to the incidence of opioid use among Black people.

Data from the 2010–14 National Survey on Drug Use and Health (NSDUH) estimated that 9.5% (95% confidence interval [CI], 7.1–11.8) of people with prescription opioid (PO) use were Black.[35] In the 2015 NSDUH survey, estimated PO *misuse*, in particular, was lower at 4.38% among Black participants,[24] with varying prevalences by sex. In the 2015–16 NSDUH, the rates of PO misuse among Black women (n = 5829) and Black men (n = 4334) were 3.4% and 4.9%, respectively.[37] NSDUH data also provided the rate of PO use and misuse among 27,857 Black, Latinx, White, and non-Latinx adolescents (aged 12–17 years) and 28,213 young adults (aged 18–25 years) in 2015–16.[32] Specifically, among the Black subsample (aged 12–25), 28.1% (95% CI, 27.1–29.2) and 1.9% (95% CI, 1.1–2.7) reported any PO use and prescription misuse, respectively.[32] A meta-analysis of three national surveys (aged 18 and older) estimated that 2.5% (95% CI, 1.3–3.7) of Black people in the United States inject drugs, including amphetamines, cocaine, heroin, or steroids.[10]

In U.S national surveys spanning 2003–13, assessing nonmedical PO use in past-year and lifetime use, the percentage of Black participants varied from 1.04 to 11.7%.[7,11,15,47–49] Lower percentages of Black people participating in U.S. surveys undercuts the possibility of accurately measuring the actual incidence of opioid use. For instance, these national epidemiological surveys only include noninstitutionalized individuals within households. Consequently, people in the carceral system, those experiencing homelessness, and those with unstable housing are not captured in these estimates. Due to structural racism, Black people are overrepresented in the homeless population,[50] make up a large proportion of individuals with lower socioeconomic status,[51] and are disproportionately incarcerated,[52] likely resulting in decreased representation in national surveys. Thus, the prevalence of opioid use among Black people may be underestimated. It is also likely that the absence of culturally informed interview techniques could lead to underreporting of PO misuse in the Black community. This speaks not only to the need to include incarcerated populations in epidemiological studies, as Black men are overrepresented in the prison system,[52] but to the importance of utilizing culturally informed colloquial names for POs (to obtain more accurate reports; see below).

In an attempt to address this issue, one study estimated the prevalence of nonmedical prescription drug use among 208 imprisoned Black men in Kentucky, and found 58.2% reported using prescription drugs (e.g., amphetamines, barbiturates, opiates, and other sedatives, hypnotics, and tranquilizers) that were not prescribed to them.[21] In this study, cough syrup with codeine, also known as *syrup* or *sizzurp* (colloquial name for acetaminophen with codeine), was the most commonly used prescription drug followed by alprazolam (Xanax) and hydrocodone (Lortab). *Syrup* may not be recognized in national survey studies and may therefore lead to underreporting of opioid misuse in Black populations. Kristen Miller (2019)[53] from the Center for Disease Control underscores this problem and provides recommendations on integrating culture into survey questions.

Prevalence of opioid use also varies with the setting and the subgroup examined. Utilizing data across 11 health care systems, the prevalence of those with opioid use disorder (OUD) who were Black was 6.6% among 926 Black patients who presented to primary care settings at least twice from 2013–16.[45] In a population-based sample of 16- to 29-year-old Black men who have sex with men (n = 514) in Chicago, the weighted prevalence of past-12-month PO use was 4.2%.[44] As expected, much higher rates were seen among those entering opioid treatment from 2005–16; Pouget and colleagues (2018)[25] conducted a survey and found the prevalences of heroin use and nonmedical PO use among Black people to be 70% (95% CI, 65–76) and 49% (95% CI, 43–55), respectively. In that study, heroin use among Black people was higher in 2005 (95%) than in 2016 (70%). Pouget and colleagues (2018)[25] also found PO use among Black people was highly variable (36% in 2005; 57% in 2010; 40% in 2014; and 49% in 2016). The most common POs reported was oxycodone (31%) followed by hydrocodone (20%) and methadone (12%).

Despite lower prevalences of opioid use, the available evidence suggests that in multiple U.S. states (Illinois, Iowa, Michigan, Minnesota, Missouri, West Virginia, Washington, and Wisconsin) and the District of Columbia, the rate of opioid overdose death is higher among Black people than the general population.[54,55] Allen and colleagues (2019)[56] examined the rate of overdose deaths by age cohorts in New York City in 2017. They found the percentages of overdose deaths of Black individuals were higher due to heroin or fentanyl (ages 15–34, 5.8% [95% CI, 4.0–8.2]; ages 35–54, 22.9% [95% CI, 18.8–27.1]; ages 55–84, 25.4% [95% CI, 20.9–30.0]) than those due to opioid analgesics (ages 35–54, 3.9% [95% CI, 2.4–6.1]; ages 55–84, 3.8% [95% CI, 2.3–6.1]). Notably, the overdose death rate due to opioid analgesics could not be estimated for Black people between the ages of 15 and 34; given the small number of cases, confidentiality guidelines prevented reporting statistics for this age group.[56]

For prescription drug use, NSDUH data on 106,845 Black, Latinx, and White young adults from 18–25 years were used to inform sources for diverting PO.[44] Among Black young adults who misused prescription drugs, the majority reported that friends or relatives providing the drugs had obtained them from physicians (79.8%; 95% CI, 71.1–86.4).[44] Fewer Black young adults reported their friends or relatives providing the drugs had obtained them by (1) stealing opioids from a medical source, friend, or relative, or receiving them for free by a friend or relative (2.3%; 95% CI, 1.0–5.0), (2) buying them from a friend, relative, stranger, dealer, or online (9.9%; 95% CI, 5.9–16.0), (3) other sources (5.3%; 95%

CI, 2.3–11.8), or (4) multiple sources (12.4%, 95% CI, 6.3–23.1).[44] Understanding the sources of opioid supply is necessary in order to design interventions and thereby minimize harm and decrease use.

Common Co-occurring Substances of Use in Addition to Opioids

Given that individuals who misuse drugs commonly use multiple substances,[57] it is essential that this review examine the co-use of opioids with other substances among Black individuals. The 2001–02 National Epidemiologic. Survey on Alcohol and Related Conditions (NESARC) data[10] were used to determine the prevalences for co-using alcohol and prescription drugs nonmedically in the past year. The prevalences were slightly higher among Black young adults aged 18–24 (weighted percentage = 13.48%; standard error [SE] = .96) than among those aged 25 years and older (weighted percentage = 10.71%; SE = .66).[48] Liu and colleagues (2019)[33] found that opioid use and co-occurring cocaine use were associated with hospitalization among Black men over the age of 35. James and Jordan (2018)[2] discovered that the increasing rates of opioid overdose deaths among Black individuals have been largely fueled by synthetic opioids (fentanyl) used alone or in combination with cocaine.

Regarding PO misuse, PO deaths in combination with other substances has been examined using data from the 2002–03 and 2014–15 National Multiple-Cause-of-Death files.[17] Changes in the rate of all PO deaths between from 2002 to 2015 among Black individuals were highest in combination with alcohol, followed by heroin and benzodiazepines, any combination of the five substances (alcohol, antidepressants, benzodiazepines, cocaine, heroin), antidepressants alone, and cocaine. By contrast, changes in the death rate due to synthetic opioids other than methadone among Black people were highest in combination with heroin followed by alcohol, any of the five substances (as above), cocaine, benzodiazepines, and antidepressants. Notably, Black people had the highest rate of change in death rates for PO, relative to Latinx and White individuals, especially for synthetic opioids other than methadone. Further, Kandel and colleagues (2017)[17] found that the proportions of alcohol-related deaths in combination with PO increased the most among Black people relative to White and Latinx people. Data on Black women (n = 5829) and Black men (n = 4334) who participated in the 2015–16 NSDUH indicated that Black men and women who misuse PO also report (in order of highest frequency) tobacco use, alcohol use, cannabis use, illicit drug use, and other prescription misuse.[37] In addition, the risk for PO misuse in relation to other drug use varied by sex. Specifically, (in order of greatest risk) other prescription drug misuse, illicit drug use, and alcohol use increased the risk for PO misuse among Black women. Among Black men (in order of greatest risk), other prescription drug misuse, cannabis use, and tobacco use were associated with increased risk of PO misuse.[37] Finally, a study examining drug initiation sequences using data from the 2013–14 NSDUH suggested that, after initiating cannabis use, Black adults aged 18–34 years (n = 2960) were more likely to progress to using nonmedical PO than to using cocaine.[27] Notably, since the Black participants in this sample had very low rates of heroin and cocaine use, the sequence of heroin and cocaine use could not be examined.

Patterns of Opioid Use Initiation Among Black People

To assess patterns of drug initiation and progression over time, Moses and colleagues (2019)[36] conducted a retrospective analysis utilizing a sample of non-treatment-seeking non-Latinx White and non-Latinx Black individuals (n = 373) with a history of injection opioid and other drug use. On average, White individuals initiated substance use 1.3 ± 0.4 years earlier ($t(363) = 4.42$; $p < .001$) than Black individuals, who were found to begin use of all substances at a later age, with the exception of heroin. Black people were more likely to use heroin as their first substance and more likely to use cannabis before other legal drugs, like tobacco or alcohol, a pattern of use that notably does not follow the popularized gateway hypothesis.[58] The time between first use of any substance and first use of heroin was 3.1 ± 0.8 years shorter for Black people than White people.[36] Although the age of initiation of heroin use was early, Black individuals used less frequently than White individuals (24.1 ± 19.1 times in the week prior to study screening compared to 32.1 ± 30.3 [$t(359) = 3.48$; $p = .001$(log10)]), and had a longer latency period (10.9 ± 1.1 years, [$t(338) = 10.30$; $p < .001$]). There was no significant difference in the mean ages for the beginning of regular heroin use. While this study offers data from a non-treatment-seeking population, the small sample size limits its generalizability.

As noted earlier, patterns of PO use have changed over time, particularly over the course of the current opioid epidemic.[25] Black-identifying respondents were 54% less likely than White respondents to report PO misuse in 2005, which decreased significantly to 25% at the end of the study period in 2016.[25] Over the same study period, heroin use among Black people decreased from 93% to 70%, with PO misuse increasing from 36% in 2005 to a peak of 57% in 2010 and then 49% by the end of the study (2016).[25]

Engagement in Treatment for Black People with Opioid Use Disorder

Twenty-two to 28% of Black people with OUD seek drug or alcohol treatment, with treatment-seeking Black individuals having lower odds than White individuals of accessing treatment programs for drug use and opioids.[16] Compared to White patients, Black patients have significantly lower rates of completion of outpatient substance use treatment, and for those who do complete it, they have significantly longer lengths of stay.[34] In a national sample of people who use opioids (extracted from the 2014 Treatment Episode Dataset–Discharge), only 21% of Black patients completed treatment, a significantly lower rate than in the general sample.[26] Further analysis of this study demonstrated that 3 of 42 metropolitan statistical areas had substantial racial/ethnic disparities in rates of treatment completion, which largely accounted for the disparity between Black and White patients, and which also indicated the existence of regional variabilities in patterns of treatment engagement.

Among patients who do engage in treatment, only a fraction receives opioid agonist treatment (OAT). In a national sample of publicly funded substance use treatment episodes, only 28.7% of patients with OUD engaging in treatment received OAT as part of their treatment.[18] The odds of receiving OAT was greater for Black and Latinx individuals than for White individuals.[18] Approximately 77% of this difference could be explained by differences in clinical need, as Black patients in this sample were older, using heroin, using

opioids more frequently, and using via injection or inhalation. Further, this effect was attenuated after adjusting for geographic characteristics, potentially due to increased access to treatment in major metropolitan areas.

In contrast, Black patients with a documented diagnosis of OUD in primary care settings were less likely than White patients to receive treatment for OUD (15.5% vs. 21%), with a significant effect remaining after controlling for insurance status.[30] This finding was substantiated in a study by Lagisetty and colleagues (2019),[28] where combined data from the 2004–15 National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey demonstrated that Black patients had significantly lower odds of receiving buprenorphine prescriptions (adjusted odds ratio = 0.23; 95% CI, 0.13–0.44), even after controlling for payment method, sex, and age. Receipt of OAT is associated with decreased rates of opioid use between admission to, and discharge from, outpatient substance use treatment across all racial/ethnic groups, underscoring the importance of equitable access across all demographics.[46]

Regional variations and local structural factors affect patterns of treatment engagement for Black patients with OUD, particularly as it relates to the public treatment system. Some states were able to expand access by adding buprenorphine to the Medicaid formulary. In a study of publicly funded, substance use disorder treatment programs in Baltimore, Black participants were randomized to regular outpatient vs. intensive outpatient programs;[24] no treatment differences were found.[8] Specifically, there were no differences in buprenorphine dosing, treatment retention at three and six months, days of heroin or cocaine use in the last 30 days, or reduction of opioid positive urine screens. Although receiving differing intensities of counseling (regular vs. intensive) did not significantly affect treatment outcomes,[8] other studies have assessed factors associated with adherence or nonadherence to buprenorphine. Among a sample of 50 Black patients with OUD, 48% were nonadherent to treatment, and among those who were nonadherent, the rates of opioid, cocaine, and alcohol use were higher.[14] Further, patients endorsing PTSD symptoms showed a higher rate of treatment adherence than those without. Additionally, attendance at group cognitive-behavioral therapy sessions was significantly associated with increased adherence.[14]

Considerations for Black People Who Use Prescription Opioids

Racial disparities in the assessment and treatment of pain are well documented; for example, Black patients are less likely than White patients to be prescribed opioids.[9] It has been postulated that the lower rates of prescribing opioids to Black patients led to lower increases in opioid overdose deaths among Black populations, especially in the early years of this current opioid epidemic.[59] For Black patients who do receive opioid treatment for non-cancer pain, disparities persist in the ongoing management of their pain and treatment.

A retrospective cohort study of a veteran population being prescribed opioids for non-cancer pain management found that pain was documented less often for Black patients at follow-up.[9] Among patients receiving at least one urine drug screen, Black patients were tested at a significantly higher rate. Further, Black patients were significantly less likely to be referred to pain management, while being significantly more likely to be referred to substance use disorder treatment.[9] Additionally, Buonora and colleagues (2019)[29] found that, in their

retrospective cohort study of outpatients prescribed opioid therapy from 2007–12, Black people and women were more likely to experience an opioid dose reduction. However, neither high-dose opioids nor benzodiazepine co-prescription—conditions known to increase risk of overdose—demonstrated an association with opioid dose reduction.

In addition to disparate rates of urine drug screening, racial disparities exist in rates of discontinuation of long-term opioid therapy following illicit drug use.[22] In the first six months after initiating opioid treatment, 25.5% of Black patients in a national sample received a urine drug test, compared to 15.8% of White patients. Black patients were 2.1 times more likely to have their opioids discontinued when testing positive for cannabis, and 3.3 times more likely to experience discontinuation when testing positive for cocaine. Additionally, this study found that White patients were more likely to receive higher average daily doses of opioids and greater days' supply, as well as being three times more likely to receive a concurrent benzodiazepine prescription.[22]

The Role of Social Determinants of Health

The social determinants of health (SDOH) can be broadly characterized as conditions in which people are born, reside, grow, play, work, worship, and age—which affect a plethora of behavioral health and substance use outcomes.[60,61] Some SDOH that receive frequent attention in research are occupation, employment, education, health care access, transportation, religion, and social cohesion.[61] Here, we describe a few studies that identify the direct or indirect roles of SDOH on the risk of OUD onset, relapse, or care among Black people. For each study pertaining to the influence of SDOH on opioid use, we highlight its strengths and weaknesses.

In the study by Wheeler and colleagues (2019)[42] detailing Black incarcerated men nearing release, a close relationship with either one's mother or one's father was significantly correlated with lower likelihoods of nonmedical use of PO for the treatment of pain. However, only a close relationship with one's father remained a significant predictor of lower nonmedical use of PO for pain based on a multivariable regression that controlled for previous mental health and substance use history. The strengths of this study include a strong use of theory to develop a causal model to understand risk. One major weakness was the small sample size of only187 persons recruited through a convenience approach.

Whereas many studies analyze how demographic factors affect opioid use or risk of using, some studies examine how SDOH can affect stigma and discrimination toward people who use opioids.[41] For instance, Wood and Elliott (2019)[43] found that students' perception of belonging to a working- versus middle-class was associated with higher discrimination against a hypothetical White person for using opioids. By contrast, when it came to views about hypothetical Black people who use opioids, students made no distinctions in relation to the user's social class. One strength of this article was its strong focus on how social attributions and stigma affect perceptions of people who use opioids. The primary weakness was that it was conducted among an online sample of White undergraduates.

While many of the studies examined individual-level indicators of SDOH, some studies found that location matters. For instance, Stahler and colleagues (2018)[26] found that

compared to White respondents, Black respondents had lower odds of opioid use treatment completion in New York City and Riverside, California. One strength of the study was the large population of respondents from the Treatment Episode Dataset–Discharge data for the 42 largest U.S. metropolitan statistical areas. This finding builds on a previous study by Hansen and colleagues (2016)[13] that reported the lowest percentages of buprenorphine treatment rates were among Black people and low-income residents in New York City, whereas methadone rates remained stable. Whereas Stahler and colleagues (2018)[26] focused on differences between Black and White people, and Hansen and colleagues (2016)[13] focused on racial-ethnic disparities among Black and Latinx people, Rigg and Nicholson (2019)[40] focused on Black adults only; they compared the disparities in urban versus rural environments using data from the 2012–16 NSDUH. Rigg and Nicholson (2019)[40] found that in urban areas, having a high school education (compared to <high school) was associated with lower PO misuse, but they found no such association in rural areas.[40] Finally, a history of arrest among Black people in rural areas was associated with higher risk of PO misuse in rural, but not urban, areas.

Higher religiosity (measured by the number of days one attended church) was associated with lower risk of PO misuse, and the association was slightly stronger for Blacks in rural compared to urban areas. The pattern of religiosity on PO misuse is mixed; Nicholson and Ford (2018)[24] analyzed the 2015 NSDUH and found a higher, but nonsignificant, association between church attendance and PO misuse for Black people, yet a lower and significant association among White people. Ransome and colleagues (2019)[39] analyzed data among U.S. adults from the general population using NESARC findings from 2004–05 and 2012–13. They found that among Black people, attending religious services twice per week or more was associated with lower odds of OUD in 2004–05, but they found no protective association a decade later in 2012–13. A strength of this study is the large study population. One major weakness is an absence of covariates. Nicholson and Vincent (2019)[37] used 2015–16 NSDUH data and found no association between religion and PO misuse for either Black men or Black women. They found, however, that increasing education status was protective of PO misuse for Black women but not Black men. Similarly, Nicholson and Ford (2018)[24] used the 2015 NSDUH data and also found an education gradient for Black people. The lack of association between religion and PO misuse could be related to methodological limitations in how church attendance was operationalized. In those studies, the variable was categorized as 25+ times attended services in the past year. The variable ranges from 0 times to more than 52 times, so the optimal threshold may not be at 25. Moreover, since other religion variables are included in the NSDUH, the church attendance variable may be mis-specified without inclusion of the others.

While SDOH are important predictors of health, few studies in our review *explicitly* set out to examine the association between SDOH and opioid use among Black people.[2] The preponderance of studies in this review reported on the risk or odds of illicit (e.g., heroin) and licit (e.g., nonmedical prescription) opioid use or disorders specified by the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). Studies typically compared Black to White respondents; few race-specific studies focused on Black people only. Studies often included SDOH indicators (e.g., education or employment) as covariates that were sometimes not present in the study result tables. Finally, while a plethora of anecdotal

evidence suggests that SDOH matter for Black people with OUD, no scientific consensus has emerged as to which determinants are most influential (e.g., education, work, religion, family), what extent they matter (e.g., average effect size and significance), or which level matters most (e.g., individual or community). Consequently, no unified strategy has been identified for addressing racial disparities in overdose rates, which are rising higher for Black people than for White people.[62]

Emerging Trends in Opioid Use Disorders for Black People

In this section, we seek to identify whether any emerging trends in recent studies demand special attention as the field develops. For instance, Alexander and colleagues (2018)[1] evaluated the causes of mortality on U.S. death certificates collected by the National Center for Health and Statistics from 1979 to 2015. They found that opioid mortality rates for Black people increased slightly overall but that mortality rates were stable between 1994 and 2011. Between 2013 and 2015, mortality due to opioids, other than heroin and methadone, increased substantially among the Black population. For instance, deaths from synthetic opioids averaged 107 per 100,000 compared to 78 per 100,000 among White people. Deaths due to methadone were relatively stable across time. We do see a trend of increasing deaths related to synthetic types of opioids. Starting around 2010 through 2015, opioid mortality rates rose steadily, driven by heroin and synthetic opioids, and the slopes were increasing together.

In addition to increased death rates from synthetic opioids among Black people, rates of PO use (both licit and illicit) among Black populations are increasing, particularly between 2002 and 2015.[1] For example, Martins and colleagues (2017)[19] used data from 2001–02 NESARC wave 1 and 2012–13 NESARC-III to reveal that lifetime heroin use increased significantly among both non-White and White respondents but that prevalences still remained lower among non-Whites. The study did not disaggregate the non-White category, however, which included Asians and Latinx people; the trend among Black people specifically remains uncertain. One strength of this study was the large nationally representative sample size for both surveys, with a total of over 79,000 individuals. One limitation was the exclusion of homeless and incarcerated individuals. Mintz and colleagues (2019)[35] used data from NSDUH and documented that the proportion of Black people (relative to other races) with PO misuse among adolescents and adults increased from 8% in 2002–05 to 9.5% in 2010–14. Martins and colleagues (2015)[12] used data from 2002–05 and 2008–11 NSDUH to examine patterns in past-year heroin use. They found significant increases in heroin use among the Black population during these periods. More importantly, they found that among those with past-year heroin use and those who ever injected heroin, the odds of using nonmedical PO 100–365 days compared to 1–29 days in the past year were significantly higher for Black than for White people.

The increasing trends of opioid use overall (both illicit and licit) among Black people in the general population are also evident among subpopulations. Knighton and colleagues (2018)[23] studied a group of Black men in correction-based substance use treatment and found an increase in nonmedical PO use from 18% in 2010 to 23% in 2014. Next, Pouget and colleagues (2018)[25] used data from respondents in opioid treatment programs in 37

states between 2005 and 2016 and found that heroin use among Black respondents was decreasing but that PO misuse was increasing. This rise in PO misuse may be influenced by hip-hop music, which is the second most popular music genre among Black individuals.[63] One emerging trend is a noticeable increase in the use of opioid references within music,[31] as to codeine and Percocet. More research is necessary to understand the influence of lyrical themes related to opioids and the impact on Black communities.

Some interesting trends emerge when age is factored into race-based comparisons. Vasilenko and colleagues (2017)[20] used data from the 2012–13 NESARC-III to examine age-varying disparities in people with substance use disorder and found that over the adult lifespan, Black participants had a lower proportion of opioid use at younger ages but a higher proportion of opioid use at older ages. The reverse was true for White participants. One limitation of the study was the cross-sectional study design allowed for the possibility of cohort effects. One strength was the large sample size of 36,309 participants from a nationally representative survey, creating generalizability to the larger U.S. population in that subgroup. The higher rates of opioid use among Black people at older ages was also found in one study among a sample of people 65 years and older from the National Alzheimer's Coordinating Center's Uniform Data Set (n = 13,059).[38] They found that older Black people had higher odds of prevalent chronic and incident opioid use than White people. Overall, these studies demonstrate that trends within the Black population have been found to be inversely related to trends within the White population.

To date, much of the published literature on the emerging trends of opioid use among Black people has been predominantly from the United States. While some studies have investigated opioids and trends in Africa,[64,65] they often do not include race in the tables or organize findings that facilitate understanding the impact on people of African descent or color. Indeed, race is a social construct that is not based on phenotypic traits; other places, however, such as Brazil and South Africa, use some type of organization of people based on color and class. Related, in other societies that are more racially homogenous (e.g., Caribbean countries like Haiti), there are also few studies. Future directions in this field should call for special issues in substance use journals that solicit studies specifically to understand opioid use among Black people across the globe.

DISCUSSION

Summary of Evidence

In this rapid review, we identified 76 studies addressing opioid use in Black communities more broadly, with 42 being highly relevant (published from 1998–20 and not duplicative) to the major themes revealed after data synthesis. Our findings indicate that the prevalences of opioid use among Black individuals are fairly low compared to White individuals but that rates of opioid deaths are rising rapidly, largely due to synthetic opioids (specifically, fentanyl).[66] We found that specific areas in the United States have higher rates of opioid overdose deaths among Black people; further research should be done to understand what is driving these higher rates. It must be noted, however, that current incidences may be underestimated, given sampling bias in major surveys that do not necessarily use culturally

informed interview questions or take into account for people within carceral systems, those experiencing homelessness, or those with unstable housing.[53]

Substance use treatment initiation and engagement rates for Black people with OUD are also quite low, with a paucity of research specifically focusing on how to improve treatment initiation and engagement rates, with no studies on culturally informed treatment implementation in this area. This area is one presenting great opportunity. Governmental agencies could fund Black researchers, known to be more likely to focus on research topics that affect Black people,[67] and could train Black clinicians to treat Black people—glaring issues in research design and health care. Some research indicates racial discrimination in the receipt of PO for non-cancer pain, with increased reduction in opioid dosing compared to White people, but limited data are available that suggest how rectify these behaviors. Further, a dearth of research is available on how the SDOH directly affect OUD among Black people, a population known to have vulnerabilities in this area. Emerging trends highlight the evolution of opioid use among Black individuals, with an increase in PO misuse, which varies by subpopulation (location, involvement in carceral system, sex).

We recommend that future work start incorporating specific SDOH indicators that are based both on theory and what people are observing in practice; obtaining input from key stakeholders (Black people who use opioids, lay audiences, and family members) is essential. Next, studies should present, at a minimum, correlation tables for future meta-analyses. It is also imperative to increase research funding geared toward examining culturally acceptable treatment settings, where Black people with OUD are more likely to access care (Jordan A, Babuscio TA, Carroll KM. A survey of Black adults' willingness to seek help for drug and alcohol problems in the Black church [unpublished, 2020]). This question of potential treatment settings is of particular salience in view of the increasing rates of opioid overdose deaths among Black adults, with their decreased engagement with OUD treatments, despite proven efficacy.[68]

Limitations

Some limitations of this rapid review are worth noting. To make our review more feasible and relevant to the population of interest, we had to modify the original plan of including only systematic reviews, given the scarcity of research therein. This resulted in a more focused search strategy later in the process, which may have inadvertently led to not accessing studies that were not publicly available. Further, given the scope of the topic area —opioid use in Black communities—we made a conscious decision to exclude studies that did not expressly address opioid misuse (known as abuse in DSM-IV), dependence, or OUD. For example, many studies were excluded because, even though they included Black people, they were more focused on PO from pain and did not explicitly discuss misuse or OUD. As such, our results are likely reflecting the results presented in systematic reviews and studies that are publicly available and that explicitly consider Black opioid use in the context of aberrant use. Notwithstanding, this review provides a comprehensive overview of the current literature in this area so far (within the past 22 years), thereby advancing knowledge that can be used to fund critical areas of research and improve clinical practice. Building on the

information presented here will promote better care of this population, with the hope of improving health outcomes.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Summary of Studies of Opioid Use in Black Communities

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
McCabe et al. (2006)[7]	Epidemiologic	NESARC (2001–02)	n = 43,093 M & F Ages 18 and older	Black/African American (11%) White(71%) Asian (4%) Hispanic (12%) Native American or another racial category (2%)	General population	Alcohol	Risk of prescription drugs, opioid analgesic, sedative, tranquilizer, stimulant	Black/African Americans were at much lower risk for nonmedical use of prescription drugs, which is consistent with previous research
Mitchell et al. (2013)[8]	Two-group randomized trial	Parallel, two-group, randomized trial	n = 300 M & F Ages 18 and older	Black (100%)	Persons enrolled in buprenorphine treatment	Cocaine	Persons who use opioids	Black people in outpatient and intensive outpatient treatment showed substantial improvement over a 6-month period on nearly all measures considered No significant differences between groups in meeting diagnostic criteria for opioid (p = .67) or cocaine dependence (p = .63)
Hausmann et al. (2013)[9]	Retrospective cohort study	Veterans Affairs Pittsburgh Healthcare System pharmacy in fiscal years 2007 and 2008	n = 1,899 M & F Ages 18 and older	Black (13.3%) White (86.7%)	Persons with opioid prescriptions	Alcohol or drugs (unspecified)	Racial disparities in monitoring patients on chronic opioid therapy	Among those who had at least 1 urine drug test, Black patients were subjected to more urine tests, especially if they were on higher doses of opioids Black patients were less likely to be referred to a pain specialist and more likely to be referred for a substance use assessment
Lansky et al. (2014)[10]	Meta-analysis	MEDLINE, CINAHL, PsycInfo, Sociological Abstracts, and Cochrane; National Survey of Family Growth (2002 and 2006–08), NSDUH (2002–09), National Health and Nutrition Examination Survey (1999–2008), and	n/a M & F Ages 13 and older	Non-Hispanic White Non-Hispanic Black Hispanic Other	Persons who inject drugs (PWID)	Cocaine, amphetamines, steroids	Estimation of % of PWID to assess HIV and hepatitis C risk	In 2011, lifetime PWID comprised 2.6% of the U.S. population, with 2.5% of Black people in the U.S. who inject drugs including heroin, cocaine, amphetamines, or steroids Comparing Black male PWID to White male PWID, the estimated rate of diagnoses of HIV infection was 7–29 times as high and the estimated rate of living with a diagnosis of HIV infection was 9–38 times as high Comparing Black female PWID to White female PWID, the estimated rate of diagnosis of HIV infection was 5–29 times as high and the estimated

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
		General Social Survey (2000–08)						rate of living with a diagnosis of HIV infection was 6–42 times as high
Han et al. (2015)[11]	Epidemiologic	2003–13 NSDUH (2003–13) and National Vital Statistics System's Multiple Cause of Death Files (2003–13)	n = 472,200 M & F Ages 18–64	Non-Hispanic Black (11.7%) Non-Hispanic White (15%) Hispanic (12.85) Non-Hispanic other (16.7%)	Persons with nonmedical use of prescription opioids	Alcohol, cannabis, cocaine, hallucinogen, stimulant, and sedative use, and use disorders	Morbidity and mortality of (1) nonmedical use of prescription opioids and (2) NMPOUD	From 1979 to 2015, the opioid mortality rate for Blacks increased from 0.62 to 6.6, for an average annual increase of 6% The rate for Blacks remained stable in 1994–2011 Heroin rates are currently increasing at 31% per year for Whites and 34% for Blacks Concurrently, respective synthetic opioids are increasing at 79% and 107% annually
Martins et al. (2015)[12]	Epidemiologic/ observational	NSDUH (2002–05 and 2008–11)	n = 448,597 M & F Ages 12–25	Non-Hispanic Black Non-Hispanic White Hispanic Others (all Non-Hispanic): (Native American/ Alaskan Native, Native Hawaiian/ Other Pacific Islands, Asian, more than one race)	General population	n/a	Nonmedical use of prescription opioids	For both study periods (2002–05 and 2008–11), significant increases in the rate of heroin use were observed only among Black people using any prescription opioids in the past year and those using prescription opioids 100–365 days in the past year From 2008–11, among those with past-year heroin use and those who injected heroin, the odds of nonmedical use of prescription opioids 100–365 days and 1–29 days in the past year were higher among Black people than White people
Hansen et al. (2016)[13]	Social area analysis	Federal Drug Enforcement Agency on the number of buprenorphine prescriptions written from 2004 to 2013, by residential postal ZIP code of the patient treated	179 New York City ZIP codes M & F Ages 18 and older	Black non-Hispanic or Hispanic	Buprenorphine and methadone treatment	n/a	Engagement in medication-assisted treatment (buprenorphine or methadone)	Buprenorphine treatment increased in all social areas over time, with a significantly higher rate of increase in the social area with the highest income and the lowest percentage of Black, Hispanic, and low-income residents Methadone treatment decreased slightly in all social areas until 2011 and then increased, bringing rates back to 2004 levels Treatment patterns varied by social area
Kumari et al. (2016)[14]	Retrospective chart review	Patient Health Questionnaire, Mood Disorder Questionnaire, and a posttraumatic	n = 50 M Ages 18 and older	Black (100%)	Buprenorphine-naloxone treatment for opioid dependence	Alcohol, cocaine	Treatment adherence	48% of patients were adherent to treatment Nonadherent patients had higher rates of use not only for opioids but for cocaine and alcohol Cocaine use was associated with

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
		stress disorder questionnaire						buprenorphine-naloxone nonadherence, even after controlling for opioid use Results indicate that alcohol and illicit substance use is associated with nonadherence to buprenorphine-naloxone treatment Cognitive-behavioral therapy and efforts to promote abstinence from non-opioid substance use may improve adherence among African Americans
Saha et al. (2016)[15]	Epidemiologic	NESARC-III (2012–13)	n = 36,309 M & F Ages 18 and older	Black White Native American Asian/Pacific Islander Hispanic	Persons with NMPOUD	n/a	Rates of nonmedical use of prescription opioids and NMPOUD in the U.S.	Black people had lower rates of lifetime NMPOUD than White people Prevalence of NMPOUD was lower among Blacks, but low precision precluded reliable measure of significance
Wu et al. (2016)[16]	Literature review	MEDLINE and PsychInfo databases	n/a M & F Ages 50 and older	n/a	Community noninstitutionalized adults with OUD	Alcohol	Treatment utilization of persons with OUD	22%–28% of Black people with OUD seek drug or alcohol treatment, with treatment-seeking Blacks having lower odds than White people of accessing drug use and opioid-specific treatment programs
Kandel et al. (2017)[17]	Epidemiologic/ observational	National Vital Statistics System's Multiple Cause of Death Files (2002–03; 2014–15)	n = 15,973; n = 41,491 M & F All ages	Non-Hispanic African American Non-Hispanic White Hispanic	General population	Benzodiazepines, antidepressants, alcohol, cocaine	Changes in prescription opioid overdose deaths by age, gender, race/ethnicity	Between 2002–03 and 2014–15, prescription opioid deaths increased 2.6 times For synthetic opioids other than methadone, the increase was 5.6 times, especially for ages 18–34, males, and African Americans The proportions of alcohol-related deaths in combination with prescription opioids increased the most among Black people versus White and Latinx people
Krawczyk et al. (2017)[18]	Epidemiologic/ observational	Treatment Episode Dataset–Admissions (2014)	n = 94,202 M & F Ages 18 and older	Non-Hispanic Black (9.9%) Non-Hispanic White (76.7%) Hispanic (any race) (13.4%)	Admitted for treatment for heroin, other opiates and synthetics, or non-prescription methadone	n/a	Receipt of opioid agonist treatment	Only 28.7% of clients received opioid agonist treatment Odds of receiving such treatment were significantly higher among Blacks and Hispanics than Whites Differences in clinical need accounted for a substantial portion of this difference
Martins et al. (2017)[19]	Epidemiologic/ observational	National Epidemiologic Survey (2001–02 to 2012–13)	n = 79,402 M & F Ages 18 and older	Non-White (Non-Hispanic Black, Hispanic,	General population	n/a	Changes in prevalence rates of heroin use and	The study did not disaggregate the non-White category, which included Asians and Latinx people, so the trend specifically among Black people is

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
				Asian or Pacific Islander, or Native American) Non-Hispanic White			heroin use disorder	uncertain Lifetime heroin use increased significantly among both non-White and White respondents, but prevalences still remained lower among non-Whites
Vasilenko et al. (2017)[20]	Epidemiologic/ observational	NESARC-III	n = 36,309 M & F Ages 18–90	Black (21%) White (53%) Hispanic/ Latino (19%) other (6%)	General population	Cannabis, alcohol, tobacco	Estimated SUD prevalences by gender and race	Disparities by race/ethnicity varied with age For most SUDs, including heroin, prevalences were higher for White participants at younger ages and Black participants at older ages, demonstrating a cross-over effect Black individuals in midlife may be an important target of intervention programs for OUD, including heroin and prescription opioids
Wheeler et al. (2018)[21]	Epidemiologic/ observational	Derived from a larger study examining mental health and HIV risk among incarcerated Black men who were nearing community reentry	n = 208 M Ages 18 and older	Black (100%)	Incarcerated	n/a	Nonmedical use of prescription drugs	There are inconsistent findings of nonmedical use of prescription drugs among Black Americans Study describes pre-incarceration rates of such drug use among Black men in prison using culturally relevant alternative drug names; 58.2% reported ever using prescription drugs that had not been prescribed to them Rates of lifetime nonmedical use of prescription drugs among each age cohort were as follows: 64.2% of 19- to 29-year-olds; 67.1% of 30- to 39-year-olds; and 41% of participants aged 40 years and above The most commonly used substance among the entire study sample was “syrup,” or cough syrup with codeine Xanax/alprazolam (n = 71) and Lortab/hydrocodone (n = 66) were the next most commonly endorsed drugs
Alexander et al. (2018)[1]	Epidemiologic	National Vital Statistics System’s Multiple Cause of Death Files (1979–2015)	n/a M & F All ages	Black White	General population	n/a	Opioid mortality rates by race and opioid type (heroin, methadone, codeine, morphine, hydrocodone, or oxycodone)	From 1979 to 2015, the opioid mortality rate for Black people increased The rate for Black people remained stable from 1994–2011 This differential growth is reflected in changes in the rate ratio (White to Black mortality) through three successive waves The rate ratio was approximately 0.71 from 1979 to 1993, then increased by 9% per year to over 2 by 2010 and

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
								declined thereafter by −6% annually to reach 1.9 in 2015 Heroin rates are currently increasing at 31% per year for White people and 34% for Black people Synthetic opioids are increasing at 79% for White people and 107% for Black people annually.
Gaither et al. (2018)[22]	Prospective cohort study	Veterans Aging Cohort Study; patients prescribed long-term opioid therapy from 2000–10	n = 15,366 patients M & F Ages 18 and older	Black (48.1%) White (51.9%)	Patients prescribed long-term opioid therapy for chronic pain	Cannabis, cocaine	Persons who use opioids	Among patients testing positive for cannabis, Blacks were 2.1 times more likely than Whites to have long-term opioid therapy discontinued (adjusted odds ratio = [AOR] 2.06; 95% confidence interval [CI], 1.04–4.08) Among patients testing positive for cocaine, Blacks were 3.3 times more likely than Whites to have long-term opioid therapy discontinued (AOR = 3.30; 95% CI, 1.28–8.53).
James & Jordan (2018)[2]	Review	n/a	n/a M & F Ages 18 and older	Black (100%)	General population	n/a	Patterns and policies surrounding Black people who use opioids	The rate of opioid overdose deaths among Black people already exceeds that of White people in several states The lack of discussion of Black overdose deaths in the national opioid discourse further marginalizes Black people and is highly consistent with a history of framing the addictions of people of color as deserving of criminal punishment, rather than worthy of medical treatment.
Knighton et al. (2018)[23]	Cross-sectional	Criminal Justice Kentucky Treatment Outcome Study (2010–14)	n = 4021 M Ages 18 and older	Black (100%)	Incarcerated & general population (under correctional supervision) receiving SUD treatment	n/a	SUD, nonmedical use of prescription opioids	Over 20% reported nonmedical opioid use during the year prior to incarceration On average, participants were 36 years old, completed 13 years of education, and were generally unemployed, prior to incarceration There was a statistically significant positive linear trend between nonmedical opioid use prior to incarceration and cohort year (reference category indicating time of interview 2010–14) A stepwise multivariate regression model was significant and revealed that older age was associated with lower odds of nonmedical opioid use More years of education and frequent mental health symptoms were

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								associated with significantly increased odds of nonmedical opioid use
Nicholson & Ford (2018)[24]	Epidemiologic	NSDUH (2015)	n = 68,073 M & F Ages 18 and older	Black (n = 5150) White (n = 25,146)	General population	n/a	Correlates of prescription opioid misuse	The prevalences of prescription opioid misuse were similar for Black and White respondents Factors significantly correlated with prescription opioid misuse among Black respondents included sex (with males more likely to report prescription opioid misuse), socioeconomic status (receiving some form of government assistance increased odds of prescription opioid misuse), and educational attainment (those graduating from high school and some college were both less likely to report prescription opioid misuse)
Pouget et al. (2018)[25]	Epidemiologic	Data collected from January 2005 through September 2016 from 69,140 entrants of 114 opioid treatment programs in 37 states	n = 69,140 M & F Ages 18 and older	Black White Latino	Entrants to opioid treatment programs	n/a	Nonmedical use of prescription opioids	Initially, Black and Latino respondents reported much higher prevalences of heroin use and much lower prevalence of prescription opioid misuse than White respondents However, the prevalences of prescription opioid misuse increased among Black respondents and decreased among White respondents Heroin use decreased among Black respondents and increased among White respondents, resulting in rates that were no longer significantly different
Stahler & Mennis (2018)[26]	Epidemiologic/ observational	Treatment Episode Data Set–Discharges (2013)	n = 34,380 M & F Ages 18 and older	Black (13.8%) White (70.4%) Hispanic (11.6%) Asian (0.9%) Other (3.2%)	Discharged from treatment	n/a	Persons who use opioids	Only 28% of clients completed treatment The results from the fixed-effects model indicate that Blacks and Hispanics are less likely than Whites to complete treatment
Wall et al. (2018)[27]	Epidemiologic/ observational	National Surveys on Drug Use and Health (2013–14)	n = 73,026 M & F Ages 12 and older	Black/African American White Hispanic	General population	Cannabis, cocaine	Nonmedical use of prescription opioids	Black/African Americans and White people were more likely to use nonmedical prescription opioids than cocaine after cannabis, whereas Hispanics were equally likely to use either drug after cannabis The sequences from cannabis to nonmedical prescription opioids or cocaine were more frequent among White people than minorities

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Lagisetty et al. (2019)[28]	Epidemiologic/ observational	Combined data from the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey outpatient department component (2004–15)	n = 244,457 M & F All ages	White (83.5%) Black (11.5%) Other (5.0%)	Buprenorphine treatment	n/a	OUD	Black patients had significantly lower odds of receiving buprenorphine prescription at their visits (adjusted odds ratio = 0.23; 95% CI, 0.13–0.44), even after accounting for payment method, sex, and age
Buonora et al. (2019)[29]	Retrospective cohort study	Outpatients prescribed chronic opioid therapy between 2007 and 2012 within a large, academic health care system in Bronx, New York, using electronic medical record data	n = 1097 M & F Ages 18 and older	Black (32%) White (15.1%) Hispanic (32.5%) Other (20.3%)	Patients on chronic opioid therapy	Alcohol, tobacco	Persons who use opioids	Blacks and females had greater odds of opioid dose reduction Clinical factors of high opioid dose and concurrent benzodiazepine prescription were not associated with opioid dose reduction Efforts to reduce opioid dose should target patients based on clinical factors and should address potential biases in clinical decision making.
Chen et al. (2019)[30]	Longitudinal cohort study	UConnect longitudinal cohort study	n = 618 M Ages 16–29	Black (100%)	Young Black Men who have sex with men (YBMSM)	Alcohol, cannabis	Prescription opioid use (POU)	Approximately 4.2% of YBMSN reported POU in the past 12 months, with a cumulative incidence of 4.1% over the 18-month follow-up period YBMSM having criminal justice involvements, experiencing violence, or using any illicit drug other than cannabis in the past 12 months were more likely to report POU in the past 12 months The presence of a mother figure was associated with a decreased risk of POU in the past 12 months Engaging in condom-less anal sex with their named sexual partners was associated with an increased risk of POU in the past 12 months
Coomes et al. (2019)[31]	Letter	n/a	n/a M & F All ages	Black (100%)	General population	n/a	Opioid references in hip-hop music	The growth of opioid references in hip-hop may reflect the scope and impact of the opioid crisis Among Black Americans, opioid deaths have increased by 2% annually since 1999. Hip-hop may provide an important space for diverse narratives and dialogues pertaining to the opioid

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
								crisis Future research is warranted to qualitatively explore lyrical themes regarding opioids, determine the impact of increasing exposure to opioid references, and assess this phenomenon in other genres of popular music
Hudgins et al. (2019)[32]	Retrospective analysis	NSDUH (2015–16)	n = 27,857 adolescents; n = 28,213 young adults M & F Adolescents aged 12–17; young adults aged 18–25	Non-Hispanic Black Non-Hispanic White Hispanic Other	General population	Alcohol, cannabis, cocaine, hallucinogen use, inhalant use	Prescription opioid misuse	Black people and Non-Hispanic White people were more likely to have had any opioid use than those of Hispanic heritage (28.1%, 28.9%, and 25.8%, respectively; $p < .001$) Significantly more females than males reported using any prescription opioid (30.3% versus 24.8%; $p < .001$).
Liu et al. (2019)[33]	Epidemiologic	Pennsylvania Health Care Cost Containment Council data set (2000–14)	n = 430,569 M & F Ages 9 and older	African American (13.5%) White (76.4%) Asian/Pacific Islander/ Hawaiian (0.25%) Other/Multiple (5.5%)	General population	Tobacco, cocaine, alcohol, cannabis, barbiturates, amphetamines	Hospitalization ICD-9 code for opioid use disorder (OUD)	Latent class analysis identified five latent class patient groups associated with opioid-related hospitalizations over time, including Black/African American patients with OUD and co-occurring cocaine use
Mennis et al. (2019)[34]	Epidemiologic/ observational	Treatment Episode Data Set–Discharges (2014)	n = 174,123 M & F Ages 18 and older	White (57.5%) Black (18.9%) Hispanic (17.6%) Other (5.9%)	Discharged from SUD treatment	Alcohol, cocaine (including crack), cannabis (including hashish)	SUD	While Black people and people of Hispanic ethnicity both have significantly lower treatment-completion rates than White people, treatment duration is similar across the three groups Black people and people of Hispanic ethnicity generally take longer to complete treatment than White people, though this varies by substance for people of Hispanic ethnicity Disparities in treatment completion persist even after controlling for treatment duration These results indicate that observed racial and ethnic disparities in treatment completion are not due to differences in length of stay in treatment
Mintz et al. (2019)[35]	Epidemiologic	NSDUH (2002–14)	n = 5393 persons with prescription OUD (POUD);	Black (8.1%) White (74.7%) Hispanic (11.4%)	General population	n/a	POUD	Compared to the non-POUD group, the POUD group was less likely to identify as Black or Asian at every time-point and more likely to be male

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
			n = 486,768 people without POUD M & F Ages 12 and older	Asian (3.0%) Native American/ Alaskan Native (1.5%) Multiracial (1.3%)				and younger, and to identify as White or Native American/Alaskan Native
Moses et al. (2019)[36]	Retrospective data analysis	Data collected from participants screened for several institutional review board–approved, laboratory-based studies conducted between 2005 and 2015 in the Detroit, MI, metropolitan region	n = 373 M & F Ages 18–55	Black/African American (n = 171) Non-Hispanic White (n = 202)	Non-treatment-seeking persons currently using heroin who endorsed injecting heroin at least once	Cocaine, cannabis	Injection drug use	Relative to Non-Hispanic Whites, African Americans (45.8% of sample) were more likely to start using heroin earlier in life but also more likely to experience a longer delay between starting and regularly using heroin
Nicholson & Vincent (2019)[37]	Epidemiologic	NSDUH (2015–16)	n = 60,133 M & F Ages 18 and older	Black women (n = 5829) White women (n = 26,689) Black men (n = 4,334) White men (n = 23,281)	General population	Tobacco, alcohol, cannabis	Prescription opioid misuse (POM)	Among Black women only, lower socioeconomic status increased odds of POM. Higher educational attainment, residence in rural areas, and older age lowered odds of POM Among Black men, encounters with drug dealers, illicit drugs, cannabis, tobacco use, other prescription drug misuse, and poor health were associated with increased odds of POM Clear sex differences exist in the prevalence and correlates of POM among Black adults Prevention and intervention strategies must be cognizant of these differences when developing programs to decrease POM
Oh et al. (2019)[38]	Retrospective cohort study	National Alzheimer's Coordinating Center (2005–17)	n = 13,059 participants M & F Ages 65–74	Black (12.3%) White (83.7%) Other (3.9%)	General population	Alcohol, other substances (unspecified)	Chronic opioid use in older adults	For any opioid, belonging to the racial classification Black rather than White was associated with a higher odds ratio (1.47; 95% CI, 1.18–1.8) of incident chronic use (participants who did not report opioid use at their first visit, but initiated use during the study period and continued their use during follow-up) vs. nonuse
Ransome et al. (2019)[39]	Epidemiologic/ observational	NESARC Wave 2 and NESARC-III	n=26,661; n=26,960	NESARC Wave 2: Non-	General population	Alcohol	Effect of religious	The prevalence of lifetime DSM-IV and DSM-5 OUD in NESARC-III was

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
			M & F Ages 18 and older	Hispanic Black (n = 6575), Non-Hispanic White (n = 20,086) NESARC-III: Non-Hispanic Black (n = 7766), Non-Hispanic White (n = 19,194)			involvement on OUD risk	higher among White than Black respondents Never attending services declined for both races over time; higher service attendance was associated with lower DSM-IV risk for Black respondents in Wave 2 but higher risk in NESARC-III Race moderated the association between service attendance, social interaction, and subjective religiosity/spirituality on DSM-IV OUD in Wave 2 and using DSM-5 OUD in NESARC-III Race differences in religion and DSM-IV OUD risk changed over time
Rigg & Nicholson (2019)[40]	Epidemiologic/observational	NSDUH (2012–16)	n = 22,693 M & F Ages 18 and older	Black (100%)	General population	Tobacco, cannabis, alcohol, misuse of other prescription drugs	Prescription opioid misuse (POM)	Findings show that urban and rural AA groups have comparable prevalences of POM (a surprising result since POM often varies with rural status) Numerous factors (e.g., receiving government assistance, religiosity, smoking tobacco or cannabis, misuse of other prescription medications) were significantly correlated with POM for urban and rural AA groups, whereas others (e.g., being age 50+, graduating high school, visiting an emergency department, being arrested, alcohol) varied with rural status
Tsai et al. (2019)[41]	Review	n/a	n/a M & F All ages	Black Latino White	General population	n/a	Stigma as a hindrance to the opioid crisis	In recent years, the burden of the opioid overdose crisis has disproportionately increased among Black people versus White people Black people receiving chronic prescription opioid treatment are more likely than White people to experience dose tapers Buprenorphine treatment remains largely concentrated among White people and in areas with higher proportions of White residents Black people who are able to access treatment are less likely to be successfully retained in care
Wheeler et al. (2019)[42]	Epidemiologic/observational	Derived from a larger study examining mental health and HIV risk among incarcerated	n = 208 M Ages 18 and older	Black (100%)	Persons who are incarcerated	Alcohol	Nonmedical use of prescription opioids	Majority of participants (56.5%) reported ever misusing any of the 11 prescription opioids The most commonly misused prescription opioids were codeine cough syrup (44.7%) and Lortab/

Study (cited in text)	Type of study	Type of data or data set	Sample size/sex/ages	Race or ethnicity	Population	Co-use of other substances	Study outcome	Summary of findings for Black participants
		Black men who were nearing community reentry						hydrocodone (31.7%); 20.6% reported prescription drug misuse among their immediate family members
Wood & Elliott (2019)[43]	Online survey	Survey from public university	n = 9,829 M & F Ages 18 and older	White (100%)	General population	n/a	Stigma toward persons who use opioids	Expressed stigma was greater toward White people who used opioids than Black people who used opioids Attributing addiction to bad character partially mediated the relationships between opioid user social class and the dependent variables There were few effects of user or participant gender on attitudes Participants tended to judge working-class opioid users more harshly than middle-class users, and participants who were middle- to upper-class themselves tended to judge all opioid users more harshly than participants who were working-class
Ford et al. (2020)[44]	Epidemiologic	NSDUH (2009–14)	n = 106,845 M & F Ages 18–25	Black/ African American (14.2%) White/ Caucasian (57.6%) Hispanic/ Latino (20.1%)	General population	n/a	Friends and relatives as sources of prescription opioids	A greater number of racial/ethnicity-based differences were found in opioid sources used by friends/relatives who gave the respondent the medication (all Bonferroni-corrected p values <.05) African American young adults (2.3%) were much less likely to endorse use of theft or a fake prescription by friends/relatives than were either Hispanic/Latino or White participants (7.4% and 6.8%, respectively) African American young adults were also less likely than White participants to endorse that their friends/relatives stole from a friend/relative or purchased the drugs (from all sources or from a friend/relative or stranger/ drug dealer)
Lapham et al. (2020)[45]	Cross-sectional observational	Patients seen in primary care, relying on electronic health records and claims data from health systems included in Primary Care Opioid Use Disorder	≥ 20,000 patients per clinic M & F Ages 18 and older	Hispanic (6.2%) White (78.7%) Black (6.6%) Asian (1.2%) Native American/ Alaska Native (1.1%) Hawaiian/ Pacific	Primary care patients	n/a	Persons with OUD receiving buprenorphine treatment	Among 1,368,604 primary care patients, 1.0 % had documented OUD, and among these, 21.0 % had OUD treatment with buprenorphine For those with documented OUD, the adjusted prevalence of OUD treatment with buprenorphine varied across demographic and clinical subgroups OUD treatment was lower among Black/African American and Hispanic than White patients, and also among

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		(PROUD) Phase 1		Islander (0.35) Multiracial (3.3%) Other (0.7%) Unknown (2.0%)				patients who were older, women, non-commercially insured, and those with non-cancer pain, mental health disorders, greater comorbidity, or more opioid prescriptions, emergency department visits, or hospitalizations
Pro et al. (2020)[46]	Epidemiologic/ observational	Treatment Episode Data Set–Discharges (2015–17)	n = 232,547 M & F Ages 18 and older	Black (10.18%) White (75.64%) Latinx (12.59%) Other (1.6%)	Medication-assisted treatment (MAT) for OUD	Alcohol	Racial/ethnic and gender differences among MAT (buprenorphine or methadone) use	MAT was significantly and positively associated with a decrease in opioid use across all racial groups, though the effect of MAT varied widely between racial/ethnic/gender groups, demonstrating within-group effects of moderation Physicians' perceptions of opioid withdrawal severity—a key factor in prescribing MAT—differ based on the race/ethnicity or sex of the client Clinics with a higher percentage of Black MAT patients are more likely to dispense methadone doses lower than the recommended amount, compared to predominately White-attended clinics Lower methadone doses dispensed in some predominately Black-attended clinics have been accompanied by factors that enable treatment success, such as higher levels of cultural competency among providers and addressing employment and housing

n/a, not applicable; DSM, *Diagnostic and Statistical Manual of Mental Disorders*; NMPOUD, OUD involving nonmedical use of prescription opioids; NESARC, National Epidemiologic Survey on Alcohol and Related Conditions; NSDUH, National Survey of Drug Use and Health; OUD, opioid use disorder;