

Perinatal Opioid Use Disorder Research, Race, and Racism: A Scoping Review

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abstract

CONTEXT: Racial/ethnic inequities are well documented in both maternal-infant health and substance use disorder treatment outcomes.

OBJECTIVE: To systematically review research on maternal-infant dyads affected by opioid use disorder (OUD) to evaluate for racial/ethnic disparities in health utilization or outcomes and critically assess the reporting and inclusion of race/ethnicity data.

DATA SOURCES: Peer-reviewed literature in MEDLINE, Embase, and Web of Science from 2000 to 2020.

STUDY SELECTION: Research reporting health utilization and outcomes data on dyads affected by OUD during pregnancy through the infant's first birthday.

DATA EXTRACTION: We extracted data on race/ethnicity, study exposures/outcomes, how race/ethnicity data were analyzed, how authors discussed findings associated with race/ethnicity, and whether racism was mentioned as an explanation for findings.

RESULTS: Of 2023 articles reviewed, 152 quantitative and 17 qualitative studies were included. Among quantitative studies, 66% examined infant outcomes ($n = 101$). Three articles explicitly focused on evaluating racial/ethnic differences among dyads. Among quantitative studies, 112 mentioned race/ethnicity, 63 performed analyses assessing for differences between exposure groups, 27 identified racial/ethnic differences, 22 adjusted outcomes for race/ethnicity in multivariable analyses, and 11 presented adjusted models stratified by race/ethnicity. None of the qualitative studies addressed the role that race, ethnicity, or racism may have had on the presented themes.

CONCLUSIONS: Few studies were designed to evaluate racial/ethnic inequities among maternal-infant dyads affected by OUD. Data on race/ethnicity have been poorly reported in this literature. To achieve health equity across perinatal OUD, researchers should prioritize the inclusion of marginalized groups to better address the role that structural racism plays.



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Over the past decade, the rate of deliveries affected by maternal opioid-related diagnoses in the United States more than doubled, from 3.5 cases per 1000 delivery hospitalizations in 2010 to 8.2 per 1000 deliveries in 2017.¹ Along with an increase in the prevalence of maternal opioid use disorder (OUD), there has been an increase in neonatal abstinence syndrome (NAS), also referred to as neonatal opioid withdrawal syndrome (NOWS), rising from 4.0 to 7.3 cases per 1000 hospital births from 2010 to 2017.¹ Untreated OUD during pregnancy has been associated with a lack of prenatal care, increased unscheduled health care utilization, increased risk of fetal growth restriction, fetal death, preterm labor, NOWS, and maternal mortality.^{2,3} During the same period, significant racial inequities in maternal-infant morbidity and mortality rates have persisted, with Black and Indigenous individuals having 4 to 5 times higher rates of mortality than White individuals, and the Black infant mortality rate was more than double that of White infants.^{4,5} Similarly, racial inequities have been noted in substance use disorder (SUD) treatment in both the pregnant and the general population, with non-White people being less likely to enter or complete substance use treatment programs, having less access to medications to treat OUD (MOUD), and having lower adherence.⁶⁻¹¹ Even with these documented inequities across the perinatal continuum and within substance use treatment, and the significant growth in research exploring maternal and infant outcomes among maternal-infant dyads affected by OUD, a clear understanding of the inequities in health outcomes for dyads affected by OUD by race/ethnicity is lacking.

OBJECTIVES

In the setting of increased calls to deepen our understanding of the root

causes of inequities and address structural racism within perinatal and SUD care¹²⁻¹⁵ and the dearth of medical research addressing the impact of racism,¹⁶ we designed this scoping review to (1) identify studies assessing for racial/ethnic inequities in outcomes and health care utilization metrics among dyads affected by OUD; (2) critically assess how the existing literature incorporates and analyzes parental or infant data on race/ethnicity; and (3) evaluate how studies addressed the role of structural determinants of health, specifically the identification of whether racism is acknowledged and discussed as a root cause for described differences. Finally, we provide recommendations for future research and health care guidelines to try to address existing health inequities in perinatal substance use care.

METHODS

Eligibility Criteria, Information Sources, Search Strategy

We used a scoping review methodology because of our broad aim of assessing how a large set of heterogeneous literature incorporated race/ethnicity data into their analyses and discussions.¹⁷ We developed our search strategy in consultation with a medical librarian who executed searches in Ovid MEDLINE, Embase, and Web of Science. Key words used were related to the concepts of opioid use, the peripartum period, and pregnancy outcomes; all databases were searched from inception to August 2020. The full MEDLINE search strategy is listed in Supplemental Table 4. Additionally, potentially relevant citations identified from reviewing literature from key citations or topics highly relevant to our review were identified through December 2020 and included. Citations were deduplicated using EndNote X8 and

uploaded to Covidence systematic review software for screening.

Study Selection

Full-text articles were obtained if they had a clear focus on opioids and studied individuals during pregnancy or dyads up to 1 year after delivery. To further narrow the search, we chose to restrict our analysis to studies published after January 1, 2000, and inside the United States to limit studies to those related to the current US opioid epidemic. We included all studies related to OUD in pregnancy and postpartum, including the nonmedical use of prescription opioids. Studies focusing on the use of prescribed opioids during pregnancy (eg, chronic pain conditions, sickle cell disease) were believed to be outside the scope of the current study and were excluded. We excluded studies comparing outcomes of dyads affected by OUD with nonexposed dyads, as we believed these to represent significantly different study populations. We also excluded studies containing only descriptive data because we would not be able to address our third aim of evaluating how race/ethnicity was assessed with respect to outcomes reported. Editorials, case series, case reports, animal research, conference proceedings, non-English language, and cohort studies or pilot trials with <30 participants were excluded (given limited analyses with small sample sizes and problems of generalizability). Two reviewers independently reviewed all deduplicated titles and abstracts using Covidence systematic review software. Conflicts were resolved by consensus or by a third reviewer.

Data Extraction and Application of the Public Health Critical Race Framework (PHCRF)

We extracted study location, year, design, and reported race/ethnicity

data. We classified studies based on the category of primary outcome assessed, including (1) prenatal/delivery, (2) maternal postpartum, (3) infant, and (4) outcomes crossing these multiple categories, but did not exclude any studies based on outcome studied. Types of outcomes studied by category are presented in Table 1. Each study was reviewed by a single extractor, with any areas of uncertainty reviewed by a second reviewer and discussed as a team to reach consensus.

The PHCRF was adapted for public health practitioners from critical race theory, a construct developed to account for the influence of racism on outcomes and research processes within legal studies. PHCRF principles highlight the importance of race consciousness; race as a social construct rather than biological difference; the intersections of race with other characteristics, including gender; and the pervasiveness of racism, including in health care settings.¹⁸ We chose to use this framework for this scoping review to add methodological rigor to the process of broadly characterizing how researchers analyzed for inequities or documented race/ethnicity, as

few studies explicitly set out to explore differences in outcomes by race/ethnicity. Previous research has successfully integrated this framework into structured reviews.¹⁹

First, to assess a measure of race consciousness, we determined if each study made any mention of race/ethnicity in any part of their methods, results, or discussion. Although race and ethnicity are distinct and important characteristics, given that they were often grouped in the research we analyzed, we used a composite variable to describe inclusion of race and/or ethnicity data. Second, we reviewed the studies' methods to identify whether race was described as a social construct. Results were then scrutinized for statistical analyses that assessed for potential confounding or differences in exposure or primary outcome by race. Third, we extracted data on whether studies adjusted for race/ethnicity and stratified the primary outcome by race/ethnicity in multivariable modeling. Studies that presented exploratory analyses assessing multiple predictors that included outcome data by race/ethnicity were included in the group of studies that stratified by outcome.

Finally, discussion sections were reviewed to identify how researchers interpreted the impact of differences by race/ethnicity and to determine if racism was discussed as a contributor to the outcomes studied. Qualitative studies were categorized separately and similarly reviewed independently to assess how race, ethnicity, or racism were reported in the themes that emerged.

A Note on Language

In this scoping review, we use the word maternal when describing birthing parents and individuals capable of pregnancy and delivery. We acknowledge the limitations of this approach because not all pregnant individuals and birthing parents identify as women. We use "Latinx" to describe individuals with ancestry from Latin American countries. Although many of the studies included in this review describe ethnicity of participants as "Hispanic," we use "Latinx" to be as inclusive and specific as possible.

RESULTS

Study Selection

Our initial search yielded 2023 unduplicated articles. After reviewing all titles and abstracts, 342 met screening criteria. Five additional studies were identified from a review of citations or recently published literature. After full-text review, 152 quantitative studies and 17 qualitative studies were deemed eligible and included in the full analysis. Reasons for exclusion for the other 178 articles are shown Fig 1.

Study Characteristics

Summary characteristics of the included quantitative studies are shown in Table 2; all extracted data are shown in Supplemental Tables 5 and 6 for quantitative and qualitative studies, respectively. In the

TABLE 1 Outcomes Studied in the Literature Describing Dyads Affected by OUD by Category

Outcome Category	Primary Outcomes Measured
Maternal	
Prenatal	Screening for OUD, prenatal toxicology testing, engagement and adherence with MOUD, nonprescribed and polysubstance use during pregnancy, unscheduled health care utilization, fetal growth restriction, delivery complications, serious maternal morbidity, peripartum pain management
Postpartum	Adherence with MOUD, recurring nonprescribed substance use, parental custody retention, maternal overdose, receipt of postpartum maternal care, postpartum contraception receipt, maternal morbidity and mortality, postpartum depression or mood disorders, community-based services engagement
Infant	Rooming-in, NAS severity including length of stay and need for pharmacologic treatment, receipt of maternal breastmilk, infant birth weight, preterm birth, head circumference, child welfare outcomes, early intervention engagement, hospital readmission rates
Multiple outcomes	Combination of any maternal and infant outcomes classified above that cross categories

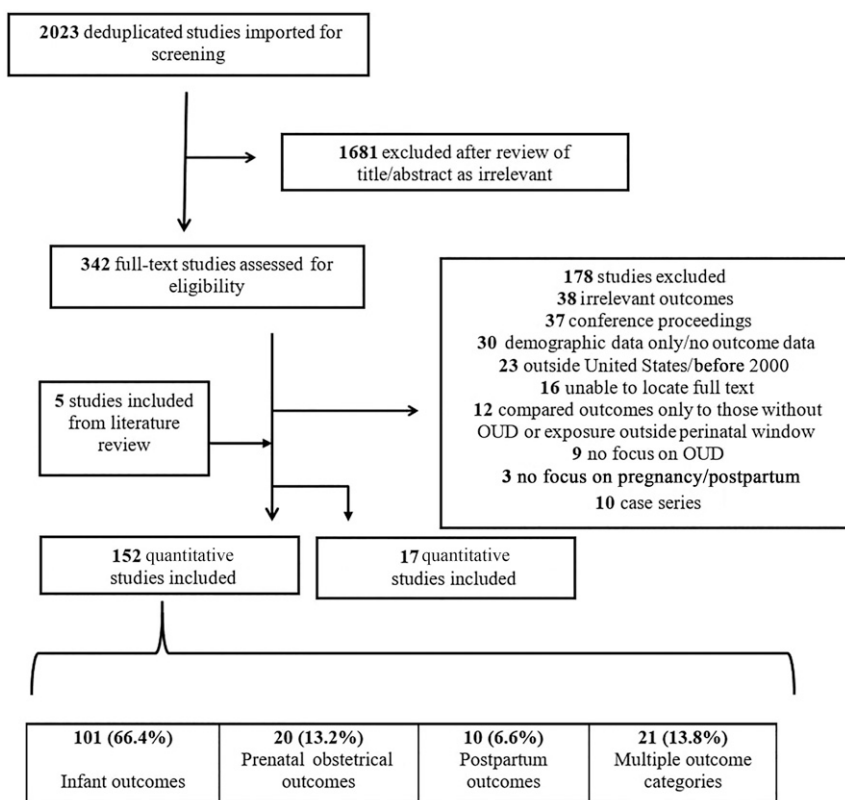


FIGURE 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses review schematic: maternal-infant outcomes classification.

TABLE 2 Summary Characteristics of Included Quantitative Studies ($n = 152$)

Study Characteristic	n (%)
Study year	
1990–1999	2 (1.3)
2000–2009	40 (26.3)
2010–2020	110 (72.4)
No. of participants	
<50	14 (9.2)
50–100	35 (23)
100–200	39 (25.7)
>200	61 (40.1)
Unknown	3 (2)
Study type	
Retrospective cohort	102 (67.1)
Program evaluation	15 (9.9)
Prospective cohort	13 (8.6)
Randomized controlled trial	9 (5.9)
Cross sectional	7 (4.6)
Systematic review with meta-analysis	4 (2.6)
Nonrandomized experimental study	2 (1.3)
Primary outcome	
Infant	101 (66.4)
Multiple	21 (13.8)
Pregnancy/obstetrics	20 (13.2)
Postpartum	10 (6.6)

majority of the quantitative studies included, researchers examined infant outcomes ($n = 101$, 66.4%), followed by multiple (21, 13.8%), prenatal/obstetric (20, 13.2%), and postpartum (10, 6.6%) outcomes. Of studies that investigated multiple outcomes, 15 examined maternal prenatal and postpartum outcomes, whereas 6 examined maternal and infant outcomes. Seventy-two percent of studies were published between 2010 and 2020, and 65.8% included >100 participants. Retrospective cohort studies were the most common study type (67.1%).

Studies Aimed at Evaluating Racial/Ethnic Inequities

Only 3 articles had an explicit focus on the identification of racial/ethnic differences in maternal or infant outcomes among dyads affected by OUD, with mixed findings. Schiff

et al⁹ (2020) and Peeler et al²⁰ (2020) investigated associations between race/ethnicity and prenatal MOUD, finding in adjusted models that Black and Latinx individuals had significantly lower likelihood than White individuals of receiving any medications or consistently using medications. Parikh et al²¹ (2019) retrospectively examined associations between race and need for pharmacologic treatment within infants with NOWS. They found that Black infants in their cohort were less likely than White infants to require pharmacotherapy in unmatched data, whereas Peeler et al (2020) found no statistical association between NOWS severity and race/ethnicity.

Reporting of Race/Ethnicity Data

No studies explicitly defined race as a social construct in their study methods. In 112 (73.7%) of the 152 quantitative studies, researchers mentioned race/ethnicity or presented race/ethnicity data in some way, with 107 (70.4%) studies reporting the racial/ethnic breakdown of their study population. Only 66.3% of studies on infant outcomes mentioned or documented race/ethnicity data compared with studies assessing maternal outcomes (90% of prenatal outcome, 90% of postpartum outcome studies) (Fig 2). Prospective studies were more likely to report race/ethnicity data than retrospective studies (Supplemental Fig 3). Of the studies reporting race/ethnicity, 35 (32.7%) had >20% of participants who were non-White and/or Latinx.

A total of 63 of 152 studies (41.4%) performed statistical analyses to assess for potential differences between exposure groups based on race/ethnicity, 27 (17.8%) looked at differences by outcome, 22 (14.5%) adjusted outcomes for race/ethnicity

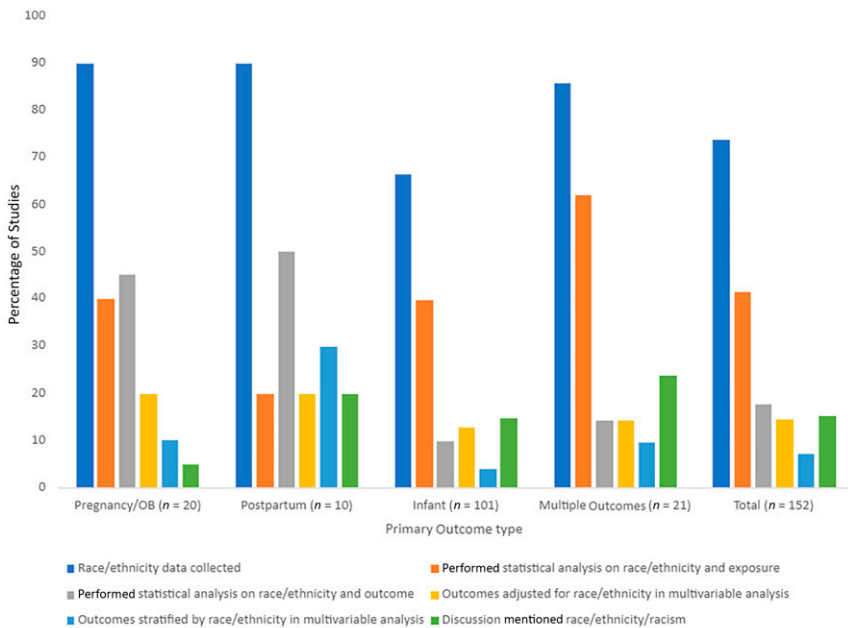


FIGURE 2
Study data collection and analyses of race/ethnicity by outcome categorization. OB, obstetrics.

in multivariable analyses, and 11 (7.2%) presented adjusted models stratified by race/ethnicity. These categories are presented by primary outcome type in Fig 2. Five studies found significant differences in exposure by race/ethnicity but did not adjust for race/ethnicity in multivariable analysis.²²⁻²⁶ Additionally, in 8 studies, race/ethnicity was included as a model covariate in the a priori analysis plan, even though no statistically significant racial/ethnic differences were identified by primary exposure.²⁷⁻³⁶

Studies Identifying Racial/Ethnic Differences

There were 9 quantitative studies that reported racial/ethnic differences in their primary outcomes (Table 3). In addition to the 3 studies described above,^{9,20,21} Scott et al³⁷ (2020) found that Black infants were less likely than White infants to receive pharmacologic treatment of NOWS, yet this finding did not persist in multivariable modeling. Short et al³⁶ (2016)

looked at infant length of stay as a marker of NOWS severity and found that non-White maternal race was associated with an increased length of stay. Schiff et al³⁸ (2018) explored characteristics associated with breastfeeding among dyads affected by OUD and found that maternal White race was negatively associated with breastfeeding initiation, but the association did not remain significant in adjusted analyses. Among studies looking at postpartum metrics, Krans et al³⁹ (2018) identified in their study of postpartum contraceptive use patterns that Black and Latinx individuals with OUD were more likely to receive sterilization than other contraceptive methods. Patton et al³⁵ (2019) investigated postpartum health care utilization among individuals with OUD and found that non-Latinx Black individuals were more likely to receive postpartum health care within the 300 days after delivery than non-Latinx White individuals. Finally, Lo-Ciganic et al⁴⁰ (2019) evaluated both prenatal and

postpartum buprenorphine treatment adherence and found that non-White race was a significant predictor of early treatment discontinuation.

Mention and Interpretation of Race/Ethnicity in Discussion

Seventeen (11.2%) articles mentioned race/ethnicity in the discussion section, with a larger percentage of articles assessing postpartum maternal (20%) or multiple outcome categories (21.4%) compared with those that focused on prenatal/obstetric (8.7%) or infant outcomes (9%) (Fig 1). Eight of the studies that included race/ethnicity in the discussion merely noted that their samples were a homogenous, mostly White study population.^{36,41-47} Lawlor et al⁴⁵ (2020) and Lopian et al⁴⁴ (2019) discussed potential benefits of studies in primarily White populations, with Lawlor et al noting that the homogeneity decreased potential confounding in outcomes and Lopian et al stating that their primarily White study population reflected the general demographics of the opioid epidemic.

Two of the studies that mention race/ethnicity in the discussion, Lo-Ciganic et al⁴⁰ (2019) and Schiff et al³⁸ (2018), restated their findings with regard to race/ethnicity but did not further elaborate on these results, discuss potentially explanatory factors, or consider future research. Parikh et al²¹ (2019) hypothesized that the differences they found regarding need for pharmacologic treatment among infants may be due to biological differences in different groups experiencing withdrawal. Finally, Schiff et al⁹ (2020) and Peeler et al²⁰ (2020) mentioned structural factors, including individual and institutional racism,

TABLE 3 Studies Quantitatively Revealing Differences in the Extent to Which Race/Ethnicity Is Associated With Study Outcome, Either in Bivariate Comparison or in Adjusted Models

Authors	Year	Title	Primary Outcomes	What, if Any, Difference in Outcomes by Race/Ethnicity Was Found?	How Was Race, Racism, or Ethnicity Described in Discussion?
Infant outcomes					
Parikh et al (21)	2019	Racial Association and Pharmacotherapy in Neonatal Opioid Withdrawal Syndrome	Need for pharmacologic treatment of NOWS	Black infants less likely than White infants to require pharmacotherapy for NOWS in multivariable analysis.	Discussion was focused on potential genetic basis for difference in outcomes and potential that difference in outcomes may be due to differences in methadone dosing for pregnant individuals on the basis of race.
Scott et al (37)	2020	Factors Associated With the Need for pharmacological Management of Neonatal Opioid Withdrawal Syndrome	Need for pharmacologic treatment of NOWS	Black infants less likely to require pharmacotherapy compared with White infants in bivariate analysis; did not remain significant in multivariable model.	Authors discussed association of race with need for neonatal medication and suggested that limited racial/ethnic variability may be due to “the facility’s patient population rather than actual distribution of opioid use during pregnancy among races.”
Short et al (36)	2016	The Association Between Breastfeeding and Length Of Hospital Stay Among Infants Diagnosed With Neonatal Abstinence Syndrome: A Population-Based Study of In-Hospital Births	Infant length of stay	Race and ethnicity not significantly associated with breastfeeding status of infants with NAS in bivariate analysis, yet when race and ethnicity were included in multivariable analysis, $P = .05$ for infant length of stay.	Authors suggested that they may not have seen differences in race and ethnicity as factors given the homogeneity of the study population.
Prenatal/obstetrical outcomes					
Schiff et al (9)	2020	Assessment of Racial and Ethnic Disparities in the Use of Medication to Treat Opioid Use Disorder Among Pregnant Women in Massachusetts	Use of MOUD in year before delivery, type of medication used	Compared with White pregnant individuals, Black and Latinx pregnant individuals had lower likelihood of receiving, or consistently using, MOUD and lower likelihood of buprenorphine treatment compared with methadone in multivariable analysis.	Authors described differences in outcomes on the basis of race and ethnicity, including potential barriers to medication treatment and structural racism.
Postpartum maternal outcomes					
Krans et al (39)	2018	Postpartum Contraceptive Use and Interpregnancy Interval Among Women With Opioid Use Disorder	Contraception, interpregnancy interval	Compared with non-Latinx White women, Black and Latinx women were more likely to receive female sterilization than other forms of contraception.	Authors did not discuss outcomes related to race and ethnicity in discussion.
Patton et al (35)	2019	The Impact of Medicaid Expansion on Postpartum Health Care Utilization Among Pregnant Women With Opioid Use Disorder	Postpartum health care utilization	Non-Latinx Black women were more likely to receive postpartum health care within 300 d of delivery than non-Latinx White women.	Authors did not discuss outcomes related to race and ethnicity in discussion.
Schiff et al (38)	2018	Examination of Hospital, Maternal, and Infant Characteristics Associated With Breastfeeding Initiation and Continuation Among Opioid-Exposed Maternal-Infant Dyads	Breastfeeding initiation, continuation, exclusivity	Maternal White race negatively associated with breastfeeding initiation in unadjusted model but did not retain significance in adjusted models	Outcomes associated with race mentioned in the discussion.

TABLE 3 Continued

Authors	Year	Title	Primary Outcomes	What, if Any, Difference in Outcomes by Race/Ethnicity Was Found?	How Was Race, Racism, or Ethnicity Described in Discussion?
Multiple outcome categories					
Lo-Ciganic et al (40)	2019	Adherence Trajectories of Buprenorphine Therapy Among Pregnant Women in a Large State Medicaid Program in the United States	Buprenorphine treatment adherence	Non-White race significant predictor of early discontinuation among early treatment responders in multivariable, multinomial logistic regression.	Authors concluded on the basis of the study findings that “factors were identified that could be used to target patients at high risk of late initiation or early buprenorphine discontinuation including ... racial/ethnic minority groups.”
Peeler et al (20)	2020	Racial and Ethnic Disparities in Maternal and Infant Outcomes Among Opioid-Exposed Mother-Infant Dyads in Massachusetts (2017-2019)	Receipt of MOUD and early intervention referral, biological parental custody at discharge	Non-Hispanic Black women and Hispanic women were less likely to receive MOUD during pregnancy compared with non-Hispanic White women.	Authors attributed inequities in MOUD receipt by race and ethnicity to “socioeconomic differences, a lack of physicians trained to prescribe buprenorphine in communities of color, fear and stigma around the use of methadone and buprenorphine, and bias, discrimination, and racism within the substance use treatment system.”

that could be contributing to differences seen in MOUD.

Qualitative Studies

We identified 17 studies that used qualitative methodologies to analyze either focus group results or individual interviews with parent-infant dyads affected by OUD. Seven studies focused on the newborn hospitalization and maternal views on breastfeeding or rooming-in care, 5 focused on access to and experiences with substance use treatment and prenatal care, and 4 focused on parenting experiences and concerns, including experiences with child welfare systems and fetal loss. Among these 17 qualitative reports, 15 listed the racial/ethnic breakdown of participants, and 5 identified their predominately White non-Latinx samples as a limitation. Two studies note a majority or entirely Latinx study population. One of these, Cleveland et al⁴⁹ (2016), described the lack of ethnic diversity in their entirely Latinx population as a limitation. None of the qualitative studies addressed the role that race or racism may have had on the themes that emerged

from their analyses or describe probes used in focus groups or individual interviews to uncover factors potentially related to race or racism.

DISCUSSION

Main Findings

In a scoping review of >2000 studies in the medical literature describing maternal and infant outcomes among dyads affected by OUD over 2 decades, only a few of the more than 150 included studies were designed to investigate how outcomes may differ by race/ethnicity. Furthermore, no studies specifically defined race as a social construct, not all studies presented race/ethnicity data, fewer than half assessed whether race/ethnicity could be a confounder in their analyses, less than fifteen percent adjusted for race/ethnicity in their multivariable models, less than ten percent stratified their outcome data by racial/ethnic group, and only two studies considered structural factors such as racism as a potential explanation for identified differences. An important, albeit

insufficient, first step in being able to address inequities in outcomes requires researchers to accurately categorize and assess race/ethnicity in their studies; we found that this was addressed in the minority of studies, particularly those with a focus on infant outcomes.⁵⁰ Most notably, none of these studies set out to understand the role that racism may play on the causal pathway toward increased substance use and worse perinatal outcomes, despite a growth in this literature in other areas of health.⁵¹

We found that a high proportion of the published literature studied a population that was either majority or entirely White. Although some authors acknowledged the lack of racial/ethnic diversity in their study population as a limitation, others viewed a more homogenous population as a strength. National prevalence data found that 77% of cases of OUD and 78% of opioid-related deaths occurred among non-Latinx White individuals in 2017,⁵² with non-Latinx Black individuals experiencing the greatest rise in overdose rate between 2015 and

2017.^{4,53} Despite the higher occurrence of OUD and NOWS among White and American Indian/Alaska Native populations,^{1,52,54} the overrepresentation of White participants in the studies included in our review was beyond the expected differences in the demographics of OUD and overdose prevalence among different racial groups. The way in which research participants are recruited and data are collected may reflect a long history of biomedical research that excluded marginalized groups from research and/or resulted in harm to groups of Black, Indigenous, and people of color (BIPOC) without proper consent for research.⁵⁵ The challenges of recruiting a diverse sample are real, but the historic impact of scientific racism can be overcome with careful attention to trust and accurate information about the goals of research. Furthermore, prioritizing the diversity of participants included in research studies is necessary for research results to be of benefit to the whole population.⁵⁶ To successfully bring communities affected by OUD and those with lived experience into the research process, diverse participants should be included in all stages of research, from project development and study design all the way to dissemination of results, to ensure diverse views throughout.⁵⁷

With respect to the type of outcomes studied, the majority of studies included in our review focused on neonatal or infant outcomes, yet they were the least likely to include or analyze information about race/ethnicity in their study. We hypothesize that several factors could be contributing to this finding. First, infant race is often poorly described in birth records and may be incorrectly assigned on the basis of maternal race only.⁵⁸ Second, the most

commonly cited studies looking at NOWS prevalence over the past decade did not report infant race/ethnicity in their publications.^{59–61} Without national prevalence data documenting this variable, researchers may have been more likely to omit it themselves. However, given the significant racial/ethnic inequities that exist in other domains of child health,^{62,63} including in newborn and neonatal outcomes, we cannot fully explain through these hypotheses the omission of race/ethnicity characteristics.

When assessing differences in infant outcomes, we identified 3 studies that showed a lower rate of pharmacologic treatment of Black infants, with only 1 study's findings persisting in adjusted models and 1 study finding no difference.^{20,21,37} Parikh et al²¹ concluded that these differences may be due to biological differences between races. Grossman et al⁶⁴ and Clark and French¹⁵ critiqued this interpretation and highlighted how racial biases can affect a seemingly objective assessment of neonatal withdrawal. Similar to studies of both Black children and adults where inequities in pain management have been described,^{65,66} the findings of Parikh et al may actually reflect the variability in the scoring tool used, showing how symptoms of pain and discomfort could be assessed unequally by health care providers caring for Black infants because of conscious or implicit biases. Particularly, because the findings of a decreased need for pharmacologic treatment in non-White infants were not replicated in the adjusted models by Peeler et al²⁰ and Scott et al,³⁷ this study highlights the harms of using race as a proxy for risk factors, suggesting that although reporting race/ethnicity to document the health status of a

population can be helpful, use of the social category of race or ethnicity to “produce biological attribution of causes” is dangerous.^{67,68} Furthermore, use of race in analyses as a measure of inherent risk results in an overfocus on risks in certain groups. Instead, we suggest that referring to race as a proxy for racism shifts the focus to potential points of intervention to promote health equity. In this review, we aimed to highlight the importance of assessing differences by race/ethnicity as a means to develop strategies to achieve equitable outcomes by groups, with the clear understanding that race is a social construct and is best used as a proxy for structural racism.

With respect to maternal treatment outcomes, we identified the presence of inequitable medication treatment receipt for pregnant people with OUD across multiple different studies, postpartum birth control receipt, and postpartum care utilization.^{9,20,40} None of the qualitative studies we identified that assessed barriers to prenatal and postpartum care highlighted the potential for participants' race/ethnicity to affect care for BIPOC individuals. Qualitative research is well suited to explore the experiences of BIPOC individuals with OUD across the perinatal continuum, and future studies should prioritize the voices of BIPOC individuals to begin to address the root causes of medication treatment inequities. Furthermore, there is a need to identify factors contributing to both interpersonal racism and structural racism resulting in barriers to treatment receipt. Multidisciplinary collaboratives that bring together clinical, community, and public health stakeholders may be useful to examine barriers within health care, substance use treatment, and child welfare systems.⁶⁹

Ghidei et al¹⁴ propose a framework for advancing inequities research in the field of perinatal health. They argue that although identification of inequities is important, equally important is the recognition that when “we study racial and ethnic disparities, race and ethnicity are so often mishandled, misrepresented, underreported, or wholly unreported.” Our scoping review highlighted an area of perinatal research that can benefit from a reckoning with how poorly race data have been incorporated to date. McLemore et al⁷⁰ further highlight important suggestions when making decisions about race in research. First, investigators should include affected communities in exploring how race affects their lives. Second, community-based participatory methods, public health critical race praxis, and a reproductive justice framework can help facilitate a research process that is able to more deeply understand BIPOC individuals’ lives.^{71–74} Finally, when including race data, researchers must emphasize the role of racism, rather than race, as a risk factor for poor perinatal outcomes.⁷⁵ Multidisciplinary teams of clinicians, perinatal quality collaboratives, policymakers, critical race scholars, and public health practitioners have an opportunity to work collectively to address racism by incorporating a more intentional approach to research, including race/ethnicity and the interpretation of its findings.

Limitations

There are important limitations to this research. First, by narrowly focusing on OUD and not including other SUDs, we acknowledge that this review contributes to the problem of prioritizing the impact of opioids, which have affected a majority White population. The response to the opioid epidemic, which has emphasized a national

public health response,⁷⁶ contrasts starkly with the response to the crack/cocaine epidemic in the 1980s, which tended to affect communities of color at a higher rate⁷⁷ and was met with punitive carceral and child welfare responses.⁷⁸ It will be important for future researchers to assess racial/ethnic inequities across the perinatal continuum for all types of SUDs. Second, as we highlighted, race/ethnicity data often are not collected in a systematic way; for example, data items that are assigned at hospital registration rather than self-reported can bias outcomes.^{70,79} Third, this review was limited to the current opioid epidemic in the United States, and thus, findings may not be generalizable to other countries with different historical and cultural contexts. Fourth, although our analysis prioritized race/ethnicity, other structural determinants of health, including socioeconomic status, education, immigration status, and health literacy, may not just be confounding factors affecting dyadic outcomes but actually factors that themselves are a result of structural racism. Future quantitative analysis could be strengthened by using a decomposition method to adjust for confounding effects of other factors while acknowledging their association with race and racism to better identify causal pathways between racism and inequitable health outcomes.⁸⁰ Finally, we grouped race and ethnicity given that they were often linked together in the studies we assessed, but these are distinct factors, and the unique role of ethnicity is an important area for future study. A further appreciation of intersectionality demands attention to differences within arbitrary categories, such as geography, culture, history, and lived experience, to help prevent

overgeneralization and inaccuracy in interpretation of results.

CONCLUSIONS

In this scoping review, assessing 2 decades of perinatal OUD research utilizing the Public Health Critical Race Framework, we highlight a field of perinatal research that will benefit greatly from further attention to how researchers consider including, reporting, and using race/ethnicity data. To achieve equity, a greater emphasis on marginalized populations, regardless of the demographics of individuals with OUD, should be prioritized. As our country and medical and public health communities increasingly grapple with the impact of structural racism on health, there is an opportunity for perinatal OUD researchers to incorporate community-based participatory methods, public health critical race praxis, and a reproductive justice framework to help facilitate a research process that is able to more deeply understand BIPOC individuals’ experiences and to address treatment inequities.

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ABBREVIATIONS

BIPOC: Black, indigenous, and people of color
MOUD: medication to treat opioid use disorder
NAS: neonatal abstinence syndrome
NOWS: neonatal opioid withdrawal syndrome
OUD: opioid use disorder
PHCRF: Public Health Critical Race Framework
SUD: substance use disorder

Dr Schiff conceptualized and designed the study, designed the data extraction instruments, developed the search strategy, drafted the initial manuscript, and reviewed and revised the manuscript; Ms Work designed the data extraction instruments, executed the search strategy, performed quantitative analyses and developed figures, drafted the initial manuscript, and reviewed and revised the manuscript; Dr Hoepfner reviewed the statistical analyses, analyzed the data, and critically reviewed and revised all drafts of the manuscript; Dr Foley executed the search strategy, drafted the initial manuscript, and reviewed and revised the manuscript; Ms Applewhite executed the search strategy and assisted in study design, developing the search strategy, analyzing the data, and critically reviewing and revising all drafts of the manuscript; Drs Diop, Gupta, Peacock-Chambers, Vilsaint, Bernstein, and Bryant and Ms Goullaud assisted in the study design, developing the search strategy, analyzing the data, and critically reviewing and revising all drafts of the manuscript; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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