What is the current state of literature regarding the effectiveness of Buprenorphine for opioid use disorder among African American men?

A Scoping Review

Tamiko Stanley, BA, MSW candidate

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The University of Texas at Arlington

Supervising Committee:

Dr. Micki Washburn

Dr. De'An Roper

Dr. Noelle Fields

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I would like to thank my family and friends for supporting me during this journey and always standing behind me in support. I would like to thank my husband for always standing by my side for the last two years and supporting my dreams.

TABLE OF CONTENTS

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ABSTRACT

Purpose: This scoping review aims to explore the comparative effectiveness of buprenorphine for opioid use disorder (OUD) among African American men. **Methods:** The Arksey & O'Malley scoping review method was used to identify relevant articles and extract data related to the research question. **Results:** The author identified 16 studies that have met all inclusion criteria. Results indicate that buprenorphine treatment is associated with positive substance use and health outcomes for African American men. **Discussion:** Issues remain with access to MOUD treatment for African American men, despite the positive impact buprenorphine can have on health outcomes. As social workers, advocating for increased treatment availability and access promotes health equity and can improve patient outcomes.

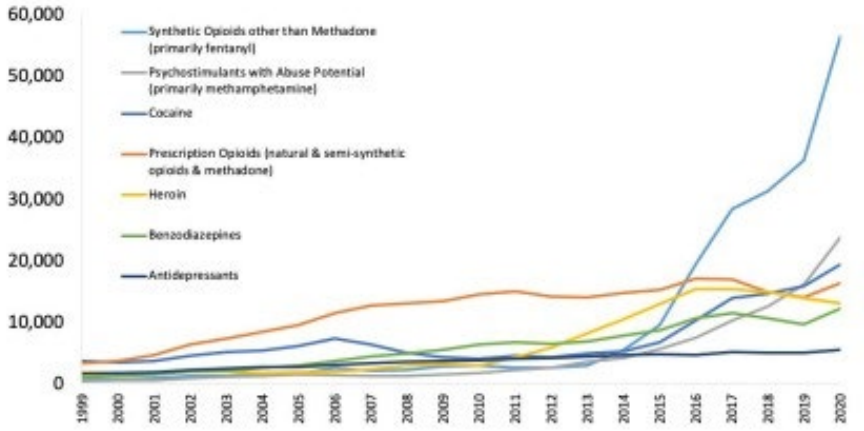
Keywords: Buprenorphine, Opioid Use, African American men, MOUDs

INTRODUCTION

During the years of 1999 to 2019, 500,000 people have died from opioid overdose (Center for Disease Control and Prevention, 2021). In its annual report, the CDC estimated approximately 100,000 people died in 2021 due to a substance-related overdose in the United States (Centers for Disease Control and Prevention, 2021). This represented a 28% increase from the previous year. This report also indicated that opioid overdose deaths were the most common, with opioid-related deaths in 2021 increasing by 28.5% compared to 2020.

In the United States, substance use is continually increasing, significantly impacting the health and wellness of many individuals and communities.

Figure 2. National Drug-Involved Overdose Deaths*, Number Among All Ages, 1999-2020



*Includes deaths with underlying causes of unintentional drug poisoning (X40–X44), suicide drug poisoning (X60–X64), homicide drug poisoning (X85), or drug poisoning of undetermined intent (Y10–Y14), as coded in the International Classification of Diseases, 10th Revision. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2020 on CDC WONDER Online Database, released 12/2021.

(National Institute on Drug Abuse, 2022)

Opioids are a class of drugs used to relieve pain and are most often prescribed after accidents or surgery. Types of opioids include Oxycodone (OxyContin), Hydrocodone (Vicodin), Codeine, Morphine, Fentanyl, and Heroin (National Institute on Drug Abuse, 2022).

When opioids travel through the bloodstream, they attach to opioid receptors in the brain (Mayo Clinic, 2018). Because the opioid binds to these receptor sites, physical pain decreases, and feelings of pleasure are boosted. Taking opioids repeatedly results in one's body becoming acclimated to their use. The body's natural endorphin production starts to slow, leading to less natural pain relief, resulting in tolerance for the drug and a need for a higher dosage or prolonged use to produce the same effects (Mayo Clinic, 2018). The risk associated with taking opioid pain medication is often underestimated. Symptoms of opioid addiction include the inability to decrease or stop opioid use, uncontrollable cravings, drowsiness, and changes in sleep habits that can occur in as little as five days of use (Butanis, 2018; Truth Initiative, 2018).

The National Institute on Drug Abuse (NIDA) has identified multiple societal and economic impacts related to opioid misuse, including criminal justice involvement, child welfare involvement, neonatal abstinence syndrome, greater transmissions of infectious diseases (such as HIV, Hepatitis), cost of overdose reversal medications, injuries associated with intoxication, and lost productivity (National Institute on Drug Abuse, 2021). As of 2017, the financial impact resulting from opioid misuse is estimated to be $35 billion in healthcare costs, $14.8 billion in criminal justice costs, and $92 billion in lost productivity, along with the cost of reduction of quality of life from opioid use disorder (OUD) $390.0 billion and life lost to opioid overdose $480.7 billion (Florence et al., 2021). In order to address the ongoing social and financial consequences of OUD, it is essential to identify effective means of treatment for opioid use disorder.

LITERATURE REVIEW

Interventions used to address opioid use disorder include medication-assisted treatment (MAT) now more commonly referred to as Medications for Opioid Use Disorder (MOUDs) and behaviorally-based interventions, which often focus on harm reduction rather than complete abstinence from substance use. Despite the widespread availability of medication-based interventions, relapse rates and opioid-related deaths remain high (Substance Abuse and Mental Health Services Administration, 2016).

MOUDs includes methadone, buprenorphine, naloxone, and naltrexone. Several methods are used to administer MOUDs. Oral methadone is administered daily in liquid, pill, or wafer form. Sublingual films or tablets such as buprenorphine/naloxone (Suboxone) or sublingual buprenorphine (Subutex) are placed under the tongue daily. Subdermal buprenorphine implants (Probuphine) are implanted under the skin on the upper arm and lasts up to 6 months. Buprenorphine transdermal patches are applied every 7 days to the skin. Intramuscular long-acting naltrexone (Vivitrol) is an intramuscular shot given every 28-30 days.

Methadone

Methadone is a long-acting opioid agonist that can reduce opioid craving, withdrawal symptoms and block the euphoric effects of opioids (SAMHSA, 2022). Methadone is only available through specialty methadone maintenance clinics/opioid treatment programs certified by the Substance Abuse and Mental Health Services Administration (SAMHSA) (Hazelden Betty Ford Foundation, 2019.) Prior to 2002, Methadone was the primary treatment for OUD. Initially, methadone treatment requires patients to make daily visits to their local clinics. However, once patients are stable on their medication, the number of weekly visits to the clinic may be reduced from every day to once or twice per week. (SAMHSA, 2022). Unfortunately, there is still a misperception not only by the general public but also by many health care

providers, that using methadone is a legal way for people to get high or they are simply substituting one drug for another (Walker, 2022). Some concerns do remain due to MOUDs but, "Compared to buprenorphine, another partial opioid agonist, methadone presents a greater risk of overdose (when used in conjunction with opioids) due to its slow metabolism (National Institute on Drug Abuse, 2021)."

Buprenorphine

Buprenorphine's unique pharmacological mode of action has hailed a new dawn in the treatment of opioid addiction, with its low overdose risk and abuse potential (Whelan et al., 2012). In 2002, a new drug called buprenorphine was approved by the Food and Drug Administration (FDA) to treat OUD in the United States (Coe et al., 2019). Buprenorphine was initially developed in the 1970s by Drs. Reckitt and Colman as an analgesic. In addition to its analgesic effects, buprenorphine significantly reduces opioid withdrawal symptoms, including craving. It blocks the effects of exogenous opioids such as respiratory depression, making it safer than methadone with less risk of a negative interaction with other substances (Cole et al., 2019).

With buprenorphine's unique pharmacological mode of action, it has been hailed as a new dawn in the treatment of opioid addiction, with its low overdose risk and abuse potential (Whelan et al., 2012). Unlike methadone, buprenorphine can be prescribed by qualified physicians and mid-level practitioners (such as physician's assistants and psychiatric nurse practitioners) in outpatient clinics, community hospitals, and health departments. Allowing this makes it less stigmatizing and a more convenient option for patients (Hazelden Betty Ford Foundation, 2019), particularly if the patient chooses sustained-release injectable treatments that are designed to last up to one month. Buprenorphine also is often a preferred medication to methadone due to its availability in non-specialty clinics. Despite its potential benefits,

buprenorphine is not without risk. Buprenorphine and buprenorphine/naloxone formulations accelerate withdrawal symptoms and need to be initially administered under close medical supervision (National Institute on Drug Abuse, 2021).

Cost

Buprenorphine treatment costs can vary widely based on insurance coverage. By law, the Mental Health Parity and Addiction Equity Act (MHPAEA) of 2008, requires health insurance companies and group health plans to provide the same level of benefits for medical/surgical and mental health treatment (U.S. Department of Health and Human Services, 2020). The out-of-pocket cost for buprenorphine for a stable patient provided in a certified opioid treatment program includes medication and twice-weekly visits, which can cost $115.00 per week or $5,980.00 per year, which is similar to the estimated out-of-pocket cost for methadone treatment which is estimated at $126 per week or $6,552.00 per year (National Institute on Drug Abuse, 2021). A study was also done in 2021 that estimated the average cost for buprenorphine treatment for 360 days to be $765, compared to $1,700 for a single ED visit or $9,000 for a single inpatient admission with a principal diagnosis of an opioid-related disorder (Dunphy et al., 2021).

Gaps in the Current Literature

While men are more likely to overdose from opioid misuse, gender-specific research has focused primarily on women (Silver et al., 2020). As of 2016, 17,087 people died from prescription opioid overdoses, including 7,109 women and 9,978 men. This is equivalent to 19 women dying daily compared to about 27 men dying from opioid overdoses (National Institute on Drug Abuse, 2021).

The majority of clinical research to date has included samples that were primarily white middle-aged men. Prior research indicates that it is less likely that older adults and African

Americans will receive a primary diagnosis of OUD. Consequently, they are less likely to receive medication-assisted treatment for opioid use disorder (Johnson et al., 2020). Prior research also indicated that policymakers need to prioritize limited outreach and treatment resources for the communities most in need of them. Researchers recognized that those at the highest risk of death often do not have a primary diagnosis of an opioid use disorder, and those not receiving any treatment for OUD were more likely to be African American (Johnson et al, 2020).

Little is currently known regarding ethnic/racial-specific differences in opioid treatment, especially in relation to buprenorphine (Parlier-Ahmad et al., 2021). Few studies have examined the predictors of MOUD-related treatment outcomes (i.e., decreases in substance use or treatment retention) among African Americans, as the majority of treatment studies with African American men have focused on clinical populations treated with methadone rather than with buprenorphine (Parlier-Ahmad et al.,2021).

An analysis of community segregation and medication for alcohol and drug misuse found that for every 1 percent reduction in Black resident/White resident encounters, eight more buprenorphine providers for 100,000 people were found, indicating that buprenorphine providers had their practices in highly segregated white communities. (Andraka-Christou, 2021). The use of buprenorphine has not expanded into communities of color despite an overall increase in the number of community based buprenorphine providers since 2002 (Schuler et al., 2021). Predominantly African American or Hispanic/Latino neighborhoods tend to have methadone-based opioid treatment programs, while White neighborhoods tend to have buprenorphine based treatment options available.. The likelihood of people of color getting access to medications to address OUD has been found to be lower than that of their White peers (Andraka-Christou,

2021). In summary, the research regarding African American men and the overall effectiveness of buprenorphine treatment is currently limited.

METHODS

Study Design

The method chosen for this project was a scoping review. Tricco and colleagues (2016 p. 2) stated that an overview of the evidence regarding a topic, regardless of the quality of the study, is presented in a scoping review and is useful when clarifying key concepts and discovering gaps in knowledge. Studies that are included in scoping reviews are viewed as more appropriate in addressing broad questions versus studies that are included in systematic reviews which are based on specific inclusion criteria (e.g., population, research design, intervention, or outcome of focus). . Arksey and O'Malley (2005) advanced a standardized framework identifying five phases of a scoping review, each of which comprises a unique set of associated activities. The phases include 1.) identification of the research question; 2.) identification of relevant studies; 3.) study selection and evaluation; 4.) data extraction and data charting and 5.) collating, summarizing, and reporting the results.

Stage 1: Identifying the Research Question

To identify a research question for a scoping review, one must first identify a specific population, intervention, and outcomes to guide and focus the literature search process. (Arksey & O'Malley, 2005). The primary research question of this study is "what is the current state of the literature regarding the effectiveness of Buprenorphine for opioid use disorder among African American men?"

Stage 2: Identifying Relevant Studies

The study identification process aims to find as much data as possible to answer the central research question (Arksey & O'Malley, 2005). Keywords are identified to help narrow down and refine search terms. Qualified librarians assisted with this process because of their

skills for designing and executing sensitive search strategies (Arksey & O'Malley, 2005). For this project, the following databases were searched separately to collect relevant peer-reviewed literature: PubMed, PsycINFO, Web of Science, and Google Scholar.

To locate relevant literature within the databases both a primary subject term and the secondary subject term were used. The primary subject term is Buprenorphine. Search terms will include buprenorphine OR "Buprenorphine"[Mesh] OR "Buprenorphine, Naloxone Drug Combination"[Mesh] OR Buprenorphine-Naloxone OR Suboxone OR Buprenex OR Prefin OR Subutex OR Buprex OR Temgesic OR Temgésic OR 6029-M OR 6029 M OR 6029M OR RX-6029-M OR RX 6029 M OR RX6029M OR vivitrol OR naltrexone OR revia OR sublocade. The secondary term is opioid Abuse and was limited to "Opioid-Related Disorders"[Mesh] OR "Heroin Dependence"[Mesh] OR "heroin addiction" OR "Morphine Dependence"[Mesh] OR "morphine addiction" OR "Opiate Overdose"[Mesh] OR "Opium Dependence"[Mesh] OR "opioid abuse" OR "opioid use" OR "opioid addiction" OR "opioid epidemic" OR "opioid-related" OR "Opioid Dependence" Terms related to racial/ethnic groups will be "African American*" or Black or African-American. All of these search terms can be found in Table 1 in the Appendix.

Stage 3: Study Selection

The stage of study selection allows researchers to compile and filter literature that may or may not be relevant to the author's research question. Prior to completing the literature search and study selection, criteria for inclusion and exclusion must be established. For this study, the inclusion criteria are published in English, peer-reviewed journals, published between 2002 and 2022, participants 18 years of age or older, and have a diagnosis of OUD or polysubstance abuse which includes opioids, and include African America men in their sample. In addition, the

articles must include data on the effectiveness of buprenorphine treatment for one of the following domains: *Home, Health, Community, and Purpose*. Types of quantitative studies that were explored are effectiveness trials, quasi-experimental studies, and randomized control trials (RTCs) of buprenorphine used as an intervention for opioid use in African American men. Case studies and review articles were excluded. Additionally, qualitative studies were not included in this review since a sufficient number of quantitative studies were found.

Covidence was used as a primary screening and data extraction tool for the proposed scoping review. Covidence streamlines the production of scoping reviews through citation screening, full-text review, risk of bias assessment, extraction of study characteristics and outcomes, and export of data and references (John Hopkins University and Medicine, 2022). Two reviewers (Stanley and Washburn,) reviewed articles independently by title and abstract in order to screen for initial inclusion. They also conducted a full-text review of articles selected for final inclusion. An additional researcher (Fields) was consulted to resolve disagreements about study inclusion.

Stage 4: Charting the Data

Charting data is a technique used to synthesize and interpret qualitative data by sifting, charting, and sorting material according to key issues and themes (Arksey & O'Malley, 2005). Areas of focus for data charting originally were those outlined by SAMHSA (2022) which include *Health, Home, Purpose, and Community* (SAMHSA, 2022). The *Health* dimension focuses on how one overcomes or manages one's disease(s) or symptoms, and makes informed healthy choices that support physical and emotional well-being. The *Home* dimension will be charted by having a stable and safe place to live. *Purpose* includes how one conducts meaningful daily activities, such as a job, school volunteerism, family caretaking, or creative

endeavors, and the independence, income, and resources to participate in society. Finally, the *Community* dimension will chart about having relations and social networks that provide support, friendship, love, and hope (SAMHSA, 2022).

Stage 5: Collating, Summarizing, and Reporting the Results

The final stage of a scoping study involves collating, summarizing, and reporting the results (Arksey & O'Malley, 2005). Within the collating and summarizing of results researchers prioritize specific parts of the literature (Arksey & O'Malley, 2005). Charting data were extracted to create a summary of evidence (Covidence, 2021). Evidence synthesis included author, year of publication, origin/country of origin, aims/purpose, study population, methodology, intervention, outcomes, study limitations, and key findings (Covidence, 2021).

RESULTS

Data Extraction

Of the 141 initial studies that were identified by the selected databases, 15 duplicates were removed leaving 126 articles that were eligible for the title and abstract review. After completing the title and abstract review, 39 articles were recorded as irrelevant (i.e. did not meet one or more of the inclusion criteria stated above) and 86 were then assessed for full-text eligibility.

A summary of the article selection process is displayed in Figure 1 in the Appendix. Articles were excluded for the following reasons: wrong study design such as a case study or a review article (n=14), wrong patient population (n=11), wrong outcomes e.g. non-MOUD services and treatment) (n=32), wrong intervention (i.e. the intervention medication was not buprenorphine) (n=7), were published prior to 2002 when buprenorphine received FDA approval (n=1), duplicate (n=1), DV not IV (i.e. buprenorphine was the DV, not the IV), (n=2), and pediatric population (n=2). The remaining 16 articles were included in the final analysis.

Table 2 in the Appendix shows the data that was extracted for each study including author and year of publication, study aims, population, % participants who were male, % of participants who were African American, study design and findings. These data were originally going to be categorized into the following four areas: *Health, Home, Purpose, and Community*. However, after reviewing the finding of the included studies, it was decided that the key findings would be better described as falling into the following four categories: (1) Treatment access, retention, and completion. (2) Substance use outcomes, (3) Physical health outcomes, and (4) Psychosocial outcomes.

Treatment access, retention, and completion

Out of fifteen articles included in Table 2, 11 articles were specific to treatment access, retention, and completion. A cohort study by Weinstein et al. (2017), found that clients who were male, younger, African American, Latino, unemployed, or had a diagnosis of hepatitis C had lower odds of 12- month treatment retention. Similarly, Samples et al. (2018), found that African American and Latino men, men who were younger and men who had other co-occurring substance use disorders had lower odds of treatment completion. Alford et al. (2011) also found that patients who were older, employed, and who had previously been taking non-prescribed buprenorphine had significantly higher odds of treatment success, whereas those who were African American, or Latino had significantly lower odds of treatment success.

In 2020, Essien et al. conducted a cohort study that examined overall opioid prescribing decreases after a non-fatal opioid overdose. There were no significant differences in reduction in opioid prescribing by race/ethnicity. However, relative to White patients, African Americans and Latinos were more likely to receive MOUD's within 30 days of non-fatal overdose. Parlier-Ahmad et al (2018) found that treatment retention and buprenorphine continuation in her sample of African American adults did not differ significantly by gender. Moreover, those who were older and has no history of injection substance use were significantly more likely to be retained in treatment.

A randomized controlled trial Mitchell et al. (2013), found that there were no significant differences in treatment retention between standard outpatient programs (OP) and intensive outpatient programs (IOP) for formerly incarcerated individuals in terms of opioid abstinence. They also found that individuals on parole/ probation respond as well to treatment as those who

are not supervised by the criminal justice system, indicating the utility of buprenorphine prescribing for this population.

In two randomized controlled trials, extended-release naltrexone (XR-NTX) and buprenorphine naltrexone (BUP-NX) were examined for treatment retention and completion. According to the article that Korthius et al. (2022), fewer clients that were assigned to XR-NTX initiated treatment, and fewer completed induction. The other randomized controlled trial done by Haeny et al. (2020), found no difference in treatment completion based on if XR-NTX or BUP-NX were prescribed. There was no difference in patient preference for XR-NXT versus BUP-NX. In the cohort study by Gryncynski et al. (2013), comparing methadone to buprenorphine, buprenorphine's retention disadvantage appears to be concentrated in the earlier phases of treatment (the first 50 days), after fifty days no differences in treatment retention were found. There were no differences in treatment retention. There were no differences concerning the odds of treatment completion by medication type when an intent-to-treat analysis was used.

Overall, these 11 articles suggest that younger adults and persons of color have lower odds of treatment completion, that there are no gender-based differences in African Americans' response to treatment, and that multiple forms of buprenorphine administered in various settings can be an effective treatment.

Substance use outcomes

Out of the fifteen articles included in Table 1, seven articles were specific to substance use outcomes. A randomized controlled trial done by Mitchell et al. (2013), indicated that there were no significant differences found between standard outpatient (OP) and intensive outpatient (IOP) for abstinence from opioids, cocaine, and the addiction severity measured by The Addiction Severity Index (ASI). Similarly in a Cohort study by Sittambalam et al. (2014),

looking at the differences between those only completing residential treatment and those also transitioning to outpatient treatment, no significant differences were found for abstinence from heroin use.

In another randomized controlled trial conducted by Jarvis et al. (2019) incentives were used to help increase treatment retention. XR-NTX plus monetary incentives for opiate abstinence increased opiate abstinence relative to usual care, however, XR-NTX alone did not. Monico et al. (2018) further found that those remaining in treatment for 12 months reported significantly fewer heroin, cocaine, and alcohol use days and fewer positive opioid screens than those not retained in treatment. No significant differences for ASI scores. Korthius et al. (2022), reported that clients treated with XR-NXT had significantly lower 30-day opioid use than those receiving TAU.

Physical health outcomes

Out of the fifteen articles examined, four articles reported health outcomes. Korthius et al. (2022) found that there were no differences found between the XR-NTX group and TAU in terms of HIV viral suppression. Likewise, work by Mitchell et al. (2013) indicates no significant difference between standard OP buprenorphine-based interventions and IOP buprenorphine interventions in terms of changes in HIV risk behaviors. However, in a RCT by Springer et al. (2012) buprenorphine treatment was significantly associated with maximal viral suppression relative to those not initiating buprenorphine treatment. In relation to overall health outcomes, Sittambalam et al. (2014) found that the number of ER visits and hospitalizations was significantly reduced for those retained in buprenorphine treatment for three months or more.

Psychosocial outcomes

Within the fifteen articles, four reported results for psychosocial outcomes. Three of those four: Sittambalam et al. (2014), Monico et al. (2018), and Mitchell et al. (2013) found no significant differences in criminal activity and/or quality of life in relation to engagement in buprenorphine treatment. The fourth article by Parlier- Ahmad et al. (2021b) reported that although the length of treatment was not associated with BARC-10 (Brief Assessment of Recovery Capital-10)-scores, recent experiences of discrimination were significantly associated with lower BARC-10 scores.

DISCUSSION

Through this scoping review, it was found that African Americans can benefit from having access to and treatment with Buprenorphine. Overall, results suggest that buprenorphine treatment had a positive impact on both health-related outcomes and substance use outcomes. Results also indicated that people of color, including African Americans, have lower odds of treatment completion, and that multiple forms of buprenorphine administered in a variety of treatment settings can be an effective treatment to reduce substance use. However, there was minimal data that associated buprenorphine treatment with positive psychosocial outcomes for African American men.

These findings are consistent with prior literature concerning African American clients' access to MOUDs including buprenorphine. Prior research indicates that it is less likely that older adults and African Americans will receive a primary diagnosis of OUD. Consequently, they are less likely to receive medication-assisted treatment for opioid use disorder (Johnson et al., 2020). As stated before, the likelihood of people of color getting access to medications to address OUD has been found to be lower than that of their White peers (Andraka-Christou, 2021). This was not supported by the work of Essien, et al., (2020), in this review which found that that relative to white patients African Americans and Latinos were more likely to receive MOUDs within 30 days of a non-fatal overdose. This finding may only be generalizable to those receiving MOUDs after an overdose. Conversely, the work of Landis, et al, 2022, indicated that African American and Latino clients were less likely to receive effective buprenorphine dosage and sufficient/accessibility duration of treatment.

Implications for Practice and Policy

Prior studies indicate that younger adults and African Americans were less likely to have a primary diagnosis of OUD, consequently, they are less likely to receive medication-assisted treatment for opioid use disorder (Johnson et al, 2020). Moreover, the likelihood of people of color getting access to medications to address MOUD is found to be lower than those of their white peers (Andraka-Christou, 2021), which is consistent with the findings of this scoping review. Eleven articles touched on accessibility and the general consensus was that treatment retention was high as long as buprenorphine was made available.

This work also has implications for those who are involved in the criminal justice system. As African Americans, especially younger African American men are consistently overrepresented in the United States justice system (Blumstein, 2015; Mauer, 2018), the finding by Mitchell et al. (2013), that buprenorphine treatment should be made more widely available to individuals on parole/probation as they respond as well to treatment as those who are not supervised by the criminal justice system is of special importance for this population who have higher rates of justice system involvement as well as lower rates of appropriate treatment for substance use disorders (Santoro & Santoro, 2018), often due to their involvement with the justice system.

Buprenorphine treatment should be the standard of care in all aspects of MOUD treatment. Clinics, shelters, and non-profits should be informing clinicians about buprenorphine so that they can effectively provide information on available forms of MOUD to all clients in need of treatment for OUD, particularly those vulnerable to discrimination and racism. For Social Workers it is important to provide affirming and inclusive care for those with OUD in all healthcare settings. Providing a non-judgemental environment and actively seeking to remove

the stigma related to addiction and to MOUDs can be key in helping those who experience racial/ethnic based health disparities. Educating oneself about MOUDs and the options patients have for their health can help bridge the gap and improve culturally-relevant treatment. Social workers also should have an up to date list of local clinics and doctors who can/will provide buprenorphine to patients in predominantly African American communities.

Reducing system barriers to treatment access and retention is essential to improve overall health outcomes for African American men with OUD. These barriers can include cost, travel time, insurance, or fear of losing benefits due to disclosure of substance use. Moreover, it is important that physicians and other prescribers working in historically marginalized communities offer to treat OUDs as a part of general practice and complete the necessary training to be able to prescribe buprenorphine in a routine outpatient setting to increase its availably in communities impacted by OUD. Offering financial and training incentives for physicians and prescribers could also increase the likelihood of addressing the lack of MOUD providers within these communities. Thus, having increased access could potentially improve OUD outcomes for African American men.

Systemic racism has been an ongoing issue in accessing buprenorphine and higher quality care for MOUD in the African American community. In the study done by Parlier-Ahmad in 2021, it was reported that recent discrimination in a health care setting negatively impacted recovery capital (Parlier-Ahmad et al., 2021).

Limitations

There are limitations of this work that should be noted. First, this study included only peer-reviewed articles published between the years 2002 and 2022 in the United States. Literature published outside of the United States, gray literature such as dissertations, white

papers, and other non-published data were not included. This review was limited to quantitative studies and did not include qualitative data concerning outcomes related to buprenorphine use by African American men. This scoping review focused exclusively on African American men. Thus, these results may not generalize to men of other racial/ethnic groups or to African American Women. Despite these limitations, this scoping review provides preliminary evidence that adult African American men may benefit from buprenorphine treatment, as buprenorphine is an effective treatment for this population in terms of increased treatment retention and decreased opioid use.

CONCLUSION

Overall, this scoping review supports the effectiveness of buprenorphine for the treatment of OUD African American men in the four categories of treatment retention, substance use reduction, improved physical health outcomes, and limited improvement in psychosocial outcomes. These outcomes are summarized in Table 3 in the Appendix. In the physical health category, there was an overall reduction in negative health outcomes related to HIV with continued buprenorphine treatment. There tended to be an improvement in substance use outcomes, particularly when participants were retained in treatment for more than three months. With respect to psychosocial outcomes, there were no significant differences in criminal activity and/or quality of life in relation to engagement in buprenorphine treatment. The articles focused on treatment access, retention, and completion suggested that African American men experience some difficulty with buprenorphine availability and were more likely to not be retained in treatment. Thus, these results indicate a need for higher levels of access to buprenorphine for African American men. One of the ways that access can quickly and easily be expanded is to have those who work in historically marginalized communities and Federally Qualified Health Centers (FQHCs) become suboxone/buprenorphine providers. Providing health-related education within these communities is also key in providing effective treatment because many in need of treatment are not aware of the options, nor the success buprenorphine can offer to a patient. In addition, health-related education for historically marginalized communities may lead to a reduction in stigma related to addiction and treatment with MOUDs.

Future research in this area should focus on generating a deeper understanding of barriers to treatment in African American communities and engage community members and community-based providers to help formulate culturally grounded intervention strategies to better meet the needs of African American men with OUD. These results suggest that specific

training should be implemented for providers and social workers to increase psychosocial resources. Financial incentives for physicians to complete the DATA waiver process for outpatient MOUD prescribing could increase the availability of MOUD providers within African American communities. Looking more closely at the quality-of-life outcomes when buprenorphine is utilized can also greatly increase the knowledge surrounding the success of buprenorphine. The majority of research included in this review focused on treatment retention and abstinence from opioid use, rather than for health-related indicators such as employment, academic achievement, child welfare involvement, relationship satisfaction etc., all of which are important indicators of "success" in relation to recovery from substance misuse. Future research should also explore how one overcomes or manages their disease(s) or symptoms and makes healthy choices that support both physical and emotional well-being (SAMHSA, 2022). In summary, buprenorphine is associated with positive health outcomes for African American men, but only if they have access to this treatment and supports in place to increase long-term treatment retention.

References

Alford, D. P., LaBelle, C. T., Kretsch, N., Bergeron, A., Winter, M., Botticelli, M., & Samet, J. H. (2011). Collaborative care of opioid-addicted patients in primary care using buprenorphine. *Archives of Internal Medicine*, *171*(5). https://doi.org/10.1001/archinternmed.2010.541Andraka-Christou, B. (2021). Addressing racial and ethnic disparities in the use of medications for opioid use disorder. *Health Affairs*, *40*(6), 920–927. https://doi.org/10.1377/hlthaff.2020.02261

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, *8*(1), 19–32. https://doi.org/10.1080/1364557032000119616

Blumstein, A. (2015). Racial disproportionality in prison. In *Race and social problems* (pp. 187-193). Springer, New York, NY.

Buresh, M., Stern, R., & Rastegar, D. (2021). Treatment of opioid use disorder in primary care. *BMJ*, n784. https://doi.org/10.1136/bmj.n784

Butanis, B. (2018, August 27). *Signs of opioid abuse*. John's Hopkins Medicine. Retrieved April 6, 2022, from https://www.hopkinsmedicine.org/opioids/signs-of-opioid-abuse.html

Centers for Disease Control and Prevention. (2019, November 1). *Racial/Ethnic and Age Group Differences in Opioid and Synthetic Opioid–Involved Overdose Deaths Among Adults Aged ≥18 Years in Metropolitan Areas — United States, 2015–2017*. https://www.cdc.gov/mmwr/volumes/68/wr/mm6843a3.htm

Centers for Disease Control and Prevention. (2021, November 17). *Drug overdose deaths in the u.s. top 100,000 annually*. https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2021/20211117.htm

Centers for Disease Control and Prevention. (2022, February 9). *Understanding the opioid overdose epidemic*. https://www.cdc.gov/opioids/basics/epidemic.html

Coe, M. A., Lofwall, M. R., & Walsh, S. L. (2019). Buprenorphine pharmacology review: Update on transmucosal and long-acting formulations. *Journal of Addiction Medicine*, *13*(2), 93–103. https://doi.org/10.1097/adm.0000000000000457

Covidence. (2021, May 3). *The difference between a systematic review & scoping review*. https://www.covidence.org/blog/the-difference-between-a-systematic-review-and-a-scoping-review/?campaignid=13260094045%26adgroupid=125761975394&adid=523990127479&gclid=CjwKCAjwrqqSBhBbEiwAlQeqGm57vYJR8yo2IeiYKnqOetuqXrCWbYBGXImCHYOKL4BkihbRvauSGxoCcXkQAvD_BwE

Dunphy, C., Peterson, C., Zhang, K., & Jones, C. M. (2021). Do out-of-pocket costs influence retention and adherence to medications for opioid use disorder? *Drug and Alcohol Dependence*, *225*, 108784. https://doi.org/10.1016/j.drugalcdep.2021.108784

Essien, U. R., Sileanu, F. E., Zhao, X., Liebschutz, J. M., Thorpe, C. T., Good, C. B., Mor, M. K., Radomski, T. R., Hausmann, L. M., Fine, M. J., & Gellad, W. F. (2020). Racial/ethnic differences in the medical treatment of opioid use disorders within the va healthcare system following non-fatal opioid overdose. *Journal of General Internal Medicine*, *35*(5), 1537–1544. https://doi.org/10.1007/s11606-020-05645-0

Florence, C., Luo, F., & Rice, K. (2021). The economic burden of opioid use disorder and fatal opioid overdose in the united states, 2017. *Drug and Alcohol Dependence*, *218*, 1–7. https://doi.org/10.1016/j.drugalcdep.2020.108350

Gryczynski, J., Mitchell, S., Jaffe, J. H., Kelly, S. M., Myers, C., O'Grady, K. E., Olsen, Y. K., & Schwartz, R. P. (2013). Retention in methadone and buprenorphine treatment among african americans. *Journal of Substance Abuse Treatment*, *45*(3), 287–292. https://doi.org/10.1016/j.jsat.2013.02.008

Haeny, A. M., Montgomery, L., Burlew, A., Campbell, A. N., Scodes, J., Pavlicova, M., Rotrosen, J., & Nunes, E. (2020). Extended-release naltrexone versus buprenorphine-naloxone to treat opioid use disorder among black adults. *Addictive Behaviors*, *110*, 106514. https://doi.org/10.1016/j.addbeh.2020.106514

Hazelden Betty Ford Foundation. (2019, December 12). *Suboxone v. methadone v. naltrexone in opioid addiction treatment*. https://www.hazeldenbettyford.org/articles/methadone-vs-suboxone-opioid-treatment

Jarvis, B. P., Holtyn, A. F., DeFulio, A., Koffarnus, M. N., Leoutsakos, J.-M. S., Umbricht, A., Fingerhood, M., Bigelow, G. E., & Silverman, K. (2019). The effects of extended-release injectable naltrexone and incentives for opiate abstinence in heroin-dependent adults in a model therapeutic workplace: A randomized trial. *Drug and Alcohol Dependence*, *197*, 220–227. https://doi.org/10.1016/j.drugalcdep.2018.12.026

Johnson, K., Hills, H., Ma, J., Brown, C., & McGovern, M. (2020). Treatment for opioid use disorder in the Florida Medicaid population: Using a cascade of care model to evaluate quality. *The American Journal of Drug and Alcohol Abuse*, *47*(2), 220–228. https://doi.org/10.1080/00952990.2020.1824236

Korthuis, P., Cook, R. R., Lum, P. J., Waddell, E., Tookes, H., Vergara-Rodriguez, P., Kunkel, L. E., Lucas, G. M., Rodriguez, A. E., Bielavitz, S., Fanucchi, L. C., Hoffman, K. A., Bachrach, K., Payne, E. H., Collins, J. A., Matthews, A., Oden, N., Jacobs, P., Jelstrom,

E.,...McCarty, D. (2022). Hiv clinic-based extended-release naltrexone versus treatment as usual for people with hiv and opioid use disorder: A non-blinded, randomized non-inferiority trial. *Addiction*, *117*(7), 1961–1971. https://doi.org/10.1111/add.15836

Kumar, R., & Viswanath, O. (2021, August 6). *Buprenorphine*. National center for biotechnology information search database. Retrieved from In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK459126/

Landis, R. K., Levin, J. S., Saloner, B., Gordon, A. J., Dick, A. W., Sherry, T. B., Leslie, D. L., Sorbero, M., & Stein, B. D. (2022). Sociodemographic differences in quality of treatment to medicaid enrollees receiving buprenorphine. *Substance Abuse*, *43*(1), 1057–1071. https://doi.org/10.1080/08897077.2022.2060424

Mauer, M. (2018). The Crisis of the Young African American Male and the Criminal Justice System 1. In *Impacts of incarceration on the African American family* (pp. 199-218). Routledge.

Mayo Foundation for Medical Education and Research. (2018, March 21). *What are opioids and why are they dangerous?* Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/prescription-drug-abuse/expert-answers/what-are-opioids/faq-20381270

McCabe, S., Morales, M., Cranford, J. A., Delva, J., McPherson, M. D., & Boyd, C. J. (2007). Race/ethnicity and gender differences in drug use and abuse among college students. *Journal of Ethnicity in Substance Abuse*, *6*(2), 75–95. https://doi.org/10.1300/j233v06n02_06

Mitchell, S., Gryczynski, J., Kelly, S. M., O'Grady, K. E., Jaffe, J. H., Olsen, Y. K., & Schwartz, R. P. (2013). Treatment outcomes of african american buprenorphine patients by parole

and probation status. *Journal of Drug Issues*, *44*(1), 69–82. https://doi.org/10.1177/0022042613491106

Monico, L. B., Gryczynski, J., Schwartz, R. P., Jaffe, J. H., O'Grady, K. E., & Mitchell, S. (2018). Treatment outcomes among a cohort of african american buprenorphine patients: Follow-up at 12 months. *The American Journal of Drug and Alcohol Abuse*, *44*(6), 604–610. https://doi.org/10.1080/00952990.2018.1461877

National Institute on Drug Abuse. (n.d.). *Overdose death rates*. https://nida.nih.gov/drug-topics/trends-statistics/overdose-death-rates

National Institute on Drug Abuse. (2021a, April 13). *How much does opioid treatment cost?* https://nida.nih.gov/publications/research-reports/medications-to-treat-opioid-addiction/how-much-does-opioid-treatment-cost#:~:text=buprenorphine%20for%20a%20stable%20patient,week%20or%20%245%2C980.00%20per%20year

National Institute on Drug Abuse. (2021b, April 13). *Sex and gender differences in substance use*. https://nida.nih.gov/publications/research-reports/substance-use-in-women/sex-gender-differences-in-substance-use

National Institute on Drug Abuse. (2021c, December). *What is the treatment need versus the diversion risk for opioid use disorder treatment?* https://nida.nih.gov/publications/research-reports/medications-to-treat-opioid-addiction/what-treatment-need-versus-diversion-risk-opioid-use-disorder-treatment

National Institute on Drug Abuse. (2022). *Opioids*. https://nida.nih.gov/drug-topics/opioids

Parlier-Ahmad, A., Pugh, M., & Martin, C. E. (2021). Treatment outcomes among black adults receiving medication for opioid use disorder. *Journal of Racial and Ethnic Health Disparities*. https://doi.org/10.1007/s40615-021-01095-4

Parlier-Ahmad, A., Terplan, M., Svikis, D. S., Ellis, L., & Martin, C. E. (2021). Recovery capital among people receiving treatment for opioid use disorder with buprenorphine. *Harm Reduction Journal*, *18*(1). https://doi.org/10.1186/s12954-021-00553-w

Samples, H., Williams, A., Olfson, M., & Crystal, S. (2018). Risk factors for discontinuation of buprenorphine treatment for opioid use disorders in a multi-state sample of medicaid enrollees. *Journal of Substance Abuse Treatment*, *95*, 9–17. https://doi.org/10.1016/j.jsat.2018.09.001

Santoro, T. N., & Santoro, J. D. (2018). Racial bias in the US opioid epidemic: a review of the history of systemic bias and implications for care. *Cureus*, *10*(12). https://doi.org/ 10.7759/cureus.3733

Schuler, M. S., Dick, A. W., & Stein, B. D. (2021). Growing racial/ethnic disparities in buprenorphine distribution in the United States, 2007-2017. *Drug and Alcohol Dependence*, *223*, 108710. https://doi.org/10.1016/j.drugalcdep.2021.108710

Silver, E. R., & Hur, C. (2020). Gender differences in prescription opioid use and misuse: Implications for men's health and the opioid epidemic. *Preventive Medicine*, *131*, 1–5. https://doi.org/10.1016/j.ypmed.2019.105946

Sittambalam, C. D., Vij, R., & Ferguson, R. P. (2014). Buprenorphine outpatient outcomes project: Can suboxone be a viable outpatient option for heroin addiction? *Journal of Community Hospital Internal Medicine Perspectives*, *4*(2), 22902. https://doi.org/10.3402/jchimp.v4.22902

Snyder, D. C. (n.d.). *Opioid use disorder: Medical treatment options*. https://www.aafp.org/afp/2019/1001/p416.html#:~:text=15%E2%80%9321%20Oral%20methadone%2C%20sublingual,treatments%20for%20opioid%20use%20disorder.*Social Determinants of Health*. (2021, August 2). U.S. Department of Health and Family Services. https://health.gov/healthypeople/priority-areas/social-determinants-health

Springer, S. A., Qiu, J., Saber-Tehrani, A., & Altice, F. L. (2012). Retention on buprenorphine is associated with high levels of maximal viral suppression among hiv-infected opioid dependent released prisoners. *PLoS ONE*, *7*(5), e38335. https://doi.org/10.1371/journal.pone.0038335

Substance Abuse and Mental Health Services Administration. (n.d.). *Methadone*. https://www.samhsa.gov/medication-assisted-treatment/medications-counseling-related-conditions/methadone

Substance Abuse and Mental Health Services Administration. (2022a, March 8). *Recovery and recovery support*. https://www.samhsa.gov/find-help/recovery

Substance Abuse and Mental Health Services Administration. (2022b, April 4). *Methadone*. https://www.samhsa.gov/medication-assisted-treatment/medications-counseling-related-conditions/methadone

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K., Colquhoun, H., Kastner, M., Levac, D., Ng, C., Sharpe, J., Wilson, K., Kenny, M., Warren, R., Wilson, C., Stelfox, H. T., & Straus, S. E. (2016). A scoping review on the conduct and reporting of scoping reviews. *BMC Medical Research Methodology*, *16*(1), 1–10. https://doi.org/10.1186/s12874-016-0116-4

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. (2020, September 1). *Does insurance cover treatment for opioid addiction?* HHS.gov. https://www.hhs.gov/opioids/treatment/insurance-coverage/index.html

Walker, L. K. (n.d.). *The stigma of methadone treatment*. American Addiction Centers. https://americanaddictioncenters.org/blog/stigma-methadone-treatment

Washington (DC): US Department of Health and Human Services. (2016, November). *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health [Internet]*. National Center for Biotechnology Information. https://pubmed.ncbi.nlm.nih.gov/28252892/

Weinstein, Z. M., Kim, H. W., Cheng, D. M., Quinn, E., Hui, D., Labelle, C. T., Drainoni, M.-L., Bachman, S. S., & Samet, J. H. (2017). Long-term retention in office based opioid treatment with buprenorphine. *Journal of Substance Abuse Treatment*, *74*, 65–70. https://doi.org/10.1016/j.jsat.2016.12.010

Welch medical library guides: Systematic reviews and other expert reviews: Covidence. (n.d.). John Hopkins University and Medicine. https://browse.welch.jhmi.edu/sr-methods/covidence#:~:text=Covidence%20is%20a%20web%2Dbased,Risk%20of%20Bias%20assessment

Whelan, P. J., & Remski, K. (2012). Buprenorphine vs methadone treatment: A review of evidence in both developed and developing worlds. *Journal of Neurosciences in Rural Practice*, *03*(01), 45–50. https://doi.org/10.4103/0976-3147.91934

Primary Subject Terms	Secondary Subject Terms	Racial Ethnic Terms
Buprenorphine	Opioid Abuse	“African American*”
"Buprenorphine"[Mesh]	"Opioid-Related Disorders"[Mesh]	Black
"Buprenorphine, Naloxone Drug Combination"[Mesh]	"Heroin Dependence"[Mesh]	African-American.
Buprenorphine-Naloxone	"heroin addiction"	
Suboxone	"Morphine Dependence"[Mesh]	
Buprenex	"morphine addiction"	
Prefin	"Opiate Overdose"[Mesh]	
Subutex	"Opium Dependence"[Mesh]	
Buprex	"opioid abuse"	
Temgesic	"opioid use"	
Temgésic	"opioid addiction"	
6029-M	"opioid epidemic"	
6029 M	"opioid-related"	
6029M	"Opioid Dependence"	
RX-6029-M		
RX 6029 M		
RX6029M		
Vivitrol		
naltrexone		
revia		
sublocade		

Table 1

Search Terms

Table 2

Data Extracted from Included Articles

Authors (Year)	Study Aims	Population	% African American	% Male	Study Design	
Alford et al. (2011)	Described outcomes for a collaborative care model for managing opioid addiction with buprenorphine.	382 clients with OUD seeking outpatient treatment with buprenorphine receiving collaborative care model	*n* = 63, 16.4%	*n* = 252, 65.9%	Cohort	On admissi and who se buprenorph treatment s American c treatment s
Essien et al. (2020)	To assess the association of race/ethnicity with the prescribing of opioids and MOUDs after a non-fatal opioid overdose.	16,210 clients prescribed ≥ 1 opioid with a non-fatal opioid overdose in the Veterans Health Administration (VA).	*n* = 2,658, 14.3%	*n* = 14892, 92.0%	Cohort	Overall opi overdose h differences race/ethnic Americans MOUDs w
Gryczynski et al., (2013)	Retention in methadone vs. buprenorphine treatment over 6 months	478 clients with OUD receiving treatment in one of four publicly-funded programs	*n* = 478, 100%	*n* = 313, 65.5%	Cohort	Buprenorpl concentrate (approxima in treatmen treatment c when an in
Haeny et al. (2020)	Compared retention and relapse rate for Extended-Release Naltrexone versus Buprenorphine-Naloxone	73 clients with OUD participating in a multi-site RCT	*n* = 73, 100%	*n* = 59, 80.8%	RCT	No differen BUP-NX. induction f in treatmen between th
Jarvis et al. (2019)	To determine whether extended-release injectable naltrexone (XR-NTX), incentives for opiate abstinence, and their combination reduce opiate use compared to TAU and whether the combination reduces opiate use more than either treatment alone	84 clients with OUD	*n* = 67, 80.1%	*n* = 60, 71.4%	RCT	XR-NTX p increased o NTX alone
Korthuis et al. (2022)	Investigated if XR-NTX for treatment of OUD can improve HIV outcomes and reduce opioid use relative to TAU with buprenorphine or methadone.	114 clients living with HIV and OUD	*n* = 64, 56%	*n* = 71, 62%	RCT	Fewer clien treatment. NTX group group had s TAU.
Landis et al. (2022)	We examined measures of treatment quality and	317,494 Medicaid recipients who filled Rx for	*n* = 134,086, 42.4%	*n* = 28,566, 9.0%	Cohort	African An to receive e sufficient d

	explored variation by sociodemographic factors.	buprenorphine across all 50 states				more likely residents w and sufficie
Mitchell et al., (2013)	Compared outcomes at 3 and 6 months for clients enrolled in traditional outpatient (OP) treatment vs. intensive outpatient treatment (IOP) with buprenorphine.	300 participants with OUD	*n* = 300, 100%	*n* = 187, 62.3%	RCT	No signific and IOP fo criminal ac behaviors, measured b
Mitchell et al., (2014) (year)	Compared outcomes of African-American adults newly-admitted to buprenorphine treatment who were on parole and probation to patients who were not under criminal justice supervision.					Buprenorph available to respond as by the crim increase tre
Monico et al. (2018)	Examined 12-month treatment outcomes for those previously enrolled in RCT trial of buprenorphine/naloxone treatment for OUD	133 participants enrolled in prior parent study who were able to be contacted at 12-month point	*n* = 133, 100%	*n* = 86, 64.7%	Cohort	Those still significantl days and pe retained in differences criminal ac
Parlier-Ahmad et al. (2021a)	The objectives of this study are to assess psychosocial and clinical predictors of OUD outcomes and explore differences in OUD outcomes by gender.	98 participants from addiction medicine clinic receiving buprenorphine treatment	*n* = 98, 100%	*n* = 47, 48.0%	Cohort	Treatment buprenorph significantl had no hist significantl
Parlier-Ahmad et al. (2021b)	Examined the relationship between recovery capitol as measured by the BARC-10 and treatment duration and to assess gender differences in recovery capitol.	130 participants completing measure of recovery capitol while in office-based buprenorphine treatment	*n* = 87, 67.4%	*n* = 59, 45.3%	Cohort	Length of t 10 scored. associated No signific
Samples et al. (2018)	Explored Medicaid claim data to predict factors leading to discontinuation of buprenorphine treatment	17,329 adult Medicaid recipients who initiated buprenorphine treatment	*n* = 836, 4.8%	*n* = 11,131, 64.2%	Cohort	Those who Latino, on SUD had g Co-occurri associated
Sittambalam et al. (2014)	Explored the impact of inpatient to outpatient treatment with buprenorphine/naloxone for those hospitalized due to heroin use.	220 active heroin users	*n* = 187, 85%	*n* = 139, 63%	Cohort	Number of significantl for 3+ mon for 1 montl found for h

Springer et al. (2012)	Evaluates the use of buprenorphine/naloxone (BPN/NLX) vs. no treatment as a method to reduce relapse to opioid use and sustain viral suppression among formerly incarcerated people living with HIV.	94 formerly incarcerated persons living with HIV with OUD diagnosis who were taking HIV medications.	*n* = 40, 42.6%	*n* = 77, 89.1%	RCT	Buprenorpl with maxin initiating b
Weinstein et al. (2017)	To examine the prevalence and patient characteristics and 12-month retention in office-based buprenorphine treatment	1237 clients in office based opioid treatment	*n* = 179, 14.9%	*n* = 765, 61.4%	Cohort	Lower odd found for c American, hepatitis C

Table 3

Summary of Findings by Domain

Author and Year	Treatment Retention and Associated Outcomes	Substance Use Outcomes	Physical Health Outcomes	Psychosocial Outcomes
Alford et al. (2011)	On admission, patients who were older, employed, and who self-maintained with non-prescribed buprenorphine had significantly higher odds of treatment success, while those who were African American or Latino had significantly lower odds of treatment success.	NA	NA	NA
Essien et al. (2020)	Overall opioid prescribing decreased after non-fatal overdose however there were no significant differences on reduction on opioid prescribing by race/ethnicity. Relative to White patients African Americans and Latinos were more likely to receive MOUDs within 30 days of non-fatal overdose.	NA	NA	NA
Gryczynski et al., (2013)	Buprenorphine's retention	NA	NA	NA

	disadvantage appears to be concentrated in the earlier phases of treatment (approximately the first 50 days), then no difference in treatment retention. No difference in the odds of treatment completion by medication type was found when an intent to treat analysis was used			
Haeny et al. (2020)	No differences in preference for XR-NTX versus BUP-NX. Significantly fewer participants completed induction for XR-NTX vs. BUP-NX. No differences in treatment completion or	Relapse was found between the two medications.	NA	NA
Jarvis et al. (2019)	NA	XR-NTX plus incentives for opiate abstinence increased opiate abstinence relative to TAU, but XR-NTX alone did not.	NA	NA
Korthuis et al. (2022)	Fewer clients assigned tot eh XR-NTX group initiated treatment	XR-NTX group had significantly lower 30-day opioid use than TAU	No differences were found between the XR=NTX group and TAU for viral suppression	NA
Landis et al. (2022)	African American and Latino clients were less likely to receive effective buprenorphine dosage and sufficient duration of treatment. Male	NA	NA	NA

	clients were more likely to receive effective dosage. Non-urban residents were more likely to receive effective dosage and sufficient duration.			
Mitchell et al., (2013)	Treatment Retention	No significant differences were found between OP and IOP for abstinence from opioids, cocaine, and addiction severity measured by ASI.		Criminal Activity and Quality of life
Monico et al. (2018)	NA	Those still in treatment at 12 months reported significantly fewer heroin, cocaine and alcohol use days and positive opioid screens than those not retained in treatment. ASI	NA	Criminal Activity and Quality of Life
Parlier-Ahmad et al. (2021a)	Treatment retention and buprenorphine continuation. did not differ significantly by gender. Those who were older and had no history of injection substance use were significantly more likely to be retained in treatment	Substance use recurrence	NA	NA
Parlier-Ahmad et al. (2021b)	NA	NA	NA	Length of treatment was not associated with BARC-10 scored. Recent experiences

				of discrimination were associated with significantly lower BARC-10 scores. No significant gender differences were found.
Samples et al. (2018)	Those who were younger, male, African American, Latino, on a lower dose and had another co-occurring SUD had greater odds of discontinuing treatment. Co-occurring mental health conditions were not associated with treatment discontinuation.	NA	NA	NA
Sittambalam et al. (2014)	NA	No significant differences were found for heroin use	Number of ER visits and hospitalizations were significantly reduced for those retained in treatment for 3+ months relative to those retained in treatment for 1 month or less.	Quality of Life
Springer et al. (2012)	NA	NA	Buprenorphine treatment was significantly associated with maximal viral suppression relative to those not initiating buprenorphine treatment.	NA
Weinstein et al. (2017)	Buprenorphine treatment was significantly associated with maximal viral	NA	NA	NA

	suppression relative to those not initiating buprenorphine treatment.			

Figure 1

PRISMA Illustration Article Selection Process