STRIVING FOR OPTIMAL CARE: UNDERSTANDING THE DETERMINANTS AND EXPERIENCES OF BLACK WOMEN AFTER CESAREAN BIRTH USING A PUBLIC HEALTH CRITICAL RACE PRAXIS LENS

by

Chelse M. Spinner, MPH, CPH

A dissertation submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in
Public Health Sciences

Charlotte

2024

Approved by:

_____
Dr. Michael Dulin

_____
Dr. Lorenzo N. Hopper

_____
Dr. Sharon Watson

_____
Dr. Janaka B. Lewis

Note: Throughout the dissertation, we will refer to individuals who are or were pregnant or who gave birth as “women” or “mothers”. However, we understand that not all birthing persons who become pregnant or give birth identify as a “woman” or “female.”

ABSTRACT

CHELSE M. SPINNER. Striving for optimal care: Understanding the determinants and experiences of Black women after cesarean birth using a public health critical race praxis lens. (Under the direction of DR. MICHAEL F. DULIN)

In the United States (US), Black women are disproportionately impacted by maternal health inequities including an increased risk of mortality and morbidity. More specifically, Black women are more likely to undergo a cesarean birth, even when non-medically indicated, in comparison to other racial and ethnic groups. The increased risk of this surgical procedure among Black women warrants additional study as the efforts to explain the racial disparity have fallen short. Previous research has identified maternal health behaviors, co-morbidities, socioeconomic status, and access to quality care as factors associated with increased risk of cesarean birth among Black women. However, the identified factors do not fully account for the variation in cesarean births. The purpose of the dissertation is to explore the social and structural factors that influence cesarean rates among Black women in the US to support the development of future interventions.

The first manuscript provided a scoping review of peer reviewed research on the risk and protective factors associated with cesarean birth among Black women in the US. Data were synthesized according to the Arksey and O'Malley Scoping Review Framework. The review provided a summary of these factors as well as notable gaps identified in the literature. There were thirteen risk and protective factors from the individual, community, and organizational levels associated with cesarean birth among Black women. The review highlighted the need to acknowledge conceptual considerations, methodological issues, and to include an anti-racist lens in the development of future research studies.

The second manuscript examined the association between experiencing racial discrimination and delivery method using data from the 2016-2021 Pregnancy Risk Monitoring System (PRAMS). The analytic sample comprised nulliparous and primiparous women of reproductive age. Logistic regression was used to model the association between experiencing racial discrimination and delivery method. Racial discrimination was significantly associated with primary cesarean birth; however, after adjustment for confounders was no longer statistically significant. These findings will inform future research efforts that need to expand racial discrimination measures in population-based datasets.

The third manuscript incorporated a phenomenological approach to understand the experiences, perceptions, and needs of Black women following a cesarean birth. Ten semi-structured interviews were conducted with Black women who had a cesarean birth in the last five years. Seven themes emerged from the interviews. Black women shared experiences from pregnancy through to postpartum, highlighting various avenues for improvement in maternity care.

This dissertation makes significant contributions to the understanding of racial disparities in cesarean births and provides insight into next steps for continued study. The results can be leveraged to health professionals to inform evidence-based practice and research, as well as influence the development of clinical policies to safely reduce cesarean births among Black women. This work supports the premise that all women should receive optimal maternity care and Black women are no exception.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank God, my Lord and personal savior for placing this gift on my life and allowing me the opportunity to achieve this milestone. He has provided encouragement and strength throughout the completion of this dissertation, especially during the challenging moments. I am truly grateful.

I would like to express the deepest appreciation for my dissertation committee: Dr. Michael F. Dulin, Dr. Lorenzo N. Hopper, Dr. Sharon Watson, and Dr. Janaka B. Lewis. My chair and advisor, Dr. Dulin, provided his expertise, guidance, and support throughout the dissertation process. I am so thankful that he saw my vision and encouraged me to further explore using a mixed-methods approach. Dr. Hopper, thank you for providing opportunities for me to guest lecture and share my research with your students. He really helped to shape my work and has been a great resource and support throughout the duration of my Ph.D. journey. Dr. Watson, thank you for your intentionality. I appreciate each of our conversations, as you inspired me to understand and appreciate the art of conducting qualitative research. Her guidance has been instrumental in my continued pursuit of centering the voices of Black women within my research. Dr. Lewis, thank you for your calm reassurance and unwavering support throughout the dissertation. She always reminded me to pursue other endeavors that fostered professional advancement outside of the dissertation.

I would like to thank Dr. Larissa R. Brunner Huber for her key role in my development as a researcher and scholar. Further, I extend my gratitude to my peers, Dr. Farida N. Yada, Shanika Jerger Butts, and Melanie Mayfield. You all kept me afloat during this journey, especially with our daily working sessions. The continual encouragement allowed me to see the finish line and believe in my ability to complete my dissertation.

Last but not least, I'd like to thank my family for always encouraging my educational journey—from undergraduate to graduate school. I am grateful to have such an amazing support system. Mom, you are the best person that I know. I would not be where I am today without you. Your birth experience inspired my research, and I am so blessed to be able to share it with you. Thank you for everything. Dad, thank you for your support and advice throughout the Ph.D. journey.

DEDICATION

This dissertation is dedicated to the following:

To the women of the Spinner and Harris family that come before me. My grandmothers, Loretta Spinner, and Lorraine Sikes Harris inspired me to continue this work. I do this in remembrance of them.

To the women who were gracious enough to share their cesarean birthing experiences, I cherish your words and will work to ensure that they do not go unheard.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

ACOG	American College of Obstetricians and Gynecologists
AIM	Alliance for Innovation in Maternal Health
AMA	American Medical Association
BMMA	Black Mamas Matter Alliance
CDC	Centers for Disease Control and Prevention
CRT	Critical Race Theory
EHR	Electronic Health Record
HCUP	Healthcare Cost and Utilization Project
IRB	Institutional Review Board
IPA	Interpretative Phenomenological Analysis
PHCR-EM	Public Health Critical Race Theory-Ecological Model
PHCRP	Public Health Critical Race Praxis
PNC	Prenatal Care
PRAMS	Pregnancy Risk Assessment Monitoring System
RH	The Reproductive Health Impact
SEM	Socio-ecological Model
US	United States
VBAC	Vaginal Birth After Cesarean Section
WHO	World Health Organization

CHAPTER ONE. INTRODUCTION

BACKGROUND

Cesarean Rates and Racial Disparities

The birthing process is often regarded as one of life's most intense experiences, requiring a woman to undergo several changes to carry, nurture, and deliver a new life. Delivery can occur through various methods, such as vaginal, cesarean, or a vaginal birth after cesarean (VBAC) (Martin et al., 2021). A cesarean refers to the surgical birth of an infant via an incision made into the woman's abdomen and uterus (American College of Obstetricians and Gynecologists [ACOG], 2021). Although the surgery can be lifesaving for both mother and newborn, previous studies have not found clear evidence that cesarean deliveries improve maternal or neonatal mortality or morbidity (Keag et al., 2018; Korb et al., 2019). In truth, cesareans are associated with an increased risk of maternal complications, such as infection and subsequent pregnancy complications, and maternal death from blood clots, complications of anesthesia, and other conditions, compared to vaginal deliveries (Deneux-Tharaux et al., 2006; Keag et al., 2018; Sakai-Bizmark, et al., 2021; Stephenson, 2022). These issues raise concern that cesarean procedures are overused in the United States (U.S.) (ACOG et al., 2014). Approximately, one in three women have a cesarean delivery each year, representing one of the most performed surgical procedures in the U.S. (Montoya-Williams et al., 2017). From 1996-2009, the cesarean rate increased by 60% (from 20.7% to 32.9%), declined slightly in 2019 (to 31.7%), and increased again in 2020 (to 31.8%) and 2021 (to 32.1%)—indicating an upward trend in cesarean rates for the past quarter-century (Martin et al., 2023). These trends are similar for both low-risk and primary cesarean rates. The low-risk cesarean rate refers to cesarean delivery among nulliparous (first birth), term (37 or more completed weeks of gestation based on an obstetric

estimate), singleton (one fetus), and vertex (head first) births (Martin et al., 2023). From 2020-2021, the low-risk cesarean rate increased by 2% (from 25.9% to 26.3%) (Martin et al., 2023). The primary cesarean rate refers to cesarean deliveries among women who have not had a previous cesarean delivery (Martin et al., 2023). From 2020-2021, the primary cesarean rate was up by 2% (from 21.9% to 22.3%) (Martin et al., 2023). The *Healthy People 2030* goal to reduce cesarean births among low-risk women with no prior births has only gotten worse (from 25.9% in 2018 to 26.3% in 2021) and represents apprehension in the realm of pregnancy and childbirth (Office of Disease Prevention and Health Promotion [ODPHP], n.d.).

There are striking racial disparities in cesarean births, as Black women experience higher rates of the surgical procedure and its associated health risks (Campbell, 2021; Roth & Henley, 2012; Valdes, 2021). In 2022, the cesarean rate was 36.8% for Black women in comparison to 31.1% for White women (Martin et al., 2023). More importantly, the disparity is evident even for low-risk pregnancies, as relatively healthy Black women are receiving major surgical procedures when there is no medical indication, ultimately increasing their risk of experiencing adverse health outcomes (Campbell, 2021). Previous studies have been conducted to determine what factors account for increased cesareans among Black women, but have been unsuccessful in making a determination (Huesch, 2015; Linton, 2004; Scott-Wright et al., 1999). Other studies that have attempted to articulate the reasons for these disparities have fallen short and pushed forth harmful explanations of biological racial differences, indicating a foundational failure to identify racism as a risk factor (Campbell, 2021; Kabir et al., 2005). Consequently, it justifies subjecting Black women to increased interventions due to a false ideal that Black women's bodies are predisposed to complications (Campbell, 2021). Future research should consider investigating racial discrimination, cultural perceptions, implicit bias, and patient-provider

communication to better understand this phenomenon and develop interventions to help achieve racial and ethnic health equity within maternal health.

REVIEW OF RELEVANT LITERATURE

Health Disparities in Maternal Health

In the U.S., the lived realities of pregnancy are drastically different among women. For example, a Black pregnant woman may attend the same hospital, have the same medical team, and have the same health history as a White pregnant woman, yet will receive maternity care that is analogous to the care received in a developing country. The maternal and infant mortality rates in the U.S. are much higher than those in comparable high-income countries (Taylor et al., 2019). Each year in the U.S., 700 women die of pregnancy-related complications, and approximately 50,000 women experience severe maternal morbidity (Hill et al., 2022). Black women have high rates of pregnancy-related deaths (Peterson et al., 2019). Black women have the highest rates for most morbidity indicators (Creanga et al., 2014). Furthermore, inequities increase by age, as Black women older than 30 years of age are four to five times more likely to experience pregnancy-related deaths compared to their White counterparts (Hill et al., 2022). Pregnancy-related complications are closely tied to infant deaths as well. Nearly two-thirds of infant deaths occur during the month after birth, often due to congenital abnormalities or complications from preterm births (CDC, 2016; CDC, 2022; Taylor et al., 2019). Black women have the highest infant mortality rate of any racial or ethnic group in the U.S., and higher rates of preterm birth contribute to more than half of the difference, compared to non-Hispanic White women (Taylor et al., 2019). Other minority women (e.g., American Indian Alaskan Native (AIAN), Hispanic, Asian) also experience poor maternal and infant health outcomes in comparison to non-Hispanic White women (Hill et al., 2022). The experiences of pregnancy and

delivery are unequal across racial and ethnic groups. The rates of cesarean deliveries are relatively high; however, the rates are exceptionally high among Black women—causing great unease. There is a crisis plaguing the U.S., as significant racial and ethnic disparities within maternal health exist and cannot be addressed without thoroughly understanding how racism and bias within the healthcare system can influence receipt of maternity care.

Social Determinants of Maternal Health

In understanding factors that contribute to health disparities, it is essential to frame those factors around the social determinants of health. A wealth of research has demonstrated the importance of understanding the social determinants of health (i.e., the conditions in which an individual is born, lives, works, etc.) and their relationship to individual health status (Braveman et al., 2011; Braveman & Gottlieb, 2014). One's health is significantly influenced by economic, social, and physical conditions within the environment. Examples of social determinants include education [health literacy, educational attainment, and employment opportunities]; income [economic resources]; built environment [availability of green spaces, sidewalks, or parks]; neighborhood conditions [air and water quality, schools, transportation, medical, employment resources]; and social norms/attitudes [the impact of racism and discrimination] (Braveman et al., 2011; Braveman & Gottlieb, 2014). Nevertheless, the social determinants of *maternal health* are influenced by broader distal determinants that operate through proximal determinants. For example, distal determinants may include socioeconomic and political contexts, while the proximal determinants may focus on individual-level influences, as well as health system or community contexts. Due to the broader distal determinants, such as structural racism, racial inequities in access to healthcare and education, safe housing, food security, and employment have led to disparities in maternal health outcomes. The social determinants of maternal health

are interrelated and can affect pregnancy and birth outcomes through relatively complex interactions. For example, the social determinants of maternal health have been proven to affect several conditions including preterm birth, unintended pregnancy, infertility, cervical cancer, breast cancer, and maternal mortality (ACOG, 2018). The social determinants of maternal health take into consideration the intersectionality of social identities (i.e., gender, race, class, disability status, and sexual orientation) and their influence on the utilization of healthcare, quality of care, and health outcomes. Thus, health professionals need to recognize the importance of the social determinants of maternal health to better care for their patients and improve maternal health outcomes.

Origins of Obstetric Racism

Disparities in maternal and infant outcomes are deeply rooted in racism. From a historical standpoint, during the 246-year enslavement (1619-1865) of Africans, race-based mistreatment was pervasive and has a significant impact on the sexual and reproductive health of their descendants present-day (Prather et al., 2018). Enslaved Black women often experienced legalized sexual and reproductive exploitation due to laws defining them as property. For example, enslaved women had limited access to healthcare, and the only "care" available often resulted in medical experimentation (Prather et al., 2018). James Marion Sims, the "father of modern gynecology," and former president of the American Medical Association (AMA) performed reproductive surgeries (e.g., repair of vesicovaginal fistula) without anesthesia on Betsey Harris, Anarcha Westcott, Lucy Zimmerman, and many other enslaved Black women from 1845-1849 (Campbell, 2021). These early experimental surgeries identified Black women's bodies as expendable clinical material for medicine (Campbell, 2021). As a result, in post-slavery America, medical violence against Black women persisted well into the 20th century.

Black women and other women of color began to experience gynecological abuse in the form of mass sterilization through the process of eugenics (Campbell, 2021; Prather et al., 2018). Approximately 30 states supported formal eugenic sterilization programs from the early 1900s to the 1970s (Campbell, 2021; Prather et al., 2018). The continued exposure to medical violence, placed Black women at a severe disadvantage and increased their likelihood of experiencing biomedical racialization and power differentiation within medicine (Campbell, 2021; Prather et al., 2018). Obstetric racism emerges as an intersection between racial stratification and historical stigmatization of Black women through interactions with health professionals (e.g., physicians, nurses, etc.) before, during, and after pregnancy (Davis, 2018; Scott & Davis, 2021). The threat of obstetric racism is eminent and can arise in many forms, such as lapses in diagnosis, neglect, disrespect, intentionally causing pain, medical abuse through coercion, and overall mistreatment (Davis, 2018; Scott & Davis, 2021). As such, obstetric racism within reproductive and maternity care systems places Black women and their infants at increased risk.

Strategies to Address Maternal Health Disparities

Individual

To help reduce maternal health disparities, it is important to focus on promoting health and supporting healthy behaviors throughout the life course (e.g., from childhood to adulthood). It is encouraged for women to engage in care from preconception to pregnancy, and through to postpartum (Carmichael et al., 2021). During preconception, women can uptake healthy practices, monitor their health, and address any health concerns. During pregnancy, women should attend prenatal care appointments to monitor pregnancy and direct questions to their provider. During postpartum, women should be supported following delivery and attend their six-week post-delivery appointment with their provider. Although these are recommended

individual-level strategies to reduce maternal health disparities, individuals may experience barriers that impede their ability to follow the recommended reduction strategies (Carmichael et al., 2021).

Intrapersonal

Significant attention has been paid to how provider attitudes, beliefs, and biases may contribute to maternal health disparities (Saluja & Bryant, 2021). As a result, there is a call to implement implicit bias training in perinatal care settings. Evidence-based implicit bias training could be instrumental to improving patient-provider communication and promoting support for systematic changes in the delivery of maternity care. A study by Hall et al. (2015), identifies four domains that implicit bias trainings can help to improve: 1) patient-provider interactions, 2) treatment decisions, 3) treatment adherence, and 4) patient health outcomes. Although implicit bias is not the primary solution for addressing maternal health disparities, it represents an opportunity to understand how bias can negatively impact maternal health outcomes.

Organizational

Quality improvement initiatives that highlight the continuum of care (e.g., preconception care, prenatal care, and postpartum care) are essential to reducing disparities in maternal health outcomes. The Council on Patient Safety in Women's Health Care and the Alliance for Innovation in Maternal Health (AIM) have developed patient safety bundles for institutions and health professionals to enact to improve maternal health. The "Reduction of Peripartum Racial/Ethnic Disparities Patient Safety Bundle" and "Safe Reduction of Primary Cesarean Birth" are evidence-based tools intentionally designed to improve perinatal outcomes (Alliance for Innovation on Maternal Health [AIM], n.d). To enhance delivery and hospital care, health systems are encouraged to provide education on implicit bias, appropriate policies and

procedures, and avenues for patients and families to receive support (AIM, n.d.). Additionally, each clinical unit should establish a system for reporting and maintaining data, as it relates to building a culture of equity and improving access to care, treatment, and outcomes (AIM, n.d.). Lastly, each health professional should strive to engage in transparent and empathetic communication with their patients and rely on shared decision-making by making the patient an active participant in their care team (AIM, n.d.). Previous research has indicated the success of engaging health professionals in these safety bundles, as they were willing to fully engage and implement strategies to address the needs of their patients (Arrington et al., 2021). Health systems comprised of individuals, hospitals, and clinics play an active role in the efforts to improve maternity care; thus, opportunities to implement quality improvement initiatives should be considered a priority.

Community

There are several grassroots and non-profit organizations at the helm dedicated to advancing maternal health; however, it is important to highlight a couple of specific organizations. The Black Mamas Matter Alliance (BMMA) is a Black women-led alliance that focuses on Black mamas and birthing people to ensure that Black mamas have rights, respect, and the resources needed before, during, and after pregnancy (BMMA, n.d.). The BMMA has worked tirelessly to achieve the goals of (1) changing policy, (2) cultivating research, (3) advancing care for Black mamas, and (4) shifting culture (BMMA, n.d.). The BMMA has served as a national voice and provides training and capacity-building to address the maternal health crisis. The Reproductive Health (RH) Impact is a collaborative for equity and justice that centers Black people and communities to reach their fullest potential for wellbeing, reproductive health, safety, and joy (RH Impact, n.d.). These organizations are intentional about centering the voices

of Black birthing people throughout their work within advocacy, policy, and research. The BMMA and RH Impact are organizations that implement innovative ideas to improve and promote maternal health equity on a national and community-based level.

Policy

The Black Maternal Health Momnibus Act of 2021 is a health-informed policy that can transform maternal health care for Black birthing people and postpartum populations by focusing efforts to advance maternal health equity (United States Congress, 2021). The policy represents a systematic approach to addressing multi-factorial public health challenges that impact Black birthing people's experiences before, during, and after pregnancy (United States Congress, 2021). The policy intends to build upon existing legislation to comprehensively address each dimension of the maternal health crisis in the United States, through the enactment of twelve bills. The Black Maternal Health Momnibus Act of 2021 intends to:

Table 1a: Black Maternal Health Momnibus Act of 2021 Proposed Bills

Make critical investments in social determinants of health that influence maternal health outcomes, like housing, transportation, and nutrition.
Provide funding to community-based organizations that are working to improve maternal health outcomes and promote equity.
Comprehensively study the unique maternal health risks facing pregnant and postpartum veterans and support VA maternity care coordination programs.
Grow and diversify the perinatal workforce to ensure that every mom in America receives culturally congruent maternity care and support.
Improve data collection processes and quality measures to better understand the causes of the maternal health crisis in the United States and inform solutions to address it.
Support moms with maternal mental health conditions and substance use disorders.

Table 1a: Black Maternal Health Momnibus Act of 2021 Proposed Bills (continued)

Improve maternal health care and support for incarcerated moms.
Invest in digital tools like telehealth to improve maternal health outcomes in underserved areas.
Promote innovative payment models to incentivize high-quality maternity care and non-clinical perinatal support.
Invest in federal programs to address the unique risks for and effects of COVID-19 during and after pregnancy and to advance respectful maternity care in future public health emergencies.
Invest in community-based initiatives to reduce levels of and exposure to climate change-related risks for moms and babies.

However, the policy has not moved out of the House of Representatives Subcommittee on Crime, Terrorism, and Homeland Security (United States Congress, 2021). Policies that comprehensively address overall health and well-being, especially maternal health, are integral to facilitating change across the healthcare sector by promoting health equity and encouraging birthing people to achieve their fullest health potential.

THEORETICAL AND CONCEPTUAL FRAMEWORKS

Previous research has identified the need to apply a theoretical framework or conceptual model to appropriately address health inequities within maternal health (Crear-Perry et al., 2021). Theoretical and conceptual frameworks that acknowledge the context of individual's lives are critical to understanding how health inequities, such as racial disparities in cesarean birth manifest.

Public Health Critical Race Theory Praxis

To address the intricacy of racism's relationship with health disparities and health outcomes, a race theory that elucidates the lived realities of marginalized populations living in an inequitable society is necessary. This three-manuscript dissertation provides insight into the factors associated with cesarean births among Black women using a Public Health Critical Race Theory Praxis (PHCRP). The PHCRP will be used as a framework to guide the dissertation research design and analysis. The Critical Race Theory (CRT), which originated in legal studies, combines different methodologies to examine the deeply rooted causes of health disparities, which can shed light on the development of solutions to eliminate racial inequalities and combat the influence of structural racism on health outcomes (Ford & Airhihenbuwa, 2010). CRT was developed through the collective work of scholars, such as Derrick Bell, Alan Freeman, and Richard Delgado, and over the years the theory has been applied to other sectors including education, healthcare, and public health (Delgado & Stefancic, 2017). In 2010, Ford and Airhihenbuwa called for CRT to be included in public health and created the Public Health Critical Race Theory Praxis (PHCRP). The PHCRP is an iterative research methodology that intends to (1) enhance rigor in racial equity research and (2) help researchers understand and address racial phenomena that influence health outcomes (Ford & Airhihenbuwa, 2010). The PHCRP operates through four foci: (1) contemporary patterns of race relations, (2) knowledge production, (3) conceptualization & measurement, and (4) action (Ford & Airhihenbuwa, 2010; Ford & Airhihenbuwa, 2018). As a researcher employing the PHCRP lens, it will be essential to understand how ‘racialization’ is important to the dissertation research and to understand [my] relationship to the group [Black women] under study. To further explore the phenomenon (i.e., racial disparities in cesarean rates), during phase 1, exploration of racism (both medical and

obstetric) will elucidate ‘contemporary patterns of race relations’ as it relates to the dissertation research. During phase 2, the focus will be on understanding the historical and social contexts of health disparities within maternal health and birth outcomes. In phase 3, strategies to measure constructs and health outcomes, while also considering power differentials and racialization will be developed. Lastly, in phase 4, the dissemination of knowledge will be necessary to appropriately inform and contribute to equity-based research. Although the PHCRP has not been applied to understanding racial disparities in cesareans, previous research focused on health disparities has used the PHCRP to guide the study design, interpretation, and analysis of research results (Fliss et al., 2022; Garcia et al., 2016; Muhammad et al., 2018). For example, studies focused on traffic stops and injury epidemiology, public park features and Latino immigrant neighborhoods, and youth perceptions of the Flint, MI water contamination, have incorporated the PHCRP.

Socio-Ecological Model

The socio-ecological model (SEM) is adapted from Bronfenbrenner's ecological framework, and it is used to understand the multifaceted and interactive effects of individual, social, and environmental factors on health outcomes amongst the population (Kilanowski, 2017). The SEM consists of five levels: intrapersonal (individual), interpersonal, organizational, community, and policy (Kilanowski, 2017). The SEM will be utilized to understand how intrapersonal, interpersonal, and organizational factors may influence access and quality of maternity care, especially as it relates to experiences of cesarean birth.

Conceptual Model

To adequately understand the determinants and experiences of maternity care and cesarean birth among Black women, a conceptual model that incorporates the PHCRP lens and socio-ecological model (SEM) is utilized (See Figure 1). The proposed conceptual model assists in the critical examination of 1) understanding the risk and protective factors associated with cesarean birth, and 2) exploring factors that influence disparities in cesarean birth rates in the US. The SEM acknowledges interactions across levels and explores relationships between individuals and their environments, while the PHCRP focuses on power differentials and racialization, to interpret the relationships, levels, environments, and systems. By incorporating both the PHCRP lens and SEM, a more comprehensive, holistic view of the phenomenon (i.e., racial disparities in cesarean rates) can be developed. A previous study utilized the SEM and Critical Race Theory (CRT) to study the breastfeeding experiences of African American women; thus, highlighting the importance of including the Public Health Critical Race Theory-Ecological Model (PHCR-EM) to examine maternal health disparities (Knox-Kazimierczuk et al., 2021). There are significant implications for the field of public health and maternal and child health, as it relates to improving maternal health equity.

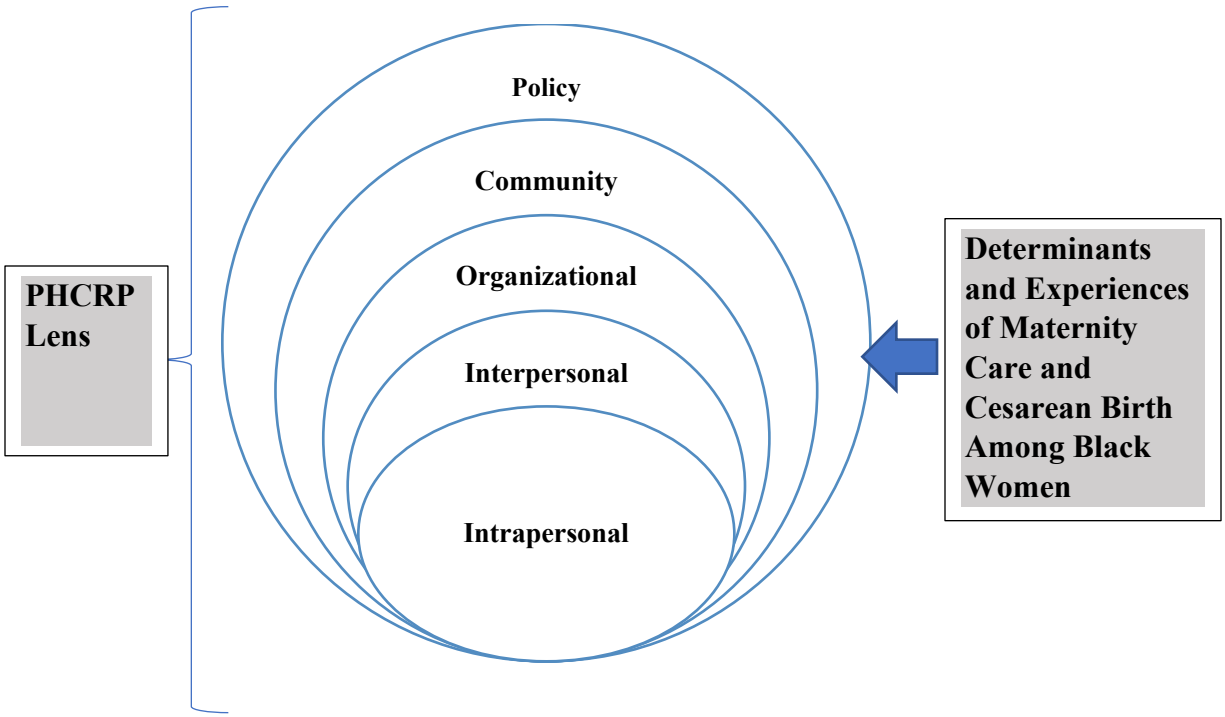

Figure 1a. Public Health Critical Race Theory-Ecological Model (PHCR-EM)

Furthermore, it is necessary to delve deeper and depict the expanded version of the above conceptual model by developing the PHCR-EM integrated framework. The expanded conceptual model (Table 1b) provides more context into the traditional frame vs the PHCRP frame of how racial disparities in cesarean birth are researched and explained. The expanded conceptual model helps to explore the individuals, interpersonal interactions, institutions, cultures, societal structures, and policies that shape maternal health disparities in the US. For example, on an intrapersonal level, from a traditional frame, Black women are often mistreated and judged within the healthcare environment, especially in maternity care. However, the PHCRP frame encourages the healthcare system to shift blame away from patients and discuss the issue of maternal health disparities from an organizational/system-level shared responsibility to address. It is important to listen to Black women and validate their experiences within maternity care, whether positive or negative. The traditional frame of the intrapersonal level indicates that there are false beliefs about biological differences between Black and White individuals held among

health professionals. Further encouraging explicit bias, and negatively impacting the patient-provider relationship and patient autonomy among Black birthing people. The PHCRP frame seeks to address those issues by focusing on mandating implicit bias and structural competency training and providing ongoing education on topics, such as cultural humility and structural racism. On the organizational level from a traditional frame, there is a lack of reliable data on maternal health disparities (e.g., each hospital has its reporting process—no national reporting process). Additionally, obstetric racism and medical violence are realities that directly influence racial disparities in maternal health. The PHCRP frame focuses on diversifying the healthcare workforce, improving hospital quality and data collection, and implementing of anti-racist medical education. The community level from a traditional frame recognizes that there are maternity care deserts across the US, which negatively impacts healthcare access and the quality of maternity care. The PHCRP frame encourages the implementation of evidence-based interventions (e.g., perinatal safety bundles), supporting Black, Indigenous, and People of Color (BIPOC) birth workers, and increased funding for hospital infrastructure and innovative care models. Lastly, the policy level from a traditional frame highlights the lack of healthcare access (e.g., no Medicaid expansion nationally) and how that impacts maternal health outcomes. The PHCRP frame encourages Medicaid expansion and removal of limits (e.g., insurance coverage throughout the postpartum period). Additionally, it is vital to create anti-racist capacity within healthcare. The expanded conceptual model provides insight into how the socio-ecological model and PHCRP work together to understand determinants and experiences of maternity care and cesarean birth among Black women.

Table 1b: PHCREM Integrated Framework of Racial Disparities in Cesarean Birth

Determinants and Experiences of Maternity Care and Cesarean Birth Among Black Women	**Traditional Frame**	**Public Health Critical Race Theory Praxis Frame**
Policy	Medicaid Non-expansion; Medicaid pregnancy coverage limits	Improve healthcare access; Build anti-racist capacity within the healthcare system
Community	Maternity care deserts; Poor quality of care	Fund research on innovative care models; Evidence-based interventions; Support BIPOC birth workers
Organizational	Implicit bias in maternity care; Lack of reliable data; Optional maternal mortality/morbidity reviews; Obstetric racism; Medical violence; Racism in healthcare	Diversify the healthcare workforce; Improve data collection; Improve hospital quality; Perinatal safety bundles; Anti-racist medical education; Center BIPOC leadership
Interpersonal	False beliefs about biological differences between Black and White individuals; Patient-provider relationship power dynamics; Lack of patient autonomy; Explicit bias	Mandatory implicit bias and structural competency training; Ongoing education (i.e., structural racism, cultural humility, personal reflection, etc.)
Intrapersonal	Mistrust; Poor patient satisfaction; Mistreatment; Maltreatment; Presumed health conditions	Recognizing/addressing past traumatic birth experiences; Knowledge of all birth options; Engagement in preconception health care (e.g., pregnancy-postpartum); Validation of experiences of racism/racial discrimination in maternity care environments

DISSERTATION OVERVIEW

Significance

In the U.S. during the 1970s, the cesarean rate was 5%, but by 2019 the cesarean rate had risen to more than 30%, with one in three women having a major surgical procedure (Lagrew et al., 2018; Martin et al., 2021; U.S. National Library of Medicine, 1998). The overall cesarean rate hides a serious racial disparity. Black women have a cesarean rate of 36.8% compared to 31.1% for White women, and this disparity persists for the low-risk cesarean rate (Martin et al., 2023). Additionally, it is well-documented that there is an existing, severe maternal health crisis, as Black women are three to four times more likely to die from pregnancy-related complications compared to their White counterparts (Peterson et al., 2019). The high cesarean birth rate in the US is a significant maternal health safety issue, as unnecessary cesarean births are representative of a preventable cause of maternal morbidity and mortality (Lagrew et al., 2018). By addressing the increasing cesarean rate, health professionals will appropriately recognize and respond to the impact of cesarean births on morbidity, mortality, and healthcare costs (Lagrew et al., 2018).

Research Aims and Questions

To address the racial disparity and high cesarean rates, which are significant maternal safety issues, innovative approaches are required. The dissertation investigates the fundamental causes of the disparities in cesarean births, by utilizing the socio-ecological model through a public health critical race theory praxis (PHCRP) lens. Various researchers have looked at the determinants and experiences of Black women within maternity care, some utilizing the socio-ecological model (Njoku et al., 2023) and others the PHCRP (Scott et al., 2020) but none, to our knowledge, integrate both models, to understand racial disparities in cesarean births. The primary research aim is to understand the risk and protective factors associated with cesarean

birth. The secondary aim is to explore factors that influence disparities in cesarean birth rates in the United States (Table 1c).

Table 1c: Summary of Dissertation Aims and Research Questions

Aim 1. To understand the risk and protective factors associated with cesarean birth
Aim 2. To explore factors that influence disparities in cesarean birth rates in the United States
• What are the factors associated with cesarean births among Black women in the United States?
• What gaps exist in the literature related to factors associated with delivery method?
• What is the relationship between racial discrimination and delivery method?
• How do Black women interpret the meaning of their personal experiences with maternity care and cesarean birth?

Researcher Positionality

As the primary investigator, I identify as a Black woman doctoral student in a Public Health Sciences program at a public university in North Carolina, with a vested interest in improving maternal and infant health outcomes for Black birthing people. Although I have not experienced childbirth firsthand, I have personally been affected by the persistent health disparities experienced by Black women in maternity care. It is a different experience reading the statistics from a vital statistics report when a friend or family member is afflicted by maternal morbidity or passes from pregnancy complications, all of which are preventable. Based on my double-minoritized status, my social positionality and life experiences have been both informed and limited by Eurocentric ideologies allowing me to understand the shared experience of others in marginalized positions. Oftentimes in research, the experiences of Black women and their families are misrepresented, misappropriated, or misconstrued; thus, it is my duty to advocate and shed light on voices that have been historically marginalized and discredited. Although I am an early-career researcher, I have decided to use my critical thinking, analysis, and evaluation

skills to conduct this dissertation research, as it is an area that is a missed opportunity for research exploration within the field of maternal and child health. I hope that this research can inform strategies and interventions focused on the safe reduction of cesarean birth among Black women.

Research Gaps

Although it has been documented and there is increasing global and national attention on the importance of safely reducing cesarean births, a significant portion of women undergo a cesarean birth in the U.S. Previous research that has focused on exploring differences in cesarean rates by race and ethnicity have been primarily retrospective, cross-sectional studies, utilizing single-institution data sources (Edmonds et al., 2013; Getahun et al., 2009; Morris et al., 2016; Salahuddin et al., 2019; Washington et al., 2012). As a result, these studies have various limitations. For example, definitions of race and ethnicity may differ across studies, data may not be generalizable as it is from a single institution, and many of the studies may have unmeasured confounding biases (e.g., lack of information on social determinants of maternal health). Additionally, due to their study design (i.e., retrospective, cross-sectional), there may be instances of non-differential misclassification or response bias. There is a lack of qualitative studies that have endeavored to understand racial disparities in cesarean birth, so there is a missed opportunity to explore the phenomenon from those most impacted. Among studies that have explored differences in cesarean rates by race and ethnicity using a population-based data set, such as birth certificate data, the consensus is relatively similar—minority women have higher rates of cesarean births in the U.S. (Braveman et al., 1995; Brazier et al., 2023; Valdes, 2021). Proposed hypotheses for racial/ethnic disparities in cesarean rates have included unmeasured comorbidities and differences in physician behavior (e.g., clinician decision-

making), labor management practices, or hospital policies and procedures regarding cesarean birth (Debbink et al., 2022). Furthermore, a large number of studies (e.g., retrospective, cross-sectional studies, and randomized controlled trials) that have explored racial and ethnic differences in cesarean rates, have concluded that further exploration of root causes of racial disparities in cesarean rates is critical to addressing inequities in maternal health outcomes (Braveman et al., 1995; Brazier et al., 2023; Debbink et al., 2022; Edmonds et al., 2013; Getahun et al., 2009; Morris et al., 2016; Salahuddin et al., 2019; Valdes, 2021; Washington et al., 2012). Therefore, the dissertation research is essential to uncovering factors contributing to racial disparities in cesarean rates and improving current standards of maternity care.

CHAPTER TWO. FACTORS ASSOCIATED WITH CESAREAN BIRTH AMONG NULLIPAROUS, PRIMIPAROUS, AND MULTIPAROUS BLACK WOMEN

ABSTRACT

Introduction: Cesarean birth is one of the most performed surgical procedures in the United States (U.S.) and is associated with adverse health complications and increased costs. There are significant racial and ethnic disparities in cesarean rates with Black women being more likely to experience cesarean birth. However, there is a lack of research examining the risk and protective factors of cesarean birth among Black women. The purpose of this scoping review was to identify and synthesize research on risk of cesarean birth among Black women in the U.S. and observe gaps in the literature for future research exploration.

Methods: Several databases (PubMed, Web of Science, and CINAHL) were searched for studies published between 1990 and 2023 that evaluated risk and protective factors associated with cesarean birth among Black women in the US. A narrative synthesis of the included studies was conducted. Thirty-four articles met the inclusion criteria.

Results: Individual, community, and organizational-level risk and protective factors were associated with cesarean birth among Black women. The observed factors were further classified by clinical and non-clinical statuses. Gaps in the literature were identified, including lack of information on intrapersonal-level and structural factors, scarcity of studies informed by anti-racism praxis, and other methodological issues.

Discussion: Future research should focus on operationalizing race and identifying racial disparities in cesarean birth as an important quality metric in obstetric care. Gaining perspective

on risk and protective factors associated with cesarean birth among Black women may help to encourage the development of research and interventions focused on addressing racial disparities to provide optimal maternity care.

INTRODUCTION

Cesarean birth is a life-saving procedure when indicated, yet it is associated with short and long-term health consequences. Cesarean birth can lead to increased risk of maternal morbidity and mortality, neonatal and childhood morbidities, infant mortality, and heightened risk amongst subsequent pregnancies (ACOG et al., 2014; Brazier et al., 2023; Keag et al., 2018; Main et al., 2012; Sandall et al., 2018). In 2021, approximately, 32.1% of births were cesarean deliveries, serving as one of the most performed surgical procedures in the U.S. (Kozhimannil et al., 2013; Little et al., 2016; Osterman et al., 2023). The cesarean rate in the U.S. far exceeds the optimal cesarean rate (10-15%), which is not associated with maternal and neonatal benefits, indicating that there may be an unnecessary use of the procedure (Betran et al., 2016; Montoya-Williams et al., 2017).

Racial and ethnic disparities are very well documented for cesarean birth, as non-Hispanic Black women experience the highest cesarean rates (Debbink et al., 2022; Osterman et al., 2023; Okwandu et al., 2022). Previous research has shown that relatively healthy non-Hispanic Black women experience a 21% increase in cesarean birth compared to that of non-Hispanic White women (Debbink et al., 2022). Some literature suggests that contributing factors include socioeconomic factors, health care use and access, insurance status, as well as implicit bias—which are all inherently influenced by structural racism (Saluja & Bryant, 2021; Braveman et al., 2021). However, these circumstances alone cannot explain inequities in cesarean rates. Race is a social construct without biological meaning; thus, racial disparities in cesarean birth

should be understood to manifest due to inequity (Braveman & Dominguez, 2021; Campbell, 2021). More specifically, the downstream effects of racism and unequal treatment should be considered as the root causes, rather than biological racial differences or genetics (Braveman & Dominguez, 2021; Campbell, 2021). It is evident that the existing racial disparities in cesarean birth among Black women is pervasive and yields a complex, interrelated set of contributing factors. However, assessment of factors associated with cesarean birth among Black women is limited, warranting a review of the literature.

To understand structural racism as a fundamental cause of racial disparities in cesarean birth, it is essential for public health researchers to ground their work with an anti-racism framework. The public health critical race praxis (PHCRP), a well-developed methodological approach to implementation of anti-racism in research, was used as the lens to inform this scoping review (Ford & Airhihenbuwa, 2010; Ford & Airhihenbuwa, 2018). Developed by Ford and Airhihenbuwa, the public health critical race praxis (PHCRP) operates through four foci: contemporary racialization, knowledge production, conceptualization and measurement, and action—offering a race conscious orientation to research as the cornerstone of the PHCRP (Ford & Airhihenbuwa, 2010; Ford & Airhihenbuwa, 2018). It is necessary to examine risk and protective factors through a PHCRP lens because much of the literature focuses on individual-level risk factors—framing Black women's bodies as biologically predisposed to complication. This assumption masks medicine's failure to challenge the role of racism as a risk factor. Therefore, it is essential to view the growth of racial disparities in cesarean birth research through a structural lens that considers the ways in which macro-level systems and societal institutions cause racial health inequities.

In this scoping review, we have reviewed the current literature regarding cesarean births among Black women in the U.S through a PHCRP lens. We specifically focused on Black women because it is representative of a population in need of elevation, as Black women experience the highest rates of this surgical procedure. The purpose of this review is to identify and synthesize evidence relating to risk and protective factors associated with cesarean birth and to identify gaps in the literature where research is still justified.

METHODS

A scoping review was selected instead of a systematic review, as the study team wanted to characterize the scope of the literature, which is more appropriate for less well-known content (Munn et al., 2018). This scoping review reported results according to the Arksey & O'Malley Scoping Review Methodological Framework (Arksey & O'Malley, 2007). To structure data collection, the PRISMA-ScR was utilized, which is a checklist that assists with synthesis and examination of the literature on a specific topic (Tricco et al., 2018). We searched PubMed, Web of Science, and CINAHL from January 1990 through August 2023. The year 1990 was selected as the starting timepoint for the scoping review because five years prior, the World Health Organization (WHO) released a statement specifying the optimal cesarean rate for any region in the world (WHO, 2015). Based on national differences in healthcare and delivery, as well as differences in the historical context of race, the search was limited to studies conducted in the U.S.

The search strategy used phrases that included the following four components: (1) primary cesarean or primary caesarean or cesarean or caesarean, (2) risk factors or protective factors or racial disparities or socioeconomic status or age, (3) African American or Black, and (4) United States or US or U.S. All phrases were connected using the Boolean logic. For

inclusion into the scoping review, the following inclusion criteria was met: (1) published in a peer-reviewed journal from January 1990 to August 2023, (2) published in English, (3) conducted in the United States, (4) African American or Black participants, (5) majority of participants aged 18 to 40 years, (6) studies reporting on risk or protective factors for cesarean birth, (7) includes the outcome of cesarean birth, (8) observational study design, and (9) empirical study. Covidence, a systematic review/scoping review tool, was utilized to facilitate the scoping review search process. One author (C.S.) screened the titles and abstracts of all articles identified through the database search. Articles that were deemed to meet inclusion criteria were further reviewed by a second author (L.N.H.). Data was abstracted using a data abstraction form created by author (C.S.). The data abstraction form included information on study participants (e.g., participant characteristics), primary factors, main outcomes, methods, and results from each included study. Authors (C.S. and L.N.H.) abstracted data from 10% (i.e., four) of the included articles. No conflicts were reported; thus, one author (C.S.) abstracted data from the remaining included articles. Risk and protective factors were categorized into individual, community, and organizational-level categories, as well as clinical or non-clinical statuses during synthesis of results. This study was exempt from the University of North Carolina at Charlotte Institutional Review Board (IRB) review.

RESULTS

Screening Process

A total of 381 records were produced from the initial search which decreased to 210 records after 171 duplicates were removed. Approximately, 210 records went through title and abstract screening; however, 139 records were excluded based on inclusion criteria. This resulted

in 71 full-text studies assessed for eligibility, and 37 of these studies did not meet inclusion criteria. The final sample consisted of 34 studies (Figure 2a).

Study Characteristics

Of the 34 studies, all used quantitative methods. The studies were published from May 1995 to November 2022. Sixteen studies assessed cesarean delivery as the outcome, and 18 studies evaluated primary cesarean delivery as the outcome. Several studies (e.g., 13 studies) did not discuss parity; however, 21 studies described parity, in terms of nulliparous, primiparous, or multiparous sample populations. Nine studies had sample populations of only nulliparas, 1 study had a sample population of primiparas, and 11 studies had sample populations of parous women (e.g., nulliparas, primiparous, and multiparas). All 34 studies included Black women in their sample population; although, 1 study exclusively included a sample population of Black women. The ages of sample populations across all studies were primarily inclusive of women of reproductive age (e.g., 15-44 years of age).

Definitions of Race/Ethnicity

Most studies defined race/ethnicity from the dataset (e.g., electronic health record (EHR) or birth certificate) or via self-reported race/ethnicity. The population of interest (e.g., African American, or Black women) were typically defined across studies as Black, African American, or non-Hispanic Black women. One study had an expanded race/ethnicity definition for Black women, including African American, Black, Cape Verdean, or Haitian, in the population (Olapeju et al., 2021). Two studies included other members of the African diaspora, such as African/Sub-Saharan African and Caribbean women (Janevic et al., 2014; Mocarski et al., 2012).

Summary of Risk and Protective Factors

Individual-level Factors

The characteristics of all included studies, their main findings, and the risk or protective factors identified in relation to cesarean birth among Black women are presented in Table 1 (Appendix B). All the studies identified at least one factor related to cesarean birth among Black women. Approximately, thirty-two studies observed risk and/or protective individual-level factors for cesarean birth among Black women. Individual-level risk factors included, gestational diabetes mellitus/diabetes, race/ethnicity, birthweight, parity, maternal age, medical indication, gestational age, obesity, hypertensive disorders, insurance status, and maternal education (Table 2b).

Non-clinical Factors. Most individual-level risk factors associated with cesarean delivery were in relation to race/ethnicity. A total of 19 studies discovered that Black women were at increased risk of cesarean or primary cesarean birth, even after adjusting for potential confounders (Bartal et al., 2022; Braveman, 1995; Bryant et al., 2009; Canelón & Boland, 2021; Coonrod et al., 2008; Declercq et al., 2006; Edmonds et al., 2013; Ehrenburg et al., 2004; Ford et al., 2008; Hedderson et al., 2019; Huesch & Doctor, 2015; Janevic et al., 2014; Kabir et al., 2005; Linton et al., 2005; Ouyang et al., 2022; Shen et al., 2005; Shy et al., 2000; Valdes, 2021; Washington et al., 2012). Within the sample population, nine studies observed that Black women had the highest cesarean delivery rates in comparison to other racial/ethnic groups (Braveman et al., 1995; Coonrod et al., 2008; Edmonds et al., 2013; Ford et al., 2008; Huesch & Doctor, 2015; Linton et al., 2005; Shen et al., 2005; Shy et al., 2000; Valdes et al., 2021). Black women were also more likely to have cesarean births for either emergent or unnecessary cesarean deliveries (Canelón & Boland, 2021; Hedderson et al., 2019; Huesch & Doctor, 2015; Kabir et al., 2005).

One study specifically identified Black race as a risk factor for cesarean delivery (Ehrenburg et al., 2004). According to Witt et al. (2015), race/ethnicity was not associated with cesarean delivery (i.e., non-indicated and indicated), even after adjusting for other factors. Maternal age was representative of a risk and protective factor for cesarean delivery among Black women. Black women under the age of 30 were less likely to experience a cesarean birth (Irwin et al., 1996; Olapeju et al., 2021). However, as maternal age increased (i.e., ≥ 30 years of age), risk of cesarean birth increased (Declercq et al., 2006; Ford et al., 2008; Irwin et al., 1996; Linton & Peterson, 2004; Olapeju et al., 2021). Although, according to Linton et al., (2004), risk of cesarean delivery increased at each maternal age category, <20 years, 20-24 years, and 30-34 years; with the highest rates observed among Black women. Two studies indicated that Black women with private insurance were more likely to have a cesarean birth (Henke et al., 2014; Akinyemi et al., 2022). Although, White women had the highest proportions of private insurance coverage (Akinyemi et al., 2022). Additionally, Black women with Medicaid were more likely to have a cesarean birth compared to White women with Medicaid (Henke et al., 2014). College-educated Black women had a significantly increased risk of cesarean birth compared to college-educated White women (aOR 1.78, 95% CI 1.36-2.32) (Scott-Wright et al., 1999).

Clinical Factors. Findings from four studies indicated that gestational diabetes/diabetes is a significant risk factor for both cesarean and primary cesarean delivery among Black women (Akinyemi et al., 2022; Mocarski & Savitz, 2012; Rosenburg et al., 2005; Venkatesh et al., 2022). The increased odds or increased risk of cesarean birth ranged from 13% to 50% in comparison to White women (Mocarski & Savitz, 2012; Rosenburg et al., 2005; Venkatesh et al., 2022). One study found that non-Hispanic Black women with chronic diabetes had 2x the odds of having a primary cesarean birth compared to non-Hispanic White women (Rosenburg et al.,

2005). One study found that nearly half (i.e., 47%) of Black women with intellectual and developmental disabilities (IDD) had a cesarean delivery during the study period, which was much higher than the general obstetric population (Akobirshoev et al., 2019). However, there were no racial or ethnic disparities in cesarean delivery among Black women with IDD (Akobirshoev et al., 2019). According to Braveman et al., (1995), Black women with high birthweight deliveries were at an increased risk of cesarean birth and Black women with low birthweight deliveries were less likely to undergo a cesarean birth. However, another study found that Black women were more likely to deliver preterm and have an elective primary cesarean birth (Huesch & Doctor, 2015). While one study found that birthweight was not associated with increased risk of cesarean birth for Black women (Shy et al., 2000). There were differences in risk of cesarean birth based on parity. Primiparous or multiparous Black women had higher cesarean rates (Declercq et al., 2006; Valdes, 2021; Wilson et al., 2010). As explained by Wilson et al. (2010), primiparous and multiparous Black women were more likely to require a cesarean birth. Additionally, nulliparous Black women experienced higher cesarean rates than White, Asian, American Indian/Alaska Native, and more than one race women ($p<0.001$) (Valdes, 2021). Across four studies, Black women were more likely to undergo a cesarean birth for the medical indications of dystocia, fetal distress, or nonreassuring fetal heart rate compared to White women (Edmonds et al., 2013; Huesch & Doctor, 2015; Shy et al., 2000, Washington et al., 2012). Moreover, Morris et al. (2016), found that Black women were less likely to have a cesarean birth due to cephalopelvic disproportion. One study by Ehrenberg et al. (2004) discovered that Black women that delivered at term (e.g., ≥37 week's gestation) were at increased risk of cesarean birth (OR 1.32, 95% CI 1.06-1.19, *p*-value <0.0001). Excessive weight gain was not significantly associated with an increased risk of cesarean birth, and inadequate

weight gain among Black women was associated with a decreased risk of cesarean birth (Zheng et al., 2019). According to Hedderson et al. (2019), maternal obesity (e.g., BMI ≥ 25) mediated the association between Black race and cesarean birth by 21.1%. Among Black women with hypertensive disorders, they were at greater risk of elective or primary cesarean birth (Huesch et al., 2015; Rosenburg et al., 2005). However, Hedderson et al. (2019) found that hypertensive disorders, such as gestational hypertension, pre-eclampsia, and preexisting hypertension, mediated the association between Black race and cesarean delivery by 3.7%. Black maternal opioid users were less likely to have a cesarean delivery compared to their White counterparts (aOR 0.64, 95% CI 0.59-0.69) (Knoll et al., 2021).

Community-level Factors

Only one study examined community-level risk factors for cesarean birth among Black women. The study focused on the zip code where the sample population resided.

Non-clinical Factors. Black women from non-English speaking neighborhood/zip code areas were at increased risk of cesarean birth (OR 1.51, 95% CI 1.20-1.89) (Braveman et al., 1995).

Organizational-level Factors

Only two studies examined organizational-level risk factors for cesarean birth among Black women in reference to hospital ownership type.

Non-clinical Factors. According to Braveman et al. (1995), Black women were more likely to undergo a cesarean birth at-for-profit hospitals. However, Black women were less likely to undergo a cesarean birth at county hospitals (Braveman et al., 1995). Furthermore, Linton et

al. (2005) indicated that cesarean rates were significantly higher for Black women in teaching hospitals within a military population.

DISCUSSION

There is an increasing amount of research examining racial disparities in cesarean birth. The final synthesis included 34 studies representing a range of individual, community, and organizational-level risk and protective factors associated with cesarean birth among Black women. Several themes were divulged through the search, data extraction, and analysis stages of the scoping review. These themes relate to conceptual considerations, exploration of structural factors, methodological issues, and future research recommendations, which will help to frame the discussion.

Conceptual Considerations

It is inherently necessary to ethically address disparities in cesarean birth among Black women with the application of an anti-racist lens to inform research processes and practices. Many of the studies included in this scoping review were not informed by theory or a conceptual model; however, two studies identified a model (e.g., Quality Health Outcomes Model (QHOM)) or a theoretical approach (e.g., Lifecourse Approach) to inform the research process (Wilson et al., 2010; Witt et al., 2015). Although, no studies with the primary aim of observing racial/ethnic disparities in cesarean births, did so with the intent to incorporate an anti-racist lens to acknowledge the role of structural racism in perpetuating health inequities. By incorporating an anti-racist lens in all aspects of the research process, it can facilitate the development of informed-decision making and evidence-based public health practices that do not negatively frame individuals or communities experiencing health inequities (Fletcher et al., 2021). For example, identifying “Black race as a risk factor”, as the study by Ehrenburg et al. (2004)

portrayed, should be avoided to dismantle structures that continue to reinforce scientific racism (Fletcher et al., 2021). It is especially salient to ground racial disparities in cesarean birth research in an anti-racist lens, since many of the included studies stated that the increased risk of cesarean birth among Black women could not be accounted for by socioeconomic status, presence of predictors of cesarean birth, presence of maternal risk factors, or presence of any complication during labor or delivery (Janevic et al., 2014; Olapeju et al., 2021; Scott-Wright et al., 1999; Washington et al., 2012). Application of an anti-racist lens in this research space allows for the inclusion of a framework to understand and address health inequities rooted in structural racism (Fletcher et al., 2021).

Exploration of Structural Factors

There were several individual-level factors that increased risk of cesarean birth among Black women across the included studies. These clinical and non-clinical risk factors focus solely on the individual-level but miss the broader contextual influence of factors from a macro-level perspective. For example, only one study examined a risk factor on the community-level and two studies examined a risk factor on the organizational-level. Furthermore, the included studies did not assess the association between racism, discrimination, or bias on cesarean birth risk among Black women. However, approximately 15 included studies did discuss or hypothesize the potential role that those more structural factors play in increasing risk of cesarean birth among Black women. More specifically, on the intrapersonal level the role of provider bias (e.g., implicit, or explicit) may serve as a potential explanation for disparities in health care; yet no studies were able to measure provider bias (Akobirshoev et al., 2019; Bryant et al., 2009; Janevic et al., 2014; Morris et al., 2016; Olapeju et al., 2021; Valdes, 2021). This lack of examination of structural factors represents a gap in the literature as it pertains to

disparities in cesarean birth among Black women. Focus on individual-level factors are easier to modify, as they relate to behaviors or attitudes; however, there are unintended consequences of exclusion of structural factors, when individual level factors do not account for differences in risk across racial and ethnic groups. Thus, it is important to conceptualize and capture measures of structural factors, such as racism, discrimination, and bias to effectively understand how macro-level systems impose risk and continue to conserve health inequities (Fletcher et al., 2021).

Methodological Issues

In assessing the results of this scoping review, it is critical to understand that there are some methodological issues that require consideration. The scoping review was limited to studies that utilized only quantitative research methods. Across the included studies, no study incorporated qualitative or mixed methods research, which creates a significant gap because more comprehensive research methods are needed to gain a better understanding of racial disparities in cesarean birth. For example, to embody an anti-racist praxis it is encouraged to develop research practices that endeavor to center and integrate the perspectives of socially marginalized populations, such as Black women, in all phases of the research process. Qualitative and mixed methods approaches provide an appropriate avenue to ensure that the research practices are ethically grounded. Additionally, in the assessment of the outcome (e.g., cesarean birth), the included studies did have differences in the definition of cesarean birth. Some studies defined the outcome as cesarean birth, and others defined it as primary cesarean birth—which holds a different meaning depending on the parity status of the sample population. It would be important to be explicit in the definition of cesarean birth because there are differences in risk by type of cesarean birth, including emergent or elective statuses, as well. The

included studies typically used population-based datasets, such as birth certificate data, health system-level data, or Healthcare Cost and Utilization Project (HCUP) databases. Many of the datasets relied on EHR data to measure the independent, dependent, and confounder variables. The use of population-based datasets does have some limitations. The main limitations include missing information on data quality and unavailability of some key information (e.g., confounders, other independent variables) (Thygesen & Ersbøll, 2014). The included studies were unable to assess all potential risk or protective factors associated with cesarean birth among Black women, as not all information is collected on population-based datasets. For example, population-based datasets have limited information on the social determinants of health which have a significant impact on health inequities (Cook et al., 2021; Thygesen & Ersbøll, 2014). There are some strengths of using population-based datasets, such as minimized selection bias and increased generalizability to the larger population. The included studies were primarily retrospective or cross-sectional in nature; thus, unable to investigate temporality and susceptible to nonresponse bias or recall bias (Wang & Cheng, 2020). It is essential to consider the methodological issues to effectively frame the scoping review results and key themes.

Future Research Recommendations

The “consistently” higher cesarean rates for Black women warrants additional study. This scoping review identified thirteen individual, community, and organizational-level risk and/or protective factors that were associated with cesarean birth among Black women. Future research efforts should focus on the following two domains: (1) operationalization of race and (2) quality metrics in obstetric care.

Race is multidimensional in meaning, as it signifies social meaning (i.e., social construction) and classification (e.g., socioeconomic differences across race) (Lett et al., 2022;

White et al., 2020). Therefore, it is vital to appropriately operationalize race, especially in quantitative-based research. For reference, typically race is a single measure and may underestimate the level of health inequity experienced by marginalized groups (White et al., 2020). There are differences in assigning racial categories via interviewer identification or via self-identification (White et al., 2020). In future studies that intend to use population-based datasets, it will be important to operationalize race—if it will be used as a proxy measure for structural racism. A study by Carlson et al., (2023) was successful in operationalizing race and utilized "presenting race/ethnicity" (i.e., how an individual presents to others racially or ethnically; racialization) to assess racial disparities in unplanned cesarean birth. Ultimately, the study found that rates of unplanned cesarean birth were significantly higher among Black-presenting participants than White-presenting participants. Future studies will benefit from understanding how perceived racialization impacts racial disparities in birth outcomes.

Racial disparities in cesarean birth are representative of a significant downward trend in quality within obstetric care. Obstetrical organizations have developed evidence-based guidelines and recommendations to enhance care surrounding the decision-making process to perform a cesarean (ACOG et al., 2014). However, it is not known whether these guidelines and recommendations have led to decreases in racial/ethnic cesarean rates. A study by Brazier et al. (2023), assessed the impact of guidelines on the reduction of racial/ethnic cesarean rates in New York City and found that there was no decrease observed among minority women (e.g., non-Hispanic Black, Hispanic, or Asian/Pacific Islander). Thus, it will be important for the obstetrical community to include cesarean birth as a metric to measure quality in obstetrics and to develop additional research and interventions to address differential care by maternal race/ethnicity (Brazier et al., 2023).

Conclusion

In this scoping review of racial disparities in cesarean birth, we found evidence of risk and protective factors associated with cesarean birth among Black women, as well as gaps in the literature in relation to this research area. Black women were at increased risk of cesarean birth, even after adjusting for sociodemographic, clinical conditions, and labor/delivery complications. As new strategies are developed to decrease racial disparities in cesarean birth among Black women, it is important to thoroughly recognize conceptual considerations, exploration of structural factors, and methodological issues, to develop future studies. Birth outcomes research should continually make the effort include an anti-racism lens, incorporate social determinants of health, and measures of structural racism to better understand their contribution to health inequities.

REFERENCES

Akinyemi, O. A., Lipscombe, C., Omokhodion, O. V., Akingbule, A. S., Fasokun, M. E., Oyeleye, O. A., Tanna, R., Akinwumi, B., Elleissy Nasef, K., & Fakorede, M. (2022). Disparities in incidence of cesarean section among women with gestational diabetes mellitus in the United States. *Cureus, 14*(9), e29400. https://doi.org/10.7759/cureus.29400

Akobirshoev, I., Mitra, M., Parish, S. L., Moore Simas, T. A., Dembo, R., & Ncube, C. N. (2019). Racial and ethnic disparities in birth outcomes and labour and delivery-related charges among women with intellectual and developmental disabilities. *Journal of Intellectual Disability Research, 63*(4), 313-326. https://doi.org/10.1111/jir.12577

American College of Obstetricians and Gynecologists, Society for Maternal-Fetal Medicine, Caughey, A. B., Cahill, A. G., Guise, J., & Rouse, D. J. (2014). Safe prevention of the primary cesarean delivery. *American Journal of Obstetrics and Gynecology, 210*(3), 179-193. https://doi.org/10.1016/j.acog.2014.01.026

Arksey, H. & O'Malley, L. (2007). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32. https://doi.org/10.1080/1364557032000119616

Bartal, M. F., Chen, H. Y., Mendez-Figueroa, H., Wagner, S. M., & Chauhan, S. S. P. (2022). Racial and ethnic disparities in primary cesarean birth and adverse outcomes among low-risk nulliparous people. *Obstetrics and Gynecology, 140*(5), 842-852. https://doi.org/10.1097/AOG.0000000000004953

Betran, A. P., Torloni, M. R., Gülmezoglu, A. M., for the WHO Working Group on Caesarean Section*. (2016). WHO statement on caesarean section rates. *BJOG, 123*, 667-670. https://doi.org/10.1111/1471-0528.13526

Braveman, P. & Dominguez, T. P. (2021). Abandon "Race." Focus on racism. *Frontiers in Public Health, 9*, 1-8. https://doi.org/10.3389/fpubh.2021.689462

Braveman, P., Dominguez, T. P., Burke, W., Dolan, S. M., Stevenson, D. K., Jackson, F. M., Collins Jr., J. W., Driscoll, D. A., Haley, T., Acker, J., Shaw, G. M., McCabe, E. R. B., Hay Jr., W. W., Thornburg, K., Acevedo-Garcia, D., Cordero, J. F., Wise, P. H., Legaz, G. Rashied-Henry, K., Frost, J., Verbiest, S., & Waddell, L. (2021). Explaining the black-White disparity in preterm birth: A consensus statement from a multi-disciplinary scientific work group convened by the March of Dimes. *Frontiers in Reproductive Health, 3*, 1-24. https://doi.org/10.3389/frph.2021.684207

Braveman, P., Egerter, S., Edmonston, F., & Verdon, M. (1995). Racial/ethnic differences in the likelihood of cesarean delivery, California. *American Journal of Public Health, 85*(5), 625-30. https://doi.org/10.2105/ajph.85.5.625

Brazier, E., Borrell, L. N., Huynh, M., Kelly, E. A., & Nash, D. (2023). Variation and racial/ethnic disparities in cesarean delivery at New York City hospitals: The contribution of hospital-level factors. *Annals of Epidemiology, 73*, 1-8. https://doi.org/10.1016/j.annepidem.2022.06.003

Bryant, A. S., Washington, S., Kuppermann, M., Cheng, Y. W., & Caughey, A. B. (2009). Quality and equality in obstetric care: Racial and ethnic differences in caesarean section

delivery rates. *Pediatric and Perinatal Epidemiology, 23*(5), 454-62. https://doi.org/10.1111/j.1365-3016.2009.01059.x

Campbell, C. (2021). Medical violence, obstetric racism, and the limits of informed consent for black women. *Michigan Journal of Race and Law, 26,* 1-33. https://doi.org/10.36643/mjrl.26.sp.medical

Canelón, S. P. & Boland, M. R. (2021). Not all c-sections are the same: Investigating emergency vs. elective c-section deliveries as an adverse pregnancy outcome. *Pacific Symposium on Biocomputing, 26*, 67-78.

Carlson, N. S., Carlson, M. S., Erickson, E. N., Higgins, M., Britt, A. J., & Amore, A. D. (2023). Disparities by race/ethnicity in unplanned cesarean birth among healthy nulliparas: A secondary analysis of the nuMoM2b dataset. *BMC Pregnancy and Childbirth, 23*(1), 342. https://doi.org/ 10.1186/s12884-023-05667-6

Cook, L. A., Sachs, J., & Weiskopf, N. G. (2021). The quality of social determinants data in the electronic health record: A systematic review. *Journal of the American Medical Informatics Association, 29*(1), 187-196. https://doi.org/10.1093/jamia/ocab199

Coonrod, D. V., Drachman, D., Hobson, P., & Manriquez, M. (2008). Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. *American Journal of Obstetrics and Gynecology, 198*(6), e1-e11. https://doi.org/10.1016/j.ajog.2008.03.026

Debbink, M. P., Ugwu, L., Grobman, W., Reddy, U. M., Tita, A. T. N., El-Sayed, Y. Y., Wapner, R. J., Rouse, D. J., Saade, G. R., Thorp, J. M., Chauhan, S. P., Costantine, M. M., Chien, E. K., Casey, B. M., Srinivas, S. K., Swamy, G. K., & Simhan, H. N. (2022).

Racial and ethnic inequities in cesarean birth and maternal morbidity in a low-risk, nulliparous cohort. *Obstetrics & Gynecology, 139*(1), 73-82. https://doi.org/10.1097/AOG.0000000000004620

Declercq, E., Menacker, F., & MacDorman, M. (2006). Maternal risk profiles and the primary cesarean rate in the United States, 1991-2002. *American Journal of Public Health, 96*(5), 867-872. https://doi.org/ 10.2105/AJPH.2004.052381

Edmonds, J. K., Yehezkel, R., Liao, X., & Moore Simas, T. A. (2013). Racial and ethnic differences in primary, unscheduled cesarean deliveries among low-risk primiparous women at an academic medical center: A retrospective cohort study. *BMC Pregnancy and Childbirth, 13*, 168. https://doi.org/10.1186/1471-2393-13-168

Ehrenberg, H. M., Durnwald, C. P., Catalano, P., Mercer, B. M. (2004). The influence of obesity and diabetes on the risk of cesarean delivery. *American Journal of Obstetrics and Gynecology, 191*(3), 969-974. https://doi.org/10.1016/j.ajog.2004.06.057

Fletcher, F. E., Jiang, W., & Best, A. L. (2021). Antiracist praxis in public health: A call for ethical reflections. *The Hastings Center Report, 51*(2), 6-9. https://doi.org/10.1002/hast.1240

Ford, C. L. & Airhihenbuwa, C. O. (2010). Critical race theory, race equity, and public health: Toward antiracism praxis. *American Journal of Public Health, 100*(Suppl 1), S30-S35. https://doi.org/10.2105/AJPH.2009.171058

Ford, C. L. & Airhihenbuwa, C. O. (2018). Commentary: Just what is critical race theory and what's it doing in a progressive field like public health? *Ethnicity and Disease, 28*(Supp 1), 223-230. https://doi.org/10.18865/ed.28.S1.223

Ford, J., Grewal, J., Mikolajczyk, R., Meikle, S., & Zhang, J. (2008). Primary cesarean delivery among parous women in the United States, 1990-2003. *Obstetrics and Gynecology, 112*(6), 1235-1241. https://doi.org/10.1097/AOG.0b013e31818ce092

Hedderson, M. M., Xu, F., Liu, E., Sridhar, S. B., Quesenberry, C. P., & Flanagan, T. A. (2021). Mediating effects of cardiometabolic risk factors on the association between maternal race-ethnicity and cesarean delivery among low-risk women. *Journal of Women's Health, 30*(7), 1028-1037. https://doi.org/10.1089/jwh.2019.8171

Henke, R. M., Wier, L. M., Marder, W. D., Friedman, B. S., Wong, H. S. (2014). Geographic variation in cesarean delivery in the United States by payer. *BMC Pregnancy and Childbirth, 14*, 387. https://doi.org/10.1186/s12884-014-0387-x

Huesch, M. & Doctor, J. N. (2015). Factors associated with increased risk among African American women: Evidence from California, 2010. *American Journal of Public Health, 105*(5), 956-962. https://doi.org/10.2105/AJPH.2014.302381

Irwin, D. E., Savitz, D. A., Bowes Jr., W. A., St. André, K. A. (1996). Race, age, and cesarean delivery in a military population. *Obstetrics and Gynecology, 88*(4 Pt 1), 530-533. 10.1016/0029- 7844(96)00263-3

Kabir, A. A., Pridjian, G., Steinmann, W. C., Herrera, E. A., & Khan, M. M. (2005). Racial differences in cesareans: An analysis of U.S. 2001 National Inpatient Sample data. *Obstetrics and Gynecology, 105*(4), 710-718. https://doi.org/10.1097/01.AOG.0000154154.02581.ce.

Keag, O. E., Norman, J. E., & Stock, S. J. (2018). Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: Systematic review and

meta-analysis. *PLoS Medicine, 15*(1), e1002494. https://doi.org/10.1371/journal.pmed.1002494

Knoll, C., Massa-Buck, B., Abdelatif, D., Madkour, A., Mohamed, M. (2021). Maternal opioid usage and cesarean delivery rates: A retrospective cross sectional analysis. *Maternal and Child Health Journal, 25*(10), 1575-1580. https://doi.org/10.1007/s10995-021-03174-8

Kozhimannil, K. B., Law, M. R., & Virnig, B. A. (2013). Cesarean delivery rates vary tenfold among US hospitals; Reducing variation may address quality and cost issues. *Health Affairs, 32*(3), 527-535. https://doi.org/10.1377/hlthaff.2012.1030

Lett, E., Asabor, E., Beltrán, S., Cannon, A. M., & Arah, O. A. (2022). Conceptualizing, contextualizing, and operationalizing race in quantitative health sciences research. *Annals of Family Medicine, 20*(2), 157-163. https://doi.org/10.1370/afm.2792

Linton, A. & Peterson, M. R. (2004). Effect of preexisting chronic disease on primary cesarean delivery rates by race for births in US military hospitals, 1992-2002. *Birth, 31*(3), 165-175. https://doi.org/10.1111/j.0730-7659.2004.00301.x

Linton, A., Peterson, M. R., & Williams, T. V. (2005). Clinical case mix adjustment of cesarean delivery rates in U.S. military hospitals, 2002. *Obstetrics and Gynecology, 105*(3), 598-606, https://doi.org/ 10.1097/01.AOG.0000149158.21586.58

Little, S. E., Orav, E. J., Robinson, J. N., Caughey, A. B., & Jha, A. K. (2016). The relationship between variations in cesarean delivery and regional health care use in the United States. *American Journal of Obstetrics and Gynecology, 214*(6), e1-e8. https://doi.org/ 10.1016/j.ajog.2015.12.023

Main, E. K., Morton, C., Melsop, K., Hopkins, D., Guiliani, G., & Gould, J. B. (2012). Creating a public agenda for maternity safety and quality in cesarean delivery. *Obstetrics and Gynecology, 120*(5), 1194-1198. https://doi.org/10.1097/AOG.0b013e31826fc13d

Mocarski, M. & Savitz, D. A. (2012). Ethnic differences in the associations between gestational diabetes and pregnancy outcome. *Maternal and Child Health Journal, 16*(2), 364-373. https://doi.org/ 10.1007/s10995-011-0760-6

Montoya-Williams, D., Lemas, D. J., Spiryda, L., Patel, K., Neu, J., & Carson, T. L. (2017). What are optimal cesarean section rates in the U.S. and how do we get there? A review of evidence-based recommendations and interventions. *Journal of Women's Health, 26*(12), 1285-1291. https://doi.org/10.1089/jwh.2016.6188

Morris, T., Meredith, O., Schulman, M., & Morton, C. H. (2016). Race, insurance status, and nulliparous, term, singleton, vertex cesarean indication: A case study of a New England tertiary hospital. *Women's Health Issues, 26*(3), 329-335. https://doi.org/10.1016/j.whi.2016.02.005

Munn, Z., Peters, M. D. J., Stern, C., Tufanaru, C., McArthur, A., & Edoardo, A. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology, 18*, 143. https://doi.org/10.1186/s12874-018-0611-x

Okwandu, I. C., Anderson, M., Postlethwaite, D., Shirazi, A., & Torrente, S. (2022). Racial and ethnic disparities in cesarean delivery and indications among nulliparous, term, singleton, vertex women. *Journal of Racial and Ethnic Health Disparities*, *9*(4), 1161–1171. https://doi.org/10.1007/s40615-021-01057-w

Olapeju, B., Hong, X., Wang, G., Summers, A., Burd, I., Cheng, T. L., & Wang, X. (2021). Birth outcomes across the spectrum of maternal age: dissecting aging effect versus confounding by social and medical determinants. *BMC Pregnancy and Childbirth, 21*(1), 594. https://doi.org/10.1186/s12884-021-04077-w

Osterman, M. J. K., Hamilton, B. E., Martin, J. A., Driscoll, A. K., & Valenzuela, C. P. (2023). Births: Final data for 2021. *National Vital Statistics Report, 72*(1), 1-53.

Ouyang, L., Cox, S., Ferre, C., Xu, L., Sappenfield, W. M., & Barfield, W. (2022). Variations in low-risk cesarean delivery rates in the United States using Society for Maternal-Fetal Medicine definition. *Obstetrics and Gynecology, 139*(2), 235-243. https://doi.org/ 10.1097/AOG.0000000000004645

Rosenburg, T. J., Garbers, S., Lipkind, H., Chiasson, M. A. (2005). Maternal obesity and diabetes as risk factors for adverse pregnancy outcomes: Differences among 4 racial/ethnic groups. *American Journal of Public Health, 95*(9), 1545-1551. https://doi.org/ 10.2105/AJPH.2005.065680

Saluja, B. & Bryant, Z. (2021). How implicit bias contributes to racial disparities in maternal morbidity and mortality in the United States. *Journal of Women's Health, 30*(2), 270-273. https://doi.org/10.1089/jwh.2020.8874

Sandall, J., Tribe, R. M., Avery, L., Mola, G., Visser, G. H. A., Gibbons, D., Kelly, N. M., Kennedy, P., Kidanto, H., Taylor, P., & Temmerman, M. (2018). Short-term and long-term effects of caesarean section on the health of women and children. *The Lancet, 392*(10155), 1349-1357. https://doi.org/10.1016/S0140-6736(18)31930-5

Scott-Wright, A. O., Flanagan, T. M., & Wrona, R. M. (1999). Predictors of cesarean section delivery among college-educated black and White women, Davidson County, Tennessee, 1990-1994. *Journal of the National Medical Association, 91*(5), 273-277.

Shen, J. J., Tymkow, C., & MacMullen, N. (2005). Disparities in maternal outcomes among four ethnic populations. *Ethnicity & Disease, 15*(3), 492-497.

Shy, K., Kimpo, C., Emanuel, I., Leisenring, W., & Williams, M. A. (2000). Maternal birth weight and cesarean delivery in four race-ethnic groups. *American Journal of Obstetrics and Gynecology, 182*(6), 1363-1370. https://doi.org/10.1067/mob.2000.106175

Thygesen, L. C. & Ersbøll, A. K. (2014). When the entire population is the sample: Strengths and limitations in register-based epidemiology. *European Journal of Epidemiology, 29*, 551-558. https://doi.org/10.1007/s10654-013-9873-0

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., Lewin, S., … Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, *169*(7), 467–473. https://doi.org/10.7326/M18-0850

Valdes, E. G. (2021). Examining cesarean delivery rates by race: A population-based analysis using the Robson Ten-Group Classification System. *Journal of Racial and Ethnic Health Disparities, 8*(4), 844-851. https://doi.org/ 10.1007/s40615-020-00842-3

Venkatesh, K. K., Lynch, C. D., Powe, C. E., Costantine, M. M., Thung, S. F., Gabbe, S. G., Grobman, W. A., & Landon, M. B. (2022). Risk of adverse pregnancy outcomes among

pregnant individuals with gestational diabetes by race and ethnicity in the United States, 2014-2020. *JAMA, 327*(14), 1356-1367. https://doi.org/10.1001/jama.2022.3189

Wang, X. & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *CHEST, 158*(1), S65-S71. https://doi.org/10.1016/j.chest.2020.03.012

Washington, S., Caughey, A. B., Cheng, Y. W., & Bryant, A. S. (2012). Racial and ethnic differences in indication for primary cesarean delivery at term: Experience at one U.S. institution. *Birth, 39*(2), 128-134. https://doi.org/10.1111/j.1523-536X.2012.00530.x

Wilson, B. L., Effken, J., & Butler, R. J. (2010). The relationship between cesarean section and labor induction. *Journal of Nursing Scholarship, 42*(2), 130-138. https://doi.org/10.1111/j.1547-5069.2010.01346.x

Witt, W., Wisk, L., Cheng, E., Mandell, K., Chatterjee, D., Wakeel, F., Godecker, A., & Zarak, D. (2015). Determinants of cesarean delivery in the US: A lifecourse approach. *Maternal and Child Health Journal, 19*(1), 84-93. https://doi.org/10.1007/s10995-014-1498-8

Zheng, Z., Bennett, W. L., Mueller, N. T., Appel, L. J., & Wang, X. (2019). Gestational weight gain and prepregnancy complications in a high-risk, racially and ethnically diverse population. *Journal of Women's Health, 28*(3), 375-383. https://doi.org/ 10.1089/jwh.2017.6574

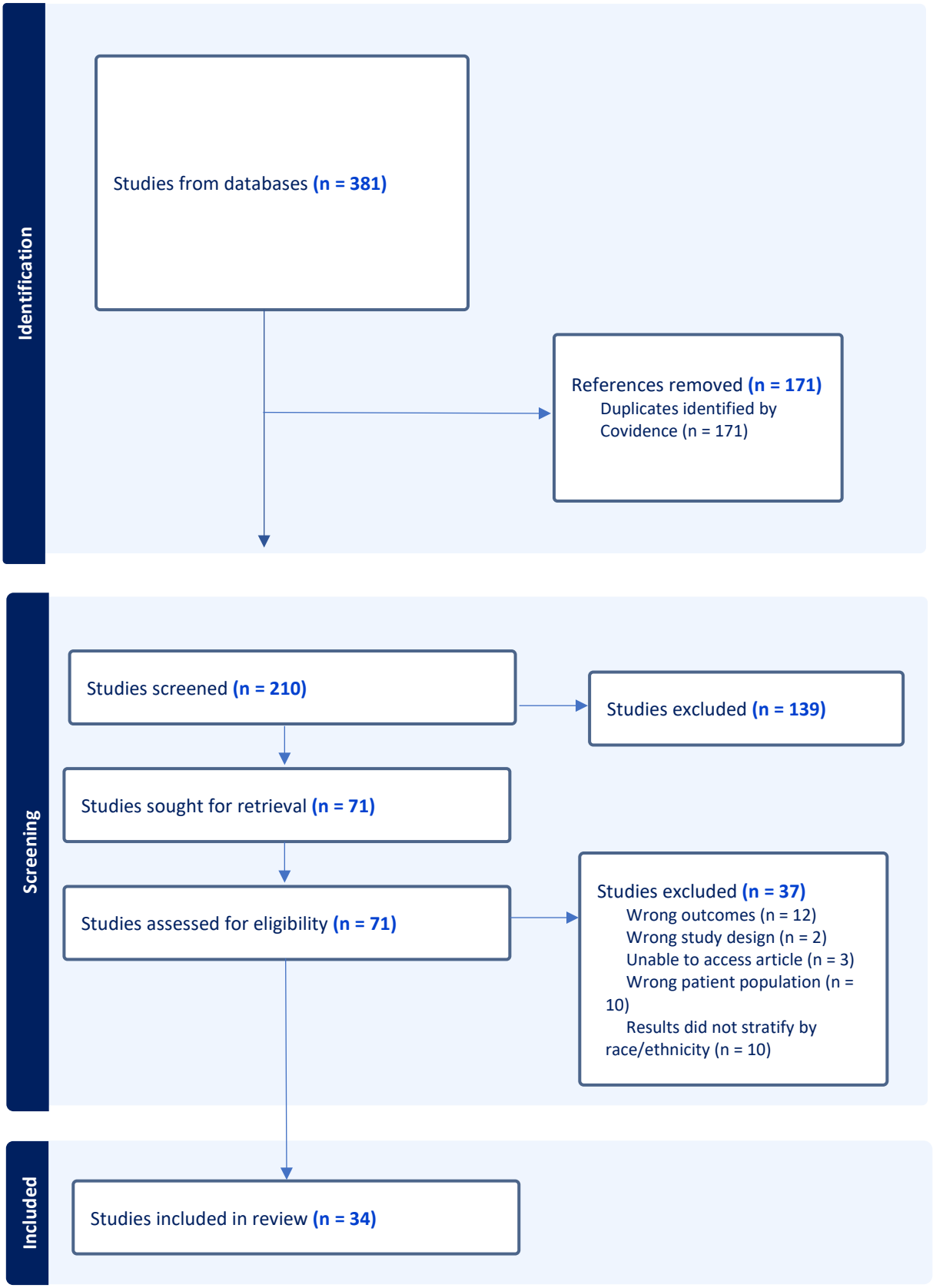

Figure 2a: PRISMA-ScR Flow Diagram

Table 2a: Key Findings of Included Studies

First Author, Year	Sample	Methods and Mode of Delivery	Factors	Main Findings
Akinyemi, 2022	Gestational diabetes mellitus (GDM)-associated hospitalizations from the National Inpatient Sample (NIS) database from 2000-2015 (n=932,431)	Retrospective analysis; cesarean delivery	Gestational diabetes mellitus (GDM)	-Higher prevalence of previous cesarean delivery among Black women with GDM -Black women with private insurance had the highest rates of cesarean delivery; although, White women had the highest proportions of private insurance coverage
Akobirshoev, 2019	Women with intellectual and developmental disabilities (IDD) with delivery-related hospitalizations from the 2004-2011 Healthcare Cost and Utilization Project National Inpatient Sample (HCUP-NIS) (n=2,110)	Retrospective analysis; cesarean delivery	Intellectual and developmental disabilities (IDD)	-There were no racial and ethnic disparities in cesarean delivery among Black women with IDD -Nearly half (47%) of Black women with IDD had a cesarean delivery during the study period, which was higher than the general obstetric population

Table 2a: Key Findings of Included Studies (continued)

Bartal, 2022	Low-risk, nulliparous patients who gave birth in the United States between 2015-2019 (n=4,349,550)	Population-based, retrospective cohort study; primary cesarean delivery	Race/ethnicity, maternal adverse outcomes, neonatal adverse outcomes	-Non-Hispanic Black individuals had an increased risk for primary cesarean delivery (21.7%, aRR 1.24, 95% CI 1.23-1.25) -After adjustment, the risk of composite maternal adverse outcomes was lower in non-Hispanic Black individuals (aRR 0.89, 95% CI 0.83-0.96) with a primary cesarean delivery -After adjustment, the risk of composite neonatal adverse was higher in non-Hispanic Black individuals (aRR 1.06, 95% CI 1.01-1.11) -Throughout the study period, racial/ethnic disparities in the primary cesarean delivery rate remained

Table 2a: Key Findings of Included Studies (continued)

Braveman, 1995	Individuals who had a singleton live birth in California in 1991 (n=217,461)	Retrospective review; cesarean delivery	Sociodemographic characteristics	-Black women were 24% more likely to undergo cesarean deliveries than White women -Differences in cesarean deliveries between Black and White women persisted across sociodemographic characteristics. Among high non-English speaking zip codes areas (OR 1.51, 95% CI 1.20-1.89), among high-birthweight deliveries (OR 1.42, 95% CI 1.21-1.67), and among deliveries at for-profit hospitals (OR 1.42, 95% CI 1.20-1.68) -Black women were less likely to undergo a cesarean delivery among low-birthweight deliveries and at county hospitals -Future research should explore the role of provider and patient attitudes and expectations in racial/ethnic differences in cesarean delivery

Table 2a: Key Findings of Included Studies (continued)

Bryant, 2009	Deliveries at a tertiary care academic center in California from 1980-2001 (n=28,493)	Retrospective cohort study; cesarean delivery	Maternal self-reported race/ethnicity	-After adjustment, African American women were at increased risk of cesarean delivery (aOR 1.48, 95% CI 1.32-1.68) -African American women were more likely to undergo a cesarean delivery at term than White women -African American multiparae with no prior cesarean delivery and at term (e.g., low-risk) were at an increased odds of a cesarean delivery between 1997-2001 (aOR 3.72, 95% CI 1.88-7.38) -Racial/ethnic disparities exist, even among women at low-risk for cesarean delivery. These disparities should be considered as part of quality metrics for obstetric care across levels (e.g., national, state, hospital, or provider)

Table 2a: Key Findings of Included Studies (continued)

Canelón, 2021	Electronic health record data of female patients with visits to inpatient or outpatient clinics within the Penn Medicine system (n=1,060,100)	Secondary data analysis/Generalized logistic model; cesarean delivery	Emergency admission, pregnancy-specific characteristics	-Black patients were at increased risk of having an emergency cesarean delivery (aOR 1.93, 95% CI 1.50-2.49)
Coonrod, 2008	Nulliparous, term, singleton, vertex births at 40 Arizona hospitals from 2005 (n=28,863)	Retrospective cohort study; cesarean delivery	Individual and institutional-level variables	-After adjusting for clinical, potential clinical, and nonclinical factors, African American women were more likely to have a cesarean delivery (aOR 1.54, 95% CI 1.32-1.80)
Declercq, 2006	U.S births from 1991-2002	Secondary data analysis; primary cesarean/overall cesarean delivery	Demographic and medical risk factors	From 1991-1996, the decrease in the overall cesarean rate was minimal (3%), and the increase (21%) from 1996-2002 was similar to that in other racial/ethnic groups *Primiparous* -In 1991, the primary cesarean rate among Black, non-Hispanic women was a percentage point lower than White, non-Hispanic women. However, by 2002, the primary cesarean rate was a percentage point higher than White, non-Hispanic women

Table 2a: Key Findings of Included Studies (continued)

				Multiparous -Black, non-Hispanic women had the largest overall increase (11.8% to 15.5%) from 1991-2002 -Black, non-Hispanic had higher rates of primary cesarean delivery at increasing maternal age. Approximately, 24% of Black, non-Hispanic women older than 35 years that had a vaginal delivery in the past had a primary cesarean delivery in 2002 -Changes in primary cesarean rates were not related to changes in maternal risk profiles
Edmonds, 2013	Nulliparous, term, singleton, vertex deliveries from the University of Massachusetts Memorial Medical Center Labor and Delivery electronic medical record (EMR) database from 2006-2011 (n=4,483)	Retrospective, cross-sectional cohort study; cesarean delivery	Patient characteristics	-Black women had higher rates of cesarean delivery than spontaneous vaginal delivery (aOR 1.43, 95% CI 1.07-1.91)

Table 2a: Key Findings of Included Studies (continued)

				-Black women were more likely to undergo a cesarean delivery for fetal distress (aOR 5.28, 95% CI 2.36-11.81) and for indications diagnosed at first stage versus second stage of labor (aOR 3.59, 95% CI 1.50-8.63) -Racial/ethnic differences in delivery mode and indications for cesarean exist among a low-risk population of women
Ehrenburg, 2004	Women with singleton pregnancies of ≥ 23 weeks estimated gestational age undergoing a trial of labor January 1997 to June 2001 from MetroHealth Medical Center (n=12,303)	Retrospective cohort study; primary cesarean delivery	Maternal obesity, maternal and neonatal demographic variables	-Black race is a risk factor for cesarean delivery
Ford, 2008	U.S. singleton births of parous women from 1990-2003	Secondary data analysis; primary cesarean delivery	Maternal age, gestational age, and race/ethnicity	- The primary cesarean rates for non-Hispanic Black women were consistently higher and rose by a greater extent than the rates for Hispanic or non-Hispanic White women

Table 2a: Key Findings of Included Studies (continued)

				-Nearly 23% of non-Hispanic Black mothers 35 years or older had a cesarean delivery in 2003, as compared to Hispanic (16%) or non-Hispanic White women (12%) -Primary cesarean rates followed a similar pattern as the general cesarean rate, increasing since 1996. Results indicate that the increasing trend was not explained by changes in maternal age or race/ethnicity
Hedderson, 2019	Nulliparous, term, singleton, vertex deliveries at Kaiser Permanente Northern California from 2008-2012 (n=62,048)	Cohort study; cesarean delivery	Race/ethnicity and maternal cardiometabolic risk factors	-Black women were at increased risk of having a cesarean delivery compared to White women (aRR 1.37, 95% CI 1.28-1.45) -Black women were also at increased risk of having an urgent cesarean delivery (aRR 1.44, 95% CI 1.32-1.57), and at significant increased risk of having an elective cesarean delivery

Table 2a: Key Findings of Included Studies (continued)

				Maternal overweight/obesity (BMI ≥ 25) mediated the association between Black race and cesarean delivery (21.1% [15.8-26.4]) -Hypertensive disorders (e.g., gestational hypertension, preeclampsia, or preexisting hypertension) mediated the association between Black race and cesarean delivery (3.2% [0.70-5.8]). Approximately, 2.7% of the mediation was primarily driven by preexisting hypertension -The racial/ethnic disparities in cesarean deliveries operate through pathways other than cardiometabolic risk factors—due to small indirect effects observed in the analyses
Henke, 2014	Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) discharges from 2009 (n=2,516,570)	Secondary data analysis/hierarchical logistical model; cesarean delivery	Payer (e.g., insurance), maternal and neonatal characteristics	

Table 2a: Key Findings of Included Studies (continued)

				-The percentage of African Americans in the population was associated with an increased likelihood of cesarean delivery overall (aOR 1.003, 95% CI 1.000-1.001) and for private insurance (aOR 1.005, 95% CI 1.003-1.007), but not for Medicaid -Understanding the association between payer and cesarean delivery may create areas for intervention to improve quality of care and reduce healthcare costs
Huesch, 2015	Inpatient discharge data from the Agency for Healthcare Research and Quality for California from 2010 (n=493,433)	Secondary data analysis, cesarean delivery	Patient demographic characteristics and maternal, placental, and fetal factors	-African American women were slightly more likely to undergo primary cesarean (i.e., elective without labor and emergent with labor) compared to women of another race/ethnicity

Table 2a: Key Findings of Included Studies

				Indications and risk factors were more prevalent among African American women, but no risk factors, except hypertensive disorders and preterm gestation, that were both more prevalent among African American women and strongly associated with elective cesareans -It is a public health imperative to reduce cesareans in general and enhance focus on the pronounced excess of cesareans among African Americans
Irwin, 1996	Nulliparous, active-duty U.S. Navy personnel who had a singleton infant delivery between October 1, 1987, to September 30, 1989, at any military (Department of Defense-operated) hospital (n=3,603)	Cohort study; primary cesarean delivery	Demographic characteristics and medical complications	-African American women 30 years or older were at increased risk of cesarean delivery (OR 2.2, 95% CI 1.1-4.2) -African American women under 30 years of age were not at increased risk of cesarean delivery (OR 1.1, 95% CI 0.89-1.3)

Table 2a: Key Findings of Included Studies (continued)

Janevic, 2014	Linked birth and hospitalization data from New York City from 1995-2003 (n=961, 381)	Cross-sectional study; cesarean delivery	Race/ethnicity, nativity, patient characteristics	After adjustment, African American women were at increased risk for cesarean delivery (aRR 1.20, 95% CI 1.17-1.23) -In the sub-analyses of low-risk women and primiparous women, African American women had an increased risk of cesarean delivery compared to non-Hispanic White women (aRR 1.20, 95% CI 1.18-1.23) (aRR 1.17, 95% CI 1.13-1.22) -Results among African American women were consistent with previous literature and provides strong evidence of a racial disparity in risk of cesarean delivery
Kabir, 2005	Healthcare Cost and Utilization Project Nationwide Inpatient Sample database singleton live birth delivery discharges 2001 (n=540,174 primary cesareans and n=371,863 repeat cesareans)	Cross-sectional study; cesarean delivery	Maternal demographic and clinical characteristics	-Black women were more likely to have a potentially unnecessary primary cesarean delivery than women of all other racial/ethnic groups

Table 2a: Key Findings of Included Studies (continued)

				-Race was a significant factor in potentially unnecessary cesareans independent of other factors studied
Knoll, 2021	National Inpatient Sample (NIS) database of hospital discharge records for obstetric deliveries from 2012-2014 (n=12,280,394)	Retrospective cross-sectional analysis; cesarean delivery	Maternal opioid use, patient characteristics	-In the adjusted model, African American opioid users were less likely to have a cesarean delivery compared to Caucasians (aOR 0.64, 95% CI 0.59-0.69)
Linton, 2004	U.S. military hospital discharge records of singleton births from 1999-2002 (n=176,675)	Secondary data analysis; primary cesarean delivery	Patient demographic information, chronic disease conditions	-Black women were at increased relative risk for cesarean outcome in three age groups (<20, 20-24, and 30-34 years) Primary cesarean rates increased with increasing maternal age for all race subgroups; the highest were observed among Black women

Table 2a: Key Findings of Included Studies (continued)

				After adjustment of cesarean delivery rates for the selected chronic conditions, it did not provide an explanation for the difference between White and black primary cesarean rates in the study population -Other factors are likely to contribute to the disparity between White and minority cesarean rates
Linton, 2005	U.S. military hospital discharge records of singleton births from 2002 (n=53,215)	Secondary data analysis; cesarean delivery	Patient demographic information, clinical conditions	Observed cesarean delivery rates were significantly higher for Black women than expected (SR 1.10, 95% CI 1.05-1.14) -Cesarean rates were significantly higher than predicted for Black women in teaching hospitals (SR 1.20, 95% CI 1.12-1.28)

Table 2a: Key Findings of Included Studies (continued)

				-The "persistently" higher cesarean rates for Black women relative to White women in the study population warrants continued study
Mocarski, 2012	New York City birth certificate data of singleton births (n=536,084)	Secondary data analysis; primary cesarean delivery	Gestational diabetes mellitus, ethnicity, patient demographic information	-African American women with GDM are at increased risk of primary cesarean delivery (aOR 1.5, 95% CI 1.4-1.7)
Morris, 2016	Nulliparous, term, singleton, vertex deliveries performed at a tertiary care hospital in urban New England city from June 1, 2013, to November 30, 2013 (n=1,839)	Retrospective chart review; cesarean delivery	Medical indication, race/ethnicity, patient characteristics	-The predicted probability that Black women had a cesarean for cephalopelvic disproportion (CPD) was significantly lower than the predicted probability for White women with the same indication
Olapeju, 2021	Boston birth cohort (n=8,509)	Secondary data analysis; cesarean delivery	Maternal age, Sociodemographic, biomedical, and behavioral determinants	-In the study sample, there were high levels of cesarean delivery (e.g., 33%)
Ouyang, 2022	National Inpatient Sample (NIS) and State Inpatient databases of hospital discharge records from 2018 (n=1,003,725)	Secondary data analysis; cesarean delivery	Race/ethnicity, patient, and hospital characteristics	-non-Hispanic Black women had higher odds of low-risk cesarean deliveries

Table 2a: Key Findings of Included Studies (continued)

Rosenberg, 2005	New York singleton births from 1999-2001 (n=329,988)	Secondary data analysis; primary cesarean delivery	Race/ethnicity, diabetes, obesity, sociodemographic	-In the adjusted model, chronic hypertension, pregnancy-induced hypertension, and preeclampsia posed a greater risk of a primary cesarean among Black women than for other women
Scott-Wright, 1999	Davidson County, TN singleton first births from 1990-1994 (n=4267)	Secondary data analysis; cesarean delivery	Maternal race, maternal characteristics	-College-educated African American mothers were at an increased risk of having a cesarean delivery compared to White mothers (aOR 1.78, 95% CI 1.36-2.32) -The increased risk for African American mothers could not be accounted for by differences in level of educational attainment beyond college, marital status, parity, infant gender, birthweight or gestational age of the infant, trimester prenatal care began, or by the other significant independent predictors of cesarean delivery

Table 2a: Key Findings of Included Studies (continued)

Shy, 2000	Washington singleton births from nulliparous women from January 1, 1987, to December 31, 1995 (n=18,905)	Population-based cohort study; primary cesarean delivery	Maternal birth weight, maternal characteristics	-African American women had the greatest percentage of primary cesarean births with indications for dystocia and fetal distress (23.8%) -Maternal birth weight was not associated with increased risk of primary cesarean delivery for African American women
Valdes, 2021	US live births from 2016 (n=3,906,088)	Retrospective cross-sectional study; cesarean delivery	Robson Ten Group Classification System, patient demographics	- Black mothers had significantly higher cesarean rates compared to every other racial group ($p<0.001$) - For Robson Group 1 (e.g., nulliparous, singleton, cephalic, ≥ 37 weeks, in spontaneous labor), Black mothers had higher cesarean rates than White, AIAN, Asian, and more than one race mothers ($p<0.001$)

Table 2a: Key Findings of Included Studies (continued)

				- For Robson Group 2.1 (e.g., nulliparous, singleton, cephalic, ≥ 37 weeks, induced labor), Black mothers had higher cesarean rates than White, AIAN, Asian, and more than one race mothers ($p<0.001$) - For Robson Group 3 (e.g., multiparous, excluding previous cesarean, singleton, cephalic, ≥ 37 weeks, in spontaneous labor) and Robson Group 4.1 (e.g., multiparous, excluding previous cesarean, singleton, cephalic, ≥ 37 weeks, induced labor), Black mothers had higher cesarean rates than all other racial groups except Asian mothers ($p<0.001$)

Table 2a: Key Findings of Included Studies (continued)

				For Robson Group 10 (e.g., all pre-term, singleton, cephalic, ≤ 37 weeks, including previous cesareans), Black mothers had higher cesarean rates than all other racial groups ($p<0.001$) - Black mothers had significantly higher rates of overall cesareans than all other races
Venkatesh, 2022	US National Center for Health Statistics natality data for individuals with gestational diabetes 15-44 years with singleton births from 2014-2020 (n=1,560,822)	Cross-sectional, descriptive study; cesarean delivery	Gestational diabetes, race/ethnicity, patient demographics	-Black individuals were at increased risk of cesarean and primary deliveries (aRR 1.13, 95% CI 1.12-1.14 and aRR 1.25, 95% CI 1.24-1.26, respectively)
Washington, 2012	Deliveries among primiparas at term at the University of California, San Francisco Medical Center from 1990-2008 (n=11,034)	Retrospective cohort study; cesarean delivery	Medical indication for cesarean delivery, race/ethnicity	-Black women were at increased risk of a cesarean delivery (aOR 1.54, 95% CI 1.30-1.83)

Table 2a: Key Findings of Included Studies (continued)

				-Black women were more than 2x likely to have a cesarean delivery for the indication of nonreassuring fetal heart compared to White women (aOR 2.19, 95% CI 1.55-3.09) - Among women who labored, Black women had an increased odds of a cesarean delivery (aOR 1.70, 95% CI 1.41-2.05) and Black women were more than 2x likely to have a cesarean delivery for the indication of nonreassuring fetal heart compared to White women (aOR 2.24, 95% CI 1.57-3.18)
Wilson, 2010	All births from the Arizona HealthQuery [AZHQ] dataset from Maricopa County from 2005 (n=62,816)	Cross-sectional retrospective descriptive study; cesarean birth	Labor induction	-Black women were more likely to have a cesarean birth among both multiparous and primiparous women
Witt, 2015	Early Childhood Longitudinal Study-Birth Cohort of women having a singleton live birth in 2001 (n=9,350)	Cohort study, cesarean (medically indicated, non-medically indicated)	Stress and obstetric factors, maternal sociodemographic factors	-Race/ethnicity was not associated with cesarean delivery (i.e., non-indicated and indicated), even after adjusting for other factors

Table 2a: Key Findings of Included Studies (continued)

Zheng, 2019	Boston Birth Cohort of individuals who had a singleton live birth (n=5,568)	Cohort study; cesarean delivery	Gestational weight gain, participant characteristics	-Excessive weight gain was not significantly associated with an increased risk of cesarean delivery - Inadequate weight gain among Black women was associated with a decreased risk of cesarean delivery

Table 2b: Summary of Risk and Protective Factors

	Non-Clinical Factors	**Clinical Factors**
Individual Level	▪ Race/Ethnicity ▪ Maternal Age ▪ Insurance Status ▪ Maternal Education	▪ Gestational Diabetes Mellitus/Diabetes ▪ Birthweight ▪ Parity ▪ Medical Indication ▪ Gestational Age ▪ Obesity ▪ Hypertensive Disorders
Community Level	▪ Neighbourhood/Zip Code Area	
Organizational Level	▪ Hospital Ownership Type	

CHAPTER THREE. THE ASSOCIATION BETWEEN EXPERIENCING RACIAL DISCRIMINATION AND DELIVERY METHOD AMONG WOMEN IN THE UNITED STATES, PRAMS 2016-2021

ABSTRACT

Introduction: Racial and ethnic disparities in cesarean birth persist, resulting in increased risk of complications. However, the efforts to explain these phenomena have not considered the influence of structural factors. The purpose of this study was to examine the association between experiencing racial discrimination and delivery method, as well as to observe women's experiences with racial discrimination.

Methods: Data from the 2016-2021 Pregnancy Risk Assessment Monitoring System was used for this secondary data analysis of nulliparous and primiparous women of reproductive age (N=27, 994). The exposure variable was measured using two questions on racial discrimination, and information on the outcome variable was obtained from the birth certificate data. Logistic regression was used to model the association between experiencing racial discrimination and delivery method.

Results: Within the population, minority women (non-Hispanic Black, Hispanic, and non-Hispanic Other women) experienced significantly increased odds of experiencing racial discrimination in comparison to non-Hispanic White women. Racial discrimination was significantly associated with primary cesarean birth in the bivariate analysis (OR, 1.19; 95% CI, 1,03-1.38); however, this relationship became marginally significant after adjustment for confounders (OR, 1.09; 95% CI, 0.94-1.28).

Discussion: Although the association between racial discrimination and delivery method was not statistically significant, even after stratification by race/ethnicity, future research should focus on expanding current measures of racial discrimination in population-based datasets. There is a missed opportunity to understand and explore the experiences of racial discrimination and delivery method, especially during labor/delivery. A comprehensive view of the mechanisms by which racial disparities in cesarean birth continue to operate is critical to reducing health inequities.

INTRODUCTION

The evidence surrounding racial and ethnic disparities in healthcare is continually increasing and emphasizes racism as a key determinant of health inequities (Bailey et al., 2017; Gee & Ford, 2011; Yearby et al., 2022). Within the realm of obstetrics, it has been established that racial disparities influence maternal mortality and morbidity, as non-Hispanic Black women are at the highest risk of these adverse maternal outcomes—being at least three times more likely to die due to pregnancy-related complications compared to White women (Centers for Disease Control and Prevention [CDC], 2022; Njoku et al., 2023; Peterson et al., 2019). More recently, research has showcased societal factors, such as discrimination, marginalization, exposure to racial trauma, structural racism, implicit bias, and lack of access to reproductive health services as factors that contribute to health inequities in maternity care (Prather et al., 2018; Thompson et al., 2022). However, the amount of literature describing racial disparities in maternal outcomes far outweighs those on societal factors, such as racism and discrimination.

Cesarean births are one of the most common birth interventions, often performed on relatively healthy women with little to no medical justification (Nagle & Samari, 2021; Sadler et al., 2016; Teitler et al., 2019). Cesarean births do pose risks to the mother and infant. Cesarean

births are associated with higher risks of hemorrhage, infection, and blood clots to the mother than vaginal birth, and neonatal NICU admissions and neonatal respiratory issues (Gregory et al., 2012; Keag et al., 2018; Korb et al., 2019; Nagle & Samari, 2021; Teitler et al., 2019). In 2022, approximately 32.1% of all deliveries were by cesarean in the United States, and non-Hispanic Black women are most impacted by the surgical procedure (Osterman et al., 2023). Non-Hispanic Black women continue to have the highest cesarean rate (36.8%) compared to non-Hispanic White women (31.0%) (Osterman et al., 2023). The racial disparities in cesarean birth are representative of a major social issue, as the rise in cesarean births has coincided with the increase in maternal mortality and maternal morbidity rates (Roth & Henley, 2012). The increase of cesareans among non-Hispanic Black women is not solely attributable to individual-level or other sociodemographic factors. It is imperative to explore structural-level factors that contribute to adverse maternal health outcomes.

Regardless of social or economic status, Black women are more likely to experience poor maternal health outcomes. Therefore, maternal health issues cannot be addressed without taking into consideration the role of racism and discrimination within the health care system. Racial discrimination is defined as a form of psychosocial stress that manifests as unfair or differential treatment based on race (Chambers et al., 2022; Jones, 2000; Krieger, 2014), and structural racism refers to a system of policies and practices that sustain racial inequities (Taylor, 2020). Previous research has indicated that there is an association between racial discrimination and Black women's experiences with care, causing strain on patient-provider communication and mistrust of providers (Chambers et al., 2022; McLemore et al., 2018; Murphy et al., 2022; Taylor, 2020). In reference to cesarean births, studies have shown that minority women are more likely to be at increased risk of overall and low risk cesarean births (Braveman et al., 1995;

Coonrod et al., 2008; Edmonds et al., 2013; Valdes et al., 2021). However, efforts to explain for the racial disparities in cesarean birth have failed to address the structural factors (e.g., racism, discrimination) that contribute to the increase in cesarean rates among minority women. In preparation for exploring this potential relationship, the purpose of this study was to evaluate the association between experiencing racial discrimination and delivery method using a population-based sample. It is essential to measure and assess the impact of racial discrimination on maternal health outcomes, particularly to understand the persistent racial disparities in cesarean birth.

METHODS

Study Design and Population

This analysis used data from the 2016-2021 Phase 8 Centers for Disease Control and Prevention (CDC) Pregnancy Risk Assessment and Monitoring System (PRAMS) to examine the association between experiencing racial discrimination and mode of delivery (e.g., cesarean birth) among nulliparous and primiparous women of reproductive age. PRAMS is an on-going, state-level, population-based surveillance system that collects information on maternal health behaviors and experiences that occur before, during, and after pregnancy (Shulman et al., 2018). The PRAMS data set includes information from forty-seven locations, New York City, Puerto Rico, and the District of Columbia (Shulman et al., 2018). The CDC's PRAMS initiative began in 1987, in response to stagnant infant mortality rates; thus, it was created to reduce infant mortality and low birthweight to promote safety in maternal health (Shulman et al., 2018). PRAMS covers approximately 83% of all U.S. births, and has been used to monitor various targets, performance measures, and indicators amongst public health surveillance programs (Shulman et al., 2018).

Stratified random sampling was conducted for each participating state to select women from birth certificates two to six months after an infant is born (Shulman et al., 2018). Additionally, PRAMS links self-reported survey data to birth certificate data and the birth certificate file serves as a sampling frame for identifying new mothers (Shulman et al., 2018). Participating PRAMS states oversample women based on certain characteristics of public health interest, such as race/ethnicity, geographic area, and infant birth weight (Centers for Disease Control and Prevention [CDC], 2023; Shulman et al., 2018). The primary mode of data collection is mail, with telephone follow-up for non-respondents (Centers for Disease Control and Prevention [CDC], 2023; Shulman et al., 2018). Sample sizes can range from 1,000 to 3,000 women and is determined by the number of births, budget restraints, and the stratification plan (Shulman et al., 2018). The CDC only releases data from states that have a minimum response rate at or above 50% for Phase 8 (CDC, 2024). For this analysis, variables from the birth certificate, core questionnaire, standard questionnaire, and selected state-specific questionnaire were requested to assess experiences of racial discrimination and delivery method. The analysis was limited to participants from the 14 sites that administered the survey items about experiencing racial discrimination: Connecticut, District of Columbia, Florida, Georgia, Iowa, Indiana, Montana, North Carolina, New Jersey, New York City, Ohio, South Carolina, Virginia, Wisconsin, and Wyoming. The states of Ohio and South Carolina did not have responses for the racial discrimination variable. The PRAMS protocol was approved by the PRAMS Working Group. The study was approved by the University of North Carolina at Charlotte Institutional Review Board (IRB).

Measures

Delivery Method

The study included one primary dependent variable, delivery method, which was obtained from the birth certificate. The variable was categorized as a binary: vaginal birth or primary cesarean birth. Vacuum delivery, forceps delivery, repeat cesarean delivery, and vaginal delivery after cesarean delivery were omitted from the analysis.

Experiencing Racial Discrimination

The primary independent variable, experiencing racial discrimination, was derived from standard and state-specific questions that were asked in 14 site-specific surveys. The following PRAMS questions were used: “During the 12 months before your new baby was born, did you feel emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on your race?” and “During the 12 months before your new baby was born, how often did you experience discrimination, or harassment, or were made to feel inferior because of your race, ethnicity, or culture?”. The independent variable, experienced racial discrimination, was developed and combined the individual questions into one single variable. The variable was categorized as a binary: yes, experienced racial discrimination, or no, did not experience racial discrimination.

Confounders

Potential confounders of the racial discrimination-delivery method association include: maternal race/ethnicity (non-Hispanic Black, non-Hispanic White, non-Hispanic other, Hispanic), maternal age (<20 years, 20-24 years, 25-29 years, 30-34 years, and ≥ 35 years), maternal education level (less than high school, high school graduate, some college, college graduate or above), annual household income (<$24,000, $24,000-$57,000, > $57,000), maternal

health insurance status (none, private insurance, Medicaid, other), marital status (married, other), maternal BMI (underweight, normal/healthy, overweight, obese), Kotelchuck Index [adequacy of prenatal care (PNC) utilization] (inadequate PNC, intermediate PNC, adequate PNC, adequate plus PNC), parity, and previous preterm birth (yes, no) (Eliner et al., 2022; Hoxha et al., 2017; Peterson et al., 2017; Spinner & Huber, 2024; Washington et al., 2012).

Data Analyses

The analytic sample was attained from 240,724 participants from the Phase 8 PRAMS survey from 2016 to 2021. Women with unknown information on maternal race/ethnicity (n=322), maternal age (n=8), maternal education level (n=287), annual household income (n=6,886), maternal health insurance status (n=275), marital status (n=18), previous preterm birth (n=122), Kotelchuck Index (n=1,313) were removed from the analysis. Women that were multiparous (n=15,106), delivered before term (n=5,916), or had multiple births (n=18) were omitted from the analysis. Women with no responses for experiencing racial discrimination (n=258) or delivery method (n=28) were removed from the analysis. The final analytic sample comprised 27, 994 nulliparous and primiparous women with singleton births that delivered at term.

Frequencies and percentages were utilized to describe maternal characteristics and sociodemographic information of the study population. Pearson's chi-squared tests with Rao and Scott's second-order correction were implemented to account for complex survey design (Rao & Scott, 1981). Logistic regression was used to model the association between experiencing racial discrimination and delivery method, as well as obtain odds ratios (OR) and 95% confidence intervals (CIs). A multivariate model was created to control for potential confounders. Only predictors with $p < 0.2$ remained in the model (Budtz-Jørgensen et al., 2007). All results were

stratified by the race/ethnicity of members from marginalized populations, including non-Hispanic Black, Hispanic, and non-Hispanic Other. Data analyses were conducted using SAS, version 9.4.

RESULTS

Women with a vaginal birth and primary cesarean birth were relatively similar with respect to race/ethnicity (Table 3a). However, a higher percentage of women with a primary cesarean birth were aged 30-34 or >35 years (30.6%, 21.8%, respectively), college graduates or above (49.2%), had private insurance (65.5%), overweight (26.3%) or obese (33.6%), have income greater than $57,000 (51.4%), married (65.5%), and received adequate or adequate plus prenatal care (PNC) (46.9% and 34.5%, respectively). In contrast, a higher percentage of women with a vaginal birth were <20, 20-24, or 25-29 years (5.0%, 22.2%, and 30%, respectively), less than high school or high school graduates (7.3% and 21.9%, respectively), had Medicaid (34%), normal/healthy weight (49.5%), income less than $24,000 (28.1%), and received inadequate or intermediate PNC (10.7%). A higher percentage of women with a primary cesarean birth experienced racial discrimination in comparison to women with a vaginal birth (Table 3-1).

In the unadjusted model, women who experienced racial discrimination had 19% increased odds of having a primary cesarean birth compared to women who did not experience racial discrimination (Table 3b). Women at younger ages (e.g., <20 years and 20-24 years) were less likely to have a cesarean birth compared to women 25-29 years of age (<20 years: OR, 0.58; 95% CI, 0.45-0.76 and 20-24 years: OR, 0.79; 95% CI, 0.70-0.90). Women 35 or older were more likely to have a cesarean birth compared to women 25-29 years of age (OR, 1.76; 95% CI, 1.57-1.99). Minority women were at increased risk of a primary cesarean birth compared to non-Hispanic White women (non-Hispanic Black: OR, 1.34; 95% CI, 1.19-1.50, Hispanic: OR, 1.16;

95% CI, 1.02-1.31, non-Hispanic Other: OR, 1.22; 95% CI, 1.08-1.38). Women with less than a high school education had 35% decreased odds of having a primary cesarean birth compared to women with some college education (OR, 0.65; 95% CI, 0.53-0.79). Women with no insurance or Medicaid were less likely to experience a primary cesarean birth compared to women with private insurance (no insurance: OR, 0.65; 95% CI, 0.49-0.86 and Medicaid: OR, 0.79; 95% CI, 0.73-0.87). Women at overweight or obese BMI categories were at an increased odds of having a primary cesarean birth, experiencing almost 1.5 or 2x the odds of a primary cesarean birth compared to women at normal/healthy weight (OR, 1.42; 95% CI, 1.28-1.57 and OR, 2.10; 95% CI, 1.90-2.32, respectively). Women with less than $24,000 in income were less likely to have a primary cesarean birth compared to women with greater than $57,000 in income (OR 0.84; 95% CI, 0.76-0.93). Women with adequate plus PNC were more likely to have a primary cesarean birth compared to women with adequate PNC (OR, 1.22; 95% CI, 1.11-1.33).

Non-Hispanic Black women, Hispanic women, and non-Hispanic Other women were at significantly increased odds of experiencing racial discrimination in comparison to non-Hispanic White women (non-Hispanic Black: OR, 5.83; 95% CI, 4.89-6.94, Hispanic: OR, 3.89; 95% CI, 3.20-4.73, non-Hispanic Other: OR, 4.61; 95% CI, 3.81-5.57) (Table 3c). However, after adjustment for maternal sociodemographic characteristics, the association between experiencing racial discrimination and delivery method became marginally significant (OR, 1.09; 95% CI, 0.94-1.28) (Table 3d). Even after stratifying by race/ethnicity (non-Hispanic Black, Hispanic, and non-Hispanic Other women), there was no significant association between experiencing racial discrimination and delivery method.

DISCUSSION

In a representative sample of nulliparous and primiparous women who gave birth in the United States (U.S.) over a five-year period, we found no relationship between experiencing racial discrimination and primary cesarean birth. When stratified by race/ethnicity, there was no statistically significant increased odds of experiencing racial discrimination and having a primary cesarean birth. However, the finding of no association between experiencing racial discrimination and primary cesarean birth does not align with previous research that has documented the significant association even after adjustment of potential confounders (Mulla et al., 2022). Furthermore, identifying as non-Hispanic Black, Hispanic, or non-Hispanic Other was significantly associated with experiencing racial discrimination compared to non-Hispanic White women. It is well-documented in the literature, experiences of racial discrimination are associated with adverse birth outcomes (Doherty et al., 2023; Hill et al., 2022; Smith Barber et al., 2021; Vedam et al., 2019), especially among racial and ethnic minority populations. There are several plausible explanations of why we did not observe experiencing racial discrimination as a risk factor for primary cesarean birth.

One possible explanation is that the self-reported experience of racial discrimination is occurring primarily during the prenatal period. The racial discrimination measure is time-specific, asking participants to report experiences of racial discrimination 12 months prior to the delivery of their most recent child. It is recognized that experiences of discrimination or mistreatment during the prenatal period can negatively impact experiences of care among minority women (Prater et al., 2023). Although, research by Vedam and colleagues (2019), provide evidence that experiences of mistreatment during labor/delivery placed minority women at increased risk of an unplanned cesarean birth. A significant number of minority women

reported “being ignored” or “providers did not respond to their requests for help” during labor/delivery (Vedam et al., 2019). To understand the role of racial discrimination on cesarean birth it will be important to include a measure that asks about experiences of racial discrimination during labor/delivery.

Another possible explanation is that a different measure of experiencing racial discrimination is needed to further elucidate the racial discrimination-delivery method relationship. For example, including measures of obstetric racism, which is defined as the historical stigmatization of Black women and permeates their interactions with health professionals before, during, and after pregnancy (Davis, 2018). Obstetric racism threatens maternal and neonatal outcomes through experiences of neglect, disrespect, or dismissal, intentionally causing pain, lapses in diagnosis, or medical abuse through coercion and performance of unwarranted procedures (Davis, 2018). Racial disparities in cesarean birth are understood as a direct result of racism. The process of childbirth has been medicalized and Black women are on the receiving end of discriminatory treatment within the obstetrical care environment (Davis, 2018; Masters et al., 2023). A measure of obstetric racism may be more appropriate to understand racial disparities in cesarean birth because experiences of adverse obstetric outcomes are heavily influenced by histories of medical experimentation and racism.

A third possible explanation relates to the current measure of racial discrimination used within the Phase 8 PRAMS survey. The Phase 8 PRAMS survey measure does not specify racial discrimination within the context of health care settings. The racial discrimination measure asks participants to report experiences of racial discrimination; yet those experiences could occur in any environment. Due to this, it is plausible that the current measure is underreporting experiences of racial discrimination that occur within health care, further impacting the study’s

observed lack of an association between racial discrimination and delivery method. Additionally, it is unclear whether the experiences of racial discrimination are representative of interpersonal or structural racism. Previous research has explored the impact of both interpersonal and structural racial discrimination on adverse birth outcomes; thus, it is vital to understand the mechanisms by which racial discrimination can operate through and impact racial inequities in maternity care (Alhusen et al., 2016).

The current study has some limitations and strengths. The strengths of the study include the use of a population-based sample, which increases generalizability to the general population. The outcome variable was obtained directly from the birth certificate and serves as a potential strength of the study due to limited information bias and non-differential misclassification of the outcome. However, there are several limitations to consider. Due to the self-report of the exposure variable (e.g., experiencing racial discrimination), non-differential misclassification or information bias are possible (Althubaiti, 2016). Additionally, we were unable to establish the timing of discrimination or setting in which the discrimination took place. Thus, we were limited in the ability to observe a temporal relationship between experience of racial discrimination and delivery method. There is the possibility of non-response bias, as women that participated in the study may differ from women who did not participate. We were not able to control for all potential confounders, as we were limited to the variables included in the PRAMS data. Lastly, we categorized race/ethnicity into four categories, missing the opportunity to observe experiences of racial discrimination and delivery method among all racial and ethnic groups.

Conclusion

The findings of this study highlight the need for continual assessment of racial discrimination and delivery method. Factors associated with racial disparities in cesarean birth

are multifaceted and extensive. Future research should observe the association of experiencing racial discrimination and delivery method with an updated measure of racial discrimination. The efforts to reduce racial disparities in cesarean birth should focus on exploration of structural factors looking beyond the individual-level or biomedical model to effectively improve maternal health outcomes among minority women.

REFERENCES

Alhusen, J. L., Bower, K., Epstein, E., & Sharps, P. (2016). Racial discrimination and adverse birth outcomes: An integrative review. *Journal of Midwifery & Women's Health, 61*(6), 707-720. https://doi.org/10.1111/jmwh.12490

Althubaiti, A. (2016). Information bias in health research: Definition, pitfalls, and adjustment methods. *Journal of Multidisciplinary Healthcare, 9*, 211-217. https://doi.org/10.2147/JMDH.S104807

Bailey, Z. D., Krieger, N., Agénor, M., Graves, J., Linos, N., & Bassett, M. T. (2017). Structural racism and health inequities in the USA: Evidence and interventions. *The Lancet, 389*(10077), P1453-1463. https://doi.org/10.1016/S0140-6736(17)30569-X

Braveman, P., Egerter, S., Edmonston, F., & Verdon, M. (1995). Racial/ethnic differences in the likelihood of cesarean delivery, California. *American Journal of Public Health, 85*(5), 625-30. https://doi.org/10.2105/ajph.85.5.625

Budtz-Jørgensen, E., Keiding, N., Grandjean, P., & Weihe, P. (2007). Confounder selection in environmental epidemiology: Assessment of health effects of prenatal mercury exposure. *Annals of Epidemiology, 17*(1), 27-35. https://doi.org/10.1016/j.annepidem.2006.05.007

Centers for Disease Control and Prevention. (2022). *Maternal and infant health*. https://www.cdc.gov/reproductivehealth/maternalinfanthealth/index.html

Centers for Disease Control and Prevention. (2023). *Methodology*. https://www.cdc.gov/prams/methodology.htm

Centers for Disease Control and Prevention. (2024). *Are PRAMS data available to researchers?* https://www.cdc.gov/prams/prams-data/researchers.htm

Chambers, B. D., Taylor, B., Nelson, T., Harrison, J., Bell, A., O'Leary, A., Arega, H. A., Hashemi, S., McKenzie-Sampson, S., Scott, K. A., Raine-Bennett, T., Jackson, A. V., Kuppermann, M., & McLemore, M. R. (2022). Clinicians' perspectives on racism and Black women's maternal health. *Women's Health Reports, 3*(1), 476-482. https://doi.org/10.1089/whr.2021.0148

Coonrod, D. V., Drachman, D., Hobson, P., & Manriquez, M. (2008). Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. *American Journal of Obstetrics and Gynecology, 198*(6), e1-e11. https://doi.org/10.1016/j.ajog.2008.03.026

Davis, D. (2019). Obstetric racism: The racial politics of pregnancy, labor, and birthing. *Medical Anthropology, 38*(7), 560-573. https://doi.org/10.1080/01459740.2018.1549389

Doherty, E. A., Cartmell, K., Griffin, S., Heo, M., Chen, L., Britt, J. L., & Crockett, A. H. (2023). Discrimination and adverse perinatal health outcomes: A latent class analysis. *Preventing Chronic Disease, 20*, 230094. https://doi.org/10.5888/pcd20.230094

Edmonds, J. K., Yehezkel, R., Liao, X., & Moore Simas, T. A. (2013). Racial and ethnic differences in primary, unscheduled cesarean deliveries among low-risk primiparous women at an academic medical center: A retrospective cohort study. *BMC Pregnancy and Childbirth, 13*, 168. https://doi.org/10.1186/1471-2393-13-168

Eliner, Y., Gulerson, M., Chervenak, F. A., Lenchner, E., Grunebaum, A., Phillips, K., Bar-El, L., Bornstein, E. (2022). Maternal education and racial/ethnic disparities in

nulliparous, term, singleton, vertex cesarean deliveries in the United States. *AJOG Global Reports, 2*(1), 100036. https://doi.org/10.1016/j.xagr.2021.100036

Gee, G. C. & Ford, C. L. (2011). Structural racism and health inequities: Old issues, new directions. *Du Bois Review, 8*(1), 115-132. https://doi.org/10.1017/S1742058X11000130

Gregory, K. D., Jackson, S., Korst, L., & Fridman, M. (2012). Cesarean versus vaginal delivery: Whose risks? Whose benefits? *American Journal of Perinatology, 29*(1), 7-18. https://doi.org/ 10.1055/s-0031-1285829

Hill, L., Artiga, S., & Ranji, U. (2022). *Racial disparities in maternal and infant health: Current status and efforts to address them*. https://www.kff.org/racial-equity-and-health-policy/issue-brief/racial-disparities-in-maternal-and-infant-health-current-status-and-efforts-to-address-them/

Hoxha, I., Syrogiannouli, L., Braha, M., Goodman, D. C., da Costa, B. R., Jüni, P. (2017). Caesarean sections and private insurance: Systematic review and meta-analysis. *BMJ Open, 7*(8), e016600. https://doi.org/10.1136/bmjopen-2017-016600

Jones, C. P. (2000). Levels of racism: A theoretic framework and gardener's tale. *American Journal of Public Health, 90*(8), 1212-1215. https://doi.org/10.2105/ajph.90.8.1212

Keag, O.E., Norman, J. E., Stock, S. J. (2018). Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: Systematic review and meta-analysis. *PLoS Medicine*, *15*(1), e1002494. https://doi.org/10.1371/journal.pmed.1002494

Korb, D., Goffinet, F., Seco, A., Chevret, S., Deneux-Tharaux, C., & EPIMOMS Study Group. (2019). Risk of severe maternal morbidity associated with cesarean delivery and the role

of maternal age: A population-based propensity score analysis. *Canadian Medical Association Journal*, *191*(13), E352-E260. https://doi.org/10.1503/cmaj.181067

Krieger, N. (2014). Discrimination and health inequities. *International Journal of Health Services, 44*(4), 643-710. https://doi.org/10.2190/HS.44.4.b

Masters, R. K., Tilstra, A. M., Simon, D. H., & Coleman-Minahan, K. (2023). Differences in determinants: Racialized obstetric care and increases in U.S. state labor induction rates. *Journal of Health and Social Behavior, 64*(2), https://doi.org/10.1177/00221465231165284

McLemore, M. R., Altman, M. R., Cooper, N., Williams, S., Rand, L., & Franck, L. (2018). Health care experiences of pregnant, birthing, and postnatal women of color at risk for preterm birth. *Social Science & Medicine, 201*, 127-135. https://doi.org/10.1016/j.socscimed.2018.02.013

Mulla, Y., Shepherd, S., & Hux, V. (2022). Experiences of discrimination are associated with risk for cesarean delivery. *Obstetrics & Gynecology, 139*, 45S-46S. https://doi.org/10.1097/01.AOG.0000825904.38212.c6

Murphy, L., Liu, F., Keele, R., Spencer, B., Ellis, K. K., & Sumpter, D. (2022). An integrative review of the perinatal experiences of Black women. *Nursing for Women's Health, 26*(6), 462-472. https://doi.org/10.1016/j.nwh.2022.09.008

Nagle, A. & Samari, G. (2021). State-level structural sexism and cesarean sections in the United States. *Social Science & Medicine, 289*, 114406. https://doi.org/10.1016/j.socscimed.2021.114406

Njoku, A., Evans, M., Nimo-Sefah, L., Bailey, J. (2023). Listen to the whispers before they become screams: Addressing black maternal morbidity and mortality in the United States. *Healthcare, 11*(3), 438. https://doi.org/10.3390/healthcare11030438

Osterman, M. J. K., Hamilton, B. E., Martin, J. A., Driscoll, A. K., & Valenzuela, C. P. (2023). Births: Final data for 2021. *National Vital Statistics Reports, 72*(1), 1-53. https://www.cdc.gov/nchs/data/nvsr/nvsr72/nvsr72-01.pdf

Peahl, A. F., Moniz, M. H., Heisler, M., Doshi, A., Daniels, G., Caldwell, M., Dalton, V. K., De Roo, A., & Brynes, M. (2022). Experiences with prenatal care delivery reported by Black patients with low income and by health care workers in the US. *JAMA Network Open, 5*(10), e2238161. https://doi.org/10.1001/jamanetworkopen.2022.38161

Peterson, E. E., Davis, N. L., Goodman, D., Cox, S., Syverson, C., Seed, K., Shapiro-Mendoza, C., Callaghan, W. M., & Barfield, W. (2019). Racial/ethnic disparities in pregnancy-related deaths—United States, 2007-2016. *Morbidity and Mortality Weekly Report, 68*, 762-765. https://doi.org/10.15585/mmwr.mm6835a3

Peterson, S., Khangura, R., Fitzgerald, M., Sousa, D., & Goyert, G. (2017). Risk of cesarean with obesity and advancing maternal age. *Obstetrics & Gynecology, 129*(5), 31S. https://doi.org/10.1097/01.AOG.0000514314.07880.1d

Prater, C., Cohen, L., Chau, E., Carter, E. B., Kuebee, B., Tepe, M., & Keegan, M. (2023). Perceived discrimination during prenatal care at a community health center. *Journal of Racial and Ethnic Health Disparities, 10*(3), 1304-1309. https://doi.org/10.1007/s40615-022-01315-5

Prather, C., Fuller, T. R., Jeffries, W. L., Marshall, K. J., Howell, V. A., Belyue-Umole, A., & King, W. (2018). Racism, African American women, and their sexual and reproductive

health: A review of historical and contemporary evidence and implications for health equity. *Health Equity, 2*(1), 249-259. http://doi.org/10.1089/heq.2017.0045

Rao, J. N. K. & Scott, A. J. (1981). The analysis of categorical data from complex sample surveys: Chi-squared tests for goodness-of-fit and independence in two-way tables. *Journal of the American Statistical Association, 76*, 221-230.

Roth, L. M. & Henley, M. M. (2012). Unequal motherhood: Racial-ethnic and socioeconomic disparities in cesarean sections in the United States. *Social Problems, 59*(2), 207-227. https://doi.org/10.1525/sp.2012.59.2.207

Sadler, M., Santos, M., Ruiz-Berdún, D., Rojas, G. L., Skoko, E., Gillen, P., & Clausen, J. A. (2016). Moving beyond disrespect and abuse: Addressing the structural dimensions of obstetric violence. *Reproductive Health Matters, 24*(47), 47-55. https://doi.org/10.1016/j.rhm.2016.04.002

Shulman, H. B., D'Angelo, D. V., Harrison, L., Smith, R. A., & Warner, L. (2018). The Pregnancy Risk Assessment Monitoring System (PRAMS): Overview. *American Journal of Public Health, 108*(10), 1305-1313. https://doi.org/10.2105/AJPH.2018.304563

Smith Barber, K.F. & Robinson, M. D. (2021). Examining the influence of racial discrimination on adverse birth outcomes: An analysis of the Virginia Pregnancy Risk Assessment Monitoring System (PRAMS), 2016-2018. *Maternal and Child Health Journal, 26*, 691-699. https://doi.org/10.1007/s10995-021-03223-2

Spinner, C. & Huber, L. R. B. (2024). How much is too much? High utilization of prenatal care and its impact on primary cesarean birth among women in the United States. *Maternal and Child Health Journal*. https://doi.org/10.1007/s10995-023-03887-y

Taylor, J. K. (2020). Structural racism and maternal health among Black women. *The Journal of Law, Medicine, & Ethics, 48*(3), 506-517. https://doi.org/10.1177/1073110520958875

Teitler, J. O., Plaza, R., Hegyi, T., Kruse, L., Reichman, N. E. (2019). Elective deliveries and neonatal outcomes in full-term pregnancies. *American Journal of Epidemiology, 188*(4), 674-683. https://doi.org/10.1093/aje/kwz014

Thompson, T. M., Young, Y., Bass, T. M., Baker, S., Njoku, O., Norwood, J., & Simpson, M. (2022). Racism runs through it: Examining the sexual and reproductive health experience of Black women in the South. *Health Affairs, 41*(2), 195-202. https://doi.org/ 10.1377/hlthaff.2021.01422

Valdes, E. G. (2021). Examining cesarean delivery rates by race: A population-based analysis using the Robson Ten-Group Classification System. *Journal of Racial and Ethnic Health Disparities, 8*(4), 844-851. https://doi.org/ 10.1007/s40615-020-00842-3

Vedam, S., Stoll, K., Taiwo, T. K., Rubashkin, N., Cheyney, M., Strauss, N., McLemore, M., Cadena, M., Nethery, E., Rushton, E., Schummers, L., Declercq, E., & the GVtM-US Steering Council. (2019). The Giving Voice to Mothers study: Inequity and mistreatment during pregnancy and childbirth in the United States. *Reproductive Health, 16*, 77. https://doi.org/10.1186/s12978-019-0729-2

Washington, S., Caughey, A. B., Cheng, Y. W., & Bryant, A. S. (2012). Racial and ethnic differences in indication for primary cesarean delivery at term: Experience at one U.S. institution. *Birth, 39*(2), 128-134. https://doi.org/10.1111/j.1523-536X.2012.00530.x

Yearby, R., Clark, B., & Figueroa, J. F. (2022). Structural racism in historical and modern US health care policy. *Health Affairs, 41*(2), 187-194. https://doi.org/10.1377/hlthaff.2021.01466

Table 3a: Maternal Characteristics of the Sample by Mode of Delivery, PRAMS 2016-2021

Characteristic	Vaginal Birth N (%)	Primary Cesarean Weighted N (%)	*P* Value
Racial Discrimination			0.0192
Yes	2,204 (6.7)	761 (7.9)	
No	19,088 (93.3)	5,941 (92.1)	
Age			<.0001
< 20 years old	1,095 (5.0)	197 (2.8)	
20-24 years old	4,488 (22.2)	1,077 (16.5)	
25-29 years old	6,219 (30.0)	1,853 (28.3)	
30-34 years old	6,469 (29.7)	2,087 (30.6)	
≥ 35 years old	3,021 (13.1)	1,488 (21.8)	
Race/Ethnicity			<.0001
non-Hispanic White	10,294 (60.5)	2,956 (55.3)	
non-Hispanic Black	4,047 (14.7)	1,520 (18.0)	
Hispanic	3,403 (14.6)	1,051 (15.4)	
non-Hispanic Other	3,548 (10.2)	1,175 (11.4)	
Education Level			<.0001
Less than High School	1,601 (7.3)	377 (4.9)	
High School	4,325 (21.9)	1,286 (20.2)	
Some College	5,460 (24.7)	1,785 (25.7)	
College Graduate or above	9,906 (46.1)	3,254 (49.2)	
Insurance Status			<.0001
None	652 (3.0)	144 (2.1)	
Private Insurance	12,748 (60.1)	4,224 (65.5)	
Medicaid	7,427 (34.0)	2,194 (29.4)	
Other	465 (2.9)	140 (3.0)	
BMI			<0.0001
Underweight (<18.5)	969 (4.6)	219 (2.9)	
Normal/Healthy (18.5 to <25)	10,606 (49.5)	2,506 (37.2)	
Overweight (25 to <30)	5,197 (24.7)	1,761 (26.3)	
Obese (>30)	4,520 (21.2)	2,216 (33.6)	
Income Level			0.0027
<$24,000	6,265 (28.1)	1,817 (25.2)	
$24,000-$57,000	4,837 (23.7)	1,583 (23.4)	
>$57,000	10,190 (48.1)	3,302 (51.4)	

Table 3a: Maternal Characteristics of the Sample by Mode of Delivery, PRAMS 2016-2021 (continued)

Characteristic	Vaginal Birth N (%)	Primary Cesarean Weighted N (%)	*P* Value
Kotelchuck Index			<0.0001
Inadequate PNC	2,226 (10.7)	642 (9.5)	
Intermediate PNC	2,273 (10.7)	607 (9.1)	
Adequate PNC	10,444 (48.9)	3,103 (46.9)	
Adequate Plus PNC	6,349 (29.6)	2,350 (34.5)	
Marital Status			0.3553
Married	13,455 (64.6)	4,240 (65.5)	
Other	7,837 (35.4)	2,462 (34.5)	
Previous Preterm Birth			0.0039
Yes	322 (1.3)	62 (0.7)	
No	20,970 (98.7)	6,640 (99.3)	

Abbreviation: BMI, Body Mass Index; PNC, prenatal care.

Table 3b: Unadjusted odds ratios and 95% confidence intervals for the association between experiencing racial discrimination and delivery method, PRAMS 2016-2021

Characteristic	Primary Cesarean OR (95% CI)
Racial Discrimination	
Yes	1.19 (1.03-1.38)*
No	1.00 (Reference)
Age	
< 20 years old	0.58 (0.45-0.76)*
20-24 years old	0.79 (0.70-0.90)*
25-29 years old	1.00 (Reference)
30-34 years old	1.09 (0.98-1.21)
≥ 35 years old	1.76 (1.57-1.99)*
Race/Ethnicity	
non-Hispanic White	1.00 (Reference)
non-Hispanic Black	1.34 (1.19-1.50)*
Hispanic	1.16 (1.02-1.31)*
non-Hispanic Other	1.22 (1.08-1.38)*
Education Level	
Less than High School	0.65 (0.53-0.79)*
High School	0.89 (0.78-1.01)
Some College	1.00 (Reference)
College Graduate or above	1.02 (0.93-1.13)
Insurance Status	
None	0.65 (0.49-0.86)*
Private Insurance	1.00 (Reference)
Medicaid	0.79 (0.73-0.87)*
Other	0.94 (0.71-1.24)
BMI	
Underweight (<18.5)	0.83 (0.66-1.05)
Normal/Healthy (18.5 to <25)	1.00 (Reference)
Overweight (25 to <30)	1.42 (1.28-1.57)*
Obese (>30)	2.10 (1.90-2.32)*
Income Level	
<$24,000	0.84 (0.76-0.93)*
$24,000-$57,000	0.92 (0.83-1.02)
>$57,000	1.00 (Reference)
Kotelchuck Index	
Inadequate PNC	0.93 (0.80-1.07)
Intermediate PNC	0.89 (0.77-1.03)
Adequate PNC	1.00 (Reference)
Adequate Plus PNC	1.22 (1.11-1.33)*

Table 3b: Unadjusted odds ratios and 95% confidence intervals for the association between experiencing racial discrimination and delivery method, PRAMS 2016-2021 (continued)

Characteristic	**Primary Cesarean OR (95% CI)**
Marital Status	
Married	1.00 (Reference)
Previous Preterm Birth	
Yes	0.56 (0.38-0.84)*
No	1.00 (Reference)

Abbreviations: OR, odds ratio; CI, confidence interval; BMI, Body Mass Index; PNC, prenatal care.

*denotes odds ratio statistically significant with $P<0.05$.

Table 3c: Unadjusted odds ratios and 95% confidence intervals for the association between race/ethnicity and experiencing racial discrimination, PRAMS 2016-2021

Characteristic	**Racial Discrimination**
Race/Ethnicity	**OR (95% CI)**
non-Hispanic White	1.00 (Reference)
non-Hispanic Black	5.83 (4.89-6.94)*
Hispanic	3.89 (3.20-4.73)*
non-Hispanic Other	4.61 (3.81-5.57)*

Abbreviation: OR, odds ratio; CI, confidence interval.
*denotes odds ratio statistically significant with $P<0.05$.

Table 3d: Adjusted odds ratios and 95% confidence intervals for the association between experiencing racial discrimination and delivery method, PRAMS 2016-2021

Racial Discrimination	**Primary Cesarean**
All participants	**aOR[a] (95% CI)**
Yes	1.09 (0.94-1.28)
No	1.00 (Reference)
NH Black participants	**aOR[b] (95% CI)**
Yes	1.03 (0.79-1.34)
No	1.00 (Reference)
Hispanic participants	**aOR[b] (95% CI)**
Yes	1.28 (0.91-1.80)
No	1.00 (Reference)
NH Other participants	**aOR[b] (95% CI)**
Yes	1.00 (0.73-1.38)
No	1.00 (Reference)

Abbreviations: OR, odds ratio; CI, confidence interval; NH, non-Hispanic

*denotes odds ratio statistically significant with $P<0.05$.

[a]adjusted for maternal age, maternal race/ethnicity, maternal education, maternal BMI, maternal marital status, maternal insurance status, and Kotelchuck Index

[b]adjusted for maternal age, maternal education, maternal BMI, maternal marital status, maternal insurance status, and Kotelchuck Index

CHAPTER FOUR. A PHEMENOLOGICAL APPROACH TO UNDERSTANDING THE PERSONAL EXPERIENCES OF CESAREAN BIRTH AMONG BLACK WOMEN

ABSTRACT

Introduction: Racial disparities in cesarean birth outcomes call for the examination of factors that may be influencing these inequities from the perspective of those most impacted. Black women are significantly more likely to undergo a cesarean birth, even in non-emergent situations. This study aimed to understand the experiences, perceptions, and needs of Black women as it relates to cesarean birth to improve maternity care and decrease racial disparities.

Methods: Interpretive phenomenology was used to conduct ten semi-structured interviews with Black women who experienced a cesarean birth in the past five years. Interviews were transcribed and analyzed using Smith's interpretive, phenomenological method.

Results: The findings revealed seven themes: mistreatment, stress, unfulfillment, patient-provider relationship, autonomy, resourcefulness, and well-being. Black women shared experiences from pregnancy through to postpartum, exposing many avenues for improvement in maternity care.

Discussion: This study further highlights the need to encourage research that centers the voices of Black women. It is evident that shared decision-making should be incorporated throughout the birthing process. Although, future research should explore the impact of provider bias, attitudes, and subjective clinical decision making. There is opportunity to inform quality improvement initiatives that are focused on safely reducing cesarean births among Black women.

INTRODUCTION

In 1965, the national U.S. cesarean rate was 4.5%; however, since then, the national cesarean rate has increased seven-fold, rising to 32.2% in 2022 (Hamilton et al., 2023; Taffel et al., 1987). Cesarean births are considered the nation's most common surgical operation, with one in three women giving birth by cesarean (Antoine & Young, 2020). Overall, cesarean births are associated with higher rates of maternal mortality and morbidity in comparison to vaginal births (Forde & DeFranco, 2020; Molina et al., 2015). According to Clark et al. (2008), there was an 8-10 times higher maternal mortality risk for cesarean birth compared to vaginal birth. In 2021, the maternal mortality rate was 32.9 deaths per 100,000 live births, compared with a rate of 20.1 in 2019 (Hoyert, 2023). Racial and ethnic disparities are ever-present in the increasing mortality rates. Black women are three to four times more likely to die during childbirth than women of other racial and ethnic groups. The maternal mortality rate for Black women was 69.9 deaths per 100,000 live births (Hoyert, 2023). Furthermore, the rate of cesarean births is significantly higher overall for Black women than for White women (36.8% vs. 31.0%, respectively) (Hamilton et al., 2023). These disparate birth outcomes signify a severe maternal health crisis.

The consistent inequities in maternal health indicate a need to further investigate the root causes, as well as devise solutions to reduce adverse birth outcomes among Black women and their infants. The efforts to explain racial disparities in cesarean birth have focused on a multitude of factors, such as maternal health behaviors, maternal co-morbidities, socioeconomic status, and access to quality care (Hanson et al., 2022; Huesch & Doctor, 2015; Wetcher et al., 2023). As discovered in the scoping review, many studies exploring racial disparities in cesarean birth are primarily quantitative and do not fully account for the variation in cesarean rates among Black women. Thus, there is an opportunity to implement research strategies that provide context

to lead to improvement of maternal health outcomes. Qualitative research helps to produce a more detailed and rich understanding of individual's, rather than the researcher's, interpretations, or perspectives (Walton et al., 2022). Previous qualitative research has been able to highlight the lived experiences of Black women in receiving and navigating maternal care (Alhalel et al., 2022; Barnett et al., 2022). Furthermore, Spurlock et al. (2024) conducted a meta-synthesis of qualitative studies focused on birth experiences of Black women in the U.S. However, these studies do not specifically engage in understanding the experiences of Black women following a cesarean, indicating a need to address this gap. More importantly, qualitative research is needed to center the voices and experiences of those most impacted, shedding a light on the strategies required to improve maternal health outcomes.

To help address this gap in the literature, the objective of this study is to understand Black women's experiences, perceptions, and needs from pregnancy to postpartum, following a cesarean birth. It is the intent to inform evidence-based research and quality improvement initiatives that are rooted in the personal experiences of Black women who have had a cesarean birth to improve maternal health outcomes.

METHODS

Study Design

A phenomenological study methodology using semi-structured, in-depth interviews was utilized to examine the experiences, perceptions, and needs of Black women in the United States who have had a cesarean birth in the past five years. Phenomenology, a philosophical approach emerging in the 20th century, that intends to describe a phenomenon from the perspective of those that have experienced it (Neubauer et al., 2019) informed the study. The primary aims were to describe the meaning of the experience—more specifically, *what* was experienced and *how* it

was experienced by the individual (Neubauer et al., 2019). For this study, an interpretive phenomenological approach was implemented to provide a more detailed examination of the lived experience of cesarean birth through Black women's personal experiences and perceptions of pregnancy, labor/delivery, and postpartum (Neubauer et al., 2019; Smith & Osborn, 2015; Tuffour, 2017).

Recruitment and Data Collection Procedures

Convenience and snowball sampling approaches were incorporated to maximize participants diversity in terms of cesarean birth experiences. Recruitment flyers and emails were sent via email listservs and through social media (e.g., Facebook). The recruitment flyer and email described study details, eligibility requirements, and the primary researcher's email address and phone number for interested participants to contact. Participants were recruited from January-February 2024. Interested participants completed a screening process to assess eligibility and complete the informed consent. The screening form and recruitment flyer were adapted from Dugat et al. (2023). To be eligible for participation in the study, participants had to: 1) identify as a Black or African American women, 2) be 18 years or older, and 3) have had a cesarean birth in the past five years. If eligible, participants responded to semi-structured interview questions regarding: 1) demographics, 2) experiences of racial discrimination, 3) pregnancy, 4) patient-provider relationship, 5) labor/delivery [cesarean birth experience], 6) support system, and 7) navigating maternity care as a Black woman. The semi-structured interview guide contained 9 questions and prompts informed by the public health critical race theory (PHCRP) and socio-ecological model (SEM). To integrate the PHCRP lens, there were questions to explore racial identity and its impact on experiences within maternity care. Additionally, questions primarily focused on the individual, interpersonal, and organizational levels of the SEM (Appendix 4c).

The final sample was comprised of 10 participants. Pseudonyms were used throughout the research process. All interviews were audio-recorded and transcribed verbatim. The study was approved by the University of North Carolina at Charlotte's Institutional Review Board (IRB). Upon completion of the study, participants received $20 Amazon e-gift cards.

Analysis

Following completion of the interviews, the researcher used MAXQDA 24 software to identify themes that aligned with the experiences, perceptions, and needs that the participants identified. The interpretive phenomenological approach encourages the following four steps: 1) reading and re-reading of the transcripts, 2) writing notes/memos, 3) developing emergent themes, and 4) clustering into final themes (Pietkiewicz & Smith, 2012). During the analysis process, each transcript was read two times and notes/memos were written for each transcript. After, codes were identified to create emergent themes then clustered into final themes. The researcher used an iterative process throughout the analysis stage. To maintain research quality, strategies to reinforce rigor were implemented at different stages of the research process. Peer debriefing established credibility and trustworthiness of the research process. The first author (C.S.) met with second author (S.W.) at different stages of the analysis process. The findings contain a level of objectivity and honesty (Spall, 1998). Additionally, a self-reflexive journal was kept to conduct reflection and examine how "one's conceptual lens" may impact the research process. The primary researcher was able to understand their role in the research process as a member of the Black community, as well as monitor "power" within the participant-researcher relationship (Few et al., 2003).

RESULTS

Based on the results of the demographic questions**,** 60% were 25-34 years old, 20% had completed college, 40% had 3 or more children, 60% had a primary cesarean birth, and 90% did not have a planned pregnancy (Table 4a). All participants (100%) identified as Black or African American women and attended prenatal care appointments during pregnancy. Among the participants, we found that 100% did not experience racial discrimination based on a measure included from the Centers for Disease Control and Prevention (CDC) Pregnancy Risk Assessment Monitoring System (PRAMS) Phase 8 questionnaire (CDC, 2023). In addition, 100% of participants did not have a doula or midwife present throughout pregnancy or during labor/delivery.

Findings

Seven themes were identified from the interview discussions (Table 4b). The themes describe the cesarean birthing process of Black women based on their experiences, perceptions, and needs. The experiences, perceptions, and needs describe the participants' lived realities during pregnancy, labor/delivery, and postpartum.

Experiences

Mistreatment. During the demographic questionnaire portion of the interview, all participants indicated that they did not experience racial discrimination based on a racial discrimination measure from the PRAMS Phase 8 survey. However, in descriptions of their experiences from pregnancy through to postpartum, they described explicit instances of discrimination or mistreatment. One participant described an experience where she was rushed to the emergency room (ER) during her labor/delivery, and she felt as though she was discriminated against by the ER nurses:

> "I would say an unfortunate experience was in the ER before getting admitted. That's where it was kind of discriminatory…they were just acting like they couldn't find the veins [to draw blood], so they kept, you know sticking me…they could get an x-ray machine and find my veins to follow, but they weren't you know trying to do that…I just had really bad scars from them sticking me." (Shawna)

Other participants described experiences of disrespect or rudeness from both nurses and doctors during the labor/delivery experience prior to their cesarean birth.

> "The nurse, or whoever she was, they had popped my water was the most, rudest person I've ever dealt with in a hospital." (Camryn)

> "And the nurses were kind of, they were rude…" (Glenda)

Additionally, forms of mistreatment would manifest as inattentiveness, being ignored, or not listened to by their care team.

> "I was making these appointments, I would tell them like, "Hey, something's not right. I feel really bad, I'm gaining weight, my skin is turning really dark." And it was just kind of brushed off. They would tell me, "Oh, well you're pregnant. This is what pregnant women go through." I'm like, "No, this is not normal." (Jaya)

Stress. Many of the participants described how stress negatively impacted their overall cesarean birth experience. Oftentimes, the stress was the result of significant changes, such as housing instability, strained finances, lack of access to insurance, and their social network (e.g., family, peers, friends, etc.).

> "I had to move. I didn't get those six to eight weeks that most people can try to get. Chill out, not move around. That following Monday…I was at the hospital Friday. That following Monday, I was on my feet, cleaning, had to do everything. I had to start going back to work and we just didn't have help like that." (Camryn)

> "Prior to me coming to that appointment, I had been dealing with some uncomfortable situations, as far as living, and who I was staying with. So, it caused me kind of a lot of stress." (Maggie)

> " 'Cause they [her job] was stressing me out so bad. And sometimes I had to have, like my therapist write me a letter saying that I have these weekly appointments, whether we had the appointment or not. I still went home." (Alice)

Unfulfillment. For most participants, they had to have an emergency cesarean birth. In those instances, many of the participants had feelings of sadness and being scared in those intense moments.

> "Terrified, that was the most terrifying thing in the world. Especially due to the fact that when I came in, they had to make up a quick little birth plan and then just for that to not happen at all, it was absolutely terrifying." (Camryn)

> "I was terrified because my mother had a cesarean with my younger sister. And the way she described it, it was like, I did not want that for my baby." (Denise)

> "Oh, I was devastated. I was completely devastated. That was the last thing that I wanted to happen." (Glenda)

As a result of having the cesarean birth, many participants felt as though they missed out on something during the birthing process.

> "I wanted to have a regular birth, I only wanted to push him out and experience that because what mother doesn't want to experience pushing out an actual child." (Denise)

> "I kind of like cheated. Like on motherhood because it happened so fast. Like it's the craziest thing ever that I feel like there is something lost and just not being able to push out or like give birth or whatever. Pretty much cheated because there was no pain or no, you know, or anything like that." (Shawna)

Perceptions

Patient-Provider Relationship. Among participants, there was a mix of positive and negative patient-provider interactions, but both had significant implications for their cesarean birth experiences. For example, a couple of participants indicated that they felt "safe", "comfortable", and "secure", during their cesarean birth and these feelings were largely due to the established patient-provider relationship.

> "Yeah, like I said, everything was perfectly fine. The doctors were positive. I never experienced any negative attitudes or anything out of none of the doctors. It was more warming and caring." (Jane)

> "Doctors made me feel comfortable, made me feel like everything was going to be fine. I felt secure. Safe. I guess that's the word." (Sanya)

> "My doctor that I had was very, very nice. I kind of miss her. But she made my appointments very easy-going, knowing me, carrying my first one. We already know that my mindset was all over the place before the first, but she was very easy. She jokes with

> me every time I see her, and she was the one, like I said, delivering the baby. So, it made it even more special for me." (Maggie)

However, for participants that had negative patient-provider relationships, it did adversely impact their cesarean birth experience.

> "I don't even think I'd seen them; I'd seen their pictures on the wall, but like didn't actually see them until labor." (Alice)

> "It was very…not very personal…" (Glenda)

> "I felt like I didn't have one [relationship]. I started off with one doctor. That they said would be my delivery doctor. I see her only one time, and never see her again. Then the second doctor I had, I'd seen her sometimes, but other times it was more so nurses delivering messages from her. And then I'd seen her in delivery." (Camryn)

Due to the lack of a personable or developed patient-provider relationship, some of the participants had harmful interactions with their providers during the cesarean birthing process.

> "And my baby, he did have, from her manipulating, trying to manipulate his head and get him to go ahead and so his crown could come out. So, once he was delivered, he did have a busted lip. He had a huge swollen black eye." (Glenda)

> "But with my second, they did my c-section and I don't know what them people was doing with my organs, 'cause they just, you know how like, when you have the c-section like, you can feel pressure and still feel them pushing and pulling and putting stuff in…and I lost a lot of blood which was weird because with my first c-section I didn't lose any blood and in my second c-section I lost so much blood I had to have [a] blood

transfusion of two to three pints and stay in the hospital way longer than I did with my first c-section so." (Alice)

"I think that was the worst experience [amniotomy] I've ever had in my life." (Camryn)

Autonomy. Some of the participants were able to express confidence, independence, and joy during their cesarean birthing process. For example, one participant was adamant about the type of birth that she wanted to have and made a point to express it to her care team.

"I did develop a birth plan, and I was able to take it with me to the hospital. And, you know, once I gave it to them, some of the things that I had was within my birth plan, like a delayed cutting of the cord, and…delayed first bath…so, they were able to take that stuff and kind of write it on the board. So, that way even the nurses were still aware of things that I wanted after I had [given] birth." (Jaya)

Furthermore, participants were able to express the need or want to have a Black doctor during their birthing process, or even for future birthing experiences. They were confident and sure of their decisions regarding their maternal health.

"Having a program that's mainly African American women, is what made me feel so much appreciated from the beginning to the end." (Maggie)

"My doctor was actually…she was black herself." (Shawna)

"I would definitely find a Black doula, midwife, or even…the attending doctor, I would prefer that it was a black person. Just because I think that they are more aware of what our issues are, and things are different from our other counterparts." (Glenda)

Needs

Resourcefulness. Many of the participants were able to experience community and support throughout pregnancy and through postpartum. Additionally, participants were able to either advocate for themselves or have others advocate on their behalf.

> **"**I have a strong support system as far as like my mom and my grandmother." (Shawna)

> "I remember going in and I kept repeating to them and telling them, like, "Please watch me. I don't do well with anesthesia. I've been known to wake up. Please watch me. Please watch me." It was kind of a chaotic thing because it was an emergency, a rush to cesarean." (Glenda)

> "I do think that me having a family member that worked in that hospital and on that floor made a major difference. And that was kind of one of the deciding factors when I decided what hospital I wanted to deliver. She worked there and I know the disparities that African American women have. It's the decision that I made to have my baby at that hospital because of that reason." (Glenda)

Well-Being. Even though most of the cesarean births were emergent, the participants were able to focus on the health and safety of their babies and themselves. It was a grounding thought for them as they were amid an intense and rushed situation.

> "I was like, okay, I knew, you know, we need to get the baby out. I don't want to go back down the preeclampsia road. Um, so I was like, okay, we need to do whatever we have to." (Jaya)

> "But in the end, it was like okay, well, y 'all tell me he's healthy, y 'all gave me the epidural like y 'all have done everything, then okay let's do it." (Alice)

> "At that point I wanted to be healthy and feel normal again, so that I was just all for making sure the baby got here safe." (Shawna)

Although participants exemplified resourcefulness and a focus on well-being, many did identify the need for more support and resources during the postpartum period.

Reflexivity Reflections

Throughout the research process, the primary researcher kept a reflexive journal and wrote reflections before, during, and after the interviews. The primary researcher was able to reflect upon their own preconceived notions and biases as it relates to cesarean birth experiences among Black women. A few of those reflections will be included below:

> Reflection 1: "Prior to the first interview, I believe that I had the preconceived notion or idea that Black women who experience cesarean birth will also have a less than favorable experience with their medical team. I would assume that Black women would experience racial discrimination during pregnancy and childbirth. I believe those preconceived ideas are shaped from personal stories that I've heard from my social network, and what I see displayed in research and the media as it relates to disparities in maternal health. Almost looking at everything through a deficit-based lens."

> Reflection 2: "Going into the next interview, I had more of an open mind. I began to understand that not all birthing experiences are unfavorable and that patient-provider relationships can positively impact pregnancy and the birth experience. That was shown as a few of the women that I had the chance to interview had great patient-provider relationship experiences. It was certainly refreshing to hear."

Reflection 3: “As I reflect on the conversations that I have been fortunate to have with ten Black women about their cesarean birth experiences, I am left feeling encouraged. I originally approached this study anticipating hearing about negative and harmful interactions. Although, those instances did occur, I believe that instances of autonomy and resiliency were brought forth in their narratives. I am immensely grateful to have had these conversations and look forward to continuing this work.”

DISCUSSION

The findings from this qualitative, phenomenological study contribute to the understanding of the experiences, perceptions, and needs of Black women from pregnancy to postpartum, following a cesarean birth. The themes of mistreatment, stress, unfulfillment, patient-provider relationship, autonomy, resourcefulness, and well-being that are described in this study, provide insight into the cesarean birth experiences of Black women. The findings emphasize the importance of the patient provider relationship. Participants that had concordance and/or the same provider from pregnancy to postpartum described more positive cesarean birthing experiences. Previous research has identified the benefits of favorable relationships with providers, leading to increased patient satisfaction and overall communication (Lori et al., 2012; Nicoloro-SantaBarbara et al., 2017). By improving the patient-provider relationship, there may be opportunity to positively impact birth outcomes among Black women.

In examining the literature, few studies have described the cesarean birth experiences of Black women. However, a study by Fries (2010), conducted a descriptive phenomenological study describing African American women’s experience with unplanned cesarean birth. The themes that emerged included preparing for childbirth, mistrust, feeling rushed, being fearful, and sacrificing (Fries, 2010). Some of the themes coincided with some of the codes that were

uncovered in this study, such as “rushed” and “scared”. However, some major differences between this study and the previously published Fries (2010) study are the following: 1) application of a measure of racial discrimination, 2) inclusion of reflexivity, and 3) the target audience.

This study provided a measure of racial discrimination to help to assess and understand the root causes of racial disparities in cesarean birth. Although, participants indicated that they did not experience racial discrimination, instances of mistreatment, discrimination, and harmful interactions were ever-present as they described their cesarean birth experiences. It is plausible that the measure of racial discrimination used was not suitable to understand the phenomenon under study. For example, the measure asks about experiences with racial discrimination 12 months before delivery, but experiences of racial discrimination may be impacting the birth process itself. Throughout the research process, reflexivity was implemented and provided an opportunity to consciously examine feelings, reactions, and motives from a subjective point of view. There was a level of self-awareness incorporated that allowed for the main themes to emerge and a thoughtfulness at each step of the research process. There was a connection on a personal level which centered the intentionality without the primary researcher’s positionality seeping into the overall findings of the qualitative study. Lastly, the target audience was not specific to just one group of health professionals. All health professionals that work with Black women during the birthing process should be encouraged to understand the cesarean birthing experiences of Black women to improve overall quality of maternity care. The study by Fries (2010), did not include a measure of racial discrimination or incorporate reflexivity. However, they included review of the transcripts by key informants (e.g., nurse researchers) and the study participants to improve credibility (Fries, 2010). Moreover, the study was specific to nurses and

provided clinical implications for labor and delivery nurses in improving care for Black women (Fries, 2010). Since only one previously published study was discovered, it is imperative to continue qualitative research that centers Black women and their experiences with cesarean births.

Some limitations of the study warrant comment. Researchers were unable to assess providers' perspectives of the patient-provider relationship, including birth plan development, decision-making, or cesarean delivery. The participant's cesarean birth experiences occurred in the past five years, so there is the potential for recall bias. However, this is unlikely to occur, as previous research has described maternal recall as relatively accurate post birth (Ramos et al., 2021). The findings highlight the birthing experiences of a racial group that is more likely to experience a cesarean birth; thus, research of this scale is essential.

Future research is needed to investigate provider attitudes, bias, and subjective clinical decision making, to further understand racial disparities in cesarean birth. Previous research has indicated that providers who met the *Healthy People 2020* goal to reduce low-risk cesarean births, were more likely to favor vaginal births (White VanGompel, et al., 2018). A study by Edwards et al. (2023), uncovered racial bias in cesarean decision-making among younger providers and those with fewer years of clinical experience. Additionally, Black women may be vulnerable to power imbalances during encounters with health care providers, which can result in the uptake of unnecessary interventions, such as cesarean birth (Durand et al., 2014). There is opportunity to incorporate a shared decision-making intervention to improve outcomes and reduce cesarean births among Black women (Shorten et al., 2019).

Conclusion

This study demonstrated that Black women who undergo a cesarean birth have specific experiences, perceptions, and needs. There is opportunity to continue conversations with Black women who have had a cesarean birth to inform quality improvement initiatives and evidence-informed research to encourage the safe reduction of cesarean births. Public health researchers should be inspired to center the voices of Black women, especially as it relates to their birthing experiences and interactions within the maternity care environment.

REFERENCES

Alhalel, J., Patterson, L., Francone, N. O., Danner, S., Osei, C., O'Brian, C. A., Tom, L. S., Masinter, L., Adetoro, E., Lazar, D., Ekong, A., & Simon, M. A. (2022). Addressing racial disparities in perinatal care for African American/Black individuals in the Chicago community health setting: A qualitative study. *BMC Pregnancy and Childbirth, 22*. https://doi.org/10.1186/s12884-022-05100-4

Antoine, C. & Young, B. K. (2020). Cesarean section one hundred years 1920-2020: The good, the bad, and the ugly. *Journal of Perinatal Medicine, 49*(1), 5-16. https://doi.org/10.1515/jpm-2020-0305

Barnett, K. S., Banks, A. R., Morton, T., Sander, C., Stapleton, M., & Chisolm, D. J. (2022). "I just want us to be heard": A qualitative study of perinatal experiences among women of color. *Women's Health, 18*. https://doi.org/10.1177/17455057221123439

Centers for Disease Control and Prevention. (2023). *PRAMS questionnaires*. https://www.cdc.gov/prams/questionnaire.htm

Clarke, S. L., Belfort, M. A., Dildy, G. A., Herbst, M. A., Meyers, J. A., Hankins, G. D. (2008). Maternal death in the 21st century: Causes, prevention, and relationship to cesarean delivery. *American Journal of Obstetrics and Gynecology, 199*(1), 36.e1-36.e5. https://doi.org/10.1016/j.ajog.2008.03.007

Dugat, V., Dake, J. A., Czaja, E., Saltzman, B., Knippen, K. L. (2023). Do stressful events and racial discrimination explain racial gaps in exclusive breastfeeding duration? A qualitative interview study with Black, Hispanic, and White mothers living in Ohio.

Journal of Racial and Ethnic Health Disparities. https://doi.org/10.1007/s40615-023-01748-6

Durand, M., Carpenter, L., Dolan, H., Bravo, P., Mann, M., Bunn, F., & Elwyn, G. (2014). Do interventions designed to support shared decision-making reduce health inequalities? A systematic review and meta-analysis. *PLoS One, 9*(4), 94670. https://doi.org/10.1371/journal.pone.0094670

Edwards, S. E., Class, A. Q., Ford, C. E., Alexander, T. A., & Fleisher, J. D. (2023). Racial bias in cesarean decision-making. *American Journal of Obstetrics & Gynecology MFM, 5*(5), 100927. https://doi.org/10.1016/j.ajogmf.2023.100927

Few, A. L., Stephens, D. P., & Rouse-Arnett, M. (2003). Sister-to-sister talk: Transcending boundaries and challenges in qualitative research with black women. Family Relations, 52(3), 205-215.

Forde, B. & DeFranco, E. A. (2020). Association of prior cesarean delivery with early term delivery and neonatal morbidity. *Obstetrics & Gynecology, 135*(6), 1367-1376. https://doi.org/10.1097/AOG.0000000000003878

Fries, K. S. (2010). African American women & unplanned cesarean birth. *MCN: The American Journal of Maternal/Child Nursing, 35*(2), 110-5. https://doi.org/10.1097/NMC.0b013e3181caebd7

Hamilton, B. E., Martin, J. A., Osterman, M. J. K. (2023). Births: Provisional data for 2022. *National Vital Statistics Report, 28*. https://doi.org/10.15620/cdc:127052

Hanson, C., Samson, K., Anderson-Berry, A. L., Slotkowski, R. A., & Su, D. (2022). Racial disparities in caesarean delivery among nulliparous women that delivered at term: cross-sectional decomposition analysis of Nebraska birth records from 2005-2014. *BMC Pregnancy and Childbirth, 22*, 329. https://doi.org/10.1186/s12884-022-04666-3

Hoyert, D. (2023). *Maternal mortality rates in the United States, 2021*. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2021/maternal-mortality-rates-2021.htm

Huesch, M. & Doctor, J. N. (2015). Factors associated with increased cesarean risk among African American women: Evidence from California, 2010. *American Journal of Public Health*, 105(5), 956-962. https://doi.org/10.2105/AJPH.2014.302381

Lori, J. K., Yi, C. H., & Martyn, K. K. (2012). Provider characteristics desired by African American women in prenatal care. *Journal of Transcultural Nursing, 22*(1), 71-76. https://doi.org/10.1177/1043659610387149

Molina, G., Weiser, T. G., Lipsitz, S. R., Esquivel, M. M., Uribe-Leitz, T., Azad, T., Shah, N., Semrau, K., Berry, W. R., Gawande, A. A., Haynes, A. B. (2015). Relationship between cesarean delivery rate and maternal and neonatal mortality. *JAMA, 314*(21), 2263-70. https://doi.org/10.1001/jama.2015.15553

Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspectives on Medical Education, 8*(2), 90-97. https://doi.org/10.1007/s40037-019-0509-2

Nicoloro-SantaBarbara, J., Rosenthal, L., Auerbach, M. V., Kocis, C., Busso, C., Lobel, M. (2017). Patient-provider communication, maternal anxiety, and self-care in pregnancy.

Social Science & Medicine, 190, 133-140. https://doi.org/10.1016/j.socscimed.2017.08.011

Pietkiewicz, I. & Smith, J. A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychology Journal, 20*, 7-14. https://doi.org/10.14691/CPPJ.20.1.7

Ramos, A. M., Marceau, K., Neiderhiser, J. M., De Araujo-Greecher, M., Natsuaki, M. N., & Leve, L. D. (2021). Maternal consistency in recalling prenatal experiences at 6 months and 8 years postnatal. *Journal of Developmental and Behavioral Pediatrics, 41*(9), 698-705. https://doi.org/10.1097/DBP.0000000000000841

Shorten, A., Shorten, B., Fagerlin, A., Illuzzi, J., Powell Kennedy, H., Pettker, C., Raju, D., & Whittemore, R. (2019). A study to assess the feasibility of implementing a web-based decision aid for birth after cesarean to increase opportunities for shared decision making in ethnically diverse settings. *Journal of Midwifery & Women's Health, 64*, 78-87. https://doi.org/10.1111/jmwh.12908

Smith, J. A. & Osborn, M. (2015). Interpretive phenomenological analysis as a useful methodology for research on the lived experience of pain. *British Journal of Pain, 9*(1), 41-42. https://doi.org/10.1177/2049463714541642

Spall, S. (1998). Peer debriefing in qualitative research: Emerging operational models. *Qualitative Inquiry, 4*(2), 280-292.

Spurlock, E. J. & Pickler, R. H. (2024). Birth experience among Black women in the United States: A qualitative meta-synthesis. *Journal of Midwifery & Women's Health, 0*(0). https://doi.org/10.1111/jmwh.13628

Taffel, S. M., Placek, P. J., & Liss, T. (1987). Trends in the United States cesarean section rate and reasons for the 1980-85 rise. *American Journal of Public Health, 77*(8), 955-959. https://doi.org/10.2105/ajph.77.8.955

Tuffour, I. (2017). A critical overview of interpretive phenomenological analysis: A contemporary qualitative research approach. *Journal of Health Care Communications*, 2(4), 1-5. https://doi.org/10.4172/2472-1654.100093

Walton, Q. L., Kennedy, P. P., Oyewuwo, O. B., & Allen, P. (2022). "This person is safe": An exemplar of conducting individual interviews in qualitative research with Black women. *International Journal of Qualitative Methods, 21*. https://doi.org/10.1177/16094069221147776

Wetcher, C. S., Kirshenbaum, R. L., Alvarez, A., Gerber, R. P., Pachtman Shetty, S. L., De Four Jones, M., Suarez, F., Combs, A., Nimaroff, M., Lewis, D., & Blitz, M. J. (2023). Association of maternal comorbidity burden with cesarean birth rate among nulliparous, term, singleton, vertex pregnancies. *JAMA Network Open, 6*(10), e2338604. https://doi.org/10.1001/jamanetworkopen.2023.38604

White VanGompel, E., Main, E. K., Tancredi, D., & Melnikow, J. (2018). Do provider birth attitudes influence cesarean delivery rate: A cross-sectional study. *BMC Pregnancy and Childbirth, 18*(184). https://doi.org/10.1186/s12884-018-1756-7

Table 4a: Characteristics of Sample and Interviews

Participant Characteristics	**N (%)**
Age	
18-24 years	2 (20%)
25-34 years	6 (60%)
35 or more years	1 (10%)
Race	
Black or African American	10 (100%)
Education	
High School	4 (40%)
Some College	3 (30%)
College Graduate or Above	2 (20%)
Parity	
1 child	3 (30%)
2 children	1 (10%)
3 or more children	4 (40%)
Prenatal Care	
Yes	10 (100%)
No	0 (0%)
Delivery Location	
Hospital	10 (100%)
Home Birth	0 (0%)
Birth Center	0 (%)
Primary Cesarean Birth	
Yes	8 (80%)
No	2 (20%)
Planned Pregnancy	
Yes	1 (10%)
No	9 (90%)
Health Insurance	
Yes	10 (100%)
No	0 (0%)
Racial Discrimination	
Yes	0 (0%)
No	10 (100 %)
Doula or Midwife	
Yes	0 (0%)
No	10 (100%)

Table 4b: Main themes and related codes.

Main Theme	Theme	Codes
Experiences	Mistreatment	Inattentive Disrespectful Discrimination Did Not Listen Ignored
	Stress	Stability Need to Work Need for Resources Lack of Education Lack of Communication Financial Stress Alone Tiresome
	Unfulfillment	Unexpected Scared Sad Losing Out on Something
Perceptions	Patient-Provider Relationship	Optimal Patient-Provider Interaction • Transparency • No Blame • Education • Care Sub-optimal Patient-Provider Interaction • Rushed • Pressure • Not Important • Negative • Harmful Interaction • Confusion • Cold
	Autonomy	Confidence Independence Joy Patient-Provider Concordance Positive
Needs	Resourcefulness	Community Advocacy Support
	Well-Being	Health Safety

APPENDIX A: SUPPLEMENTARY MATERIALS FOR CHAPTER FOUR

Appendix 4a: Recruitment flyer (adapted from Dugat et al., 2023)

Appendix 4b: Telephone Script and Screening for Eligibility (adapted from Dugat et al., 2023)

Hello, Ms. _____, my name is Chelse Spinner, and I am a Doctoral Student at the University of North Carolina at Charlotte. I am reaching out to you because you expressed interest in participating in a study about cesarean birth experiences. As a next step, would you be willing to answer a few questions to see if you are eligible to participate in this study?

Yes: Continue

No: Thank you for your time. If you have questions about why you were contacted or questions about this study—you can contact the Office of Research Protections and Integrity at (704)-687-1871 or uncc-irb@uncc.edu.

Screening Questions

First, I need to give you more information about this study. We are interested in your experience with cesarean birth. Our aim is to obtain information on Black women's experiences to improve the quality of care they receive. The information that you share has the potential to help improve maternity care experiences for Black women who have cesarean births. The interview will be approximately 30-45 minutes. I am going to audio record the interview to capture our discussion appropriately. At the end of the interview, you will receive a $20 gift card for your time. Are you still interested in participating?

Yes: Continue

No: Thank you for your time.

I just have a few questions to ask to make sure that you are eligible to participate in the study.

Q1. Are you 18 years or older?

No: Thank you for your time, but you are ineligible to participate.

Yes: Continue to next screening question.

Q2. Have had a cesarean birth within the past five years (2019-2024)?

No: Thank you for your time, but you are ineligible to participate.

Yes: Continue to next screening question.

Q3. Do you identify as a Black or African American woman?

No: Thank you for your time, but you are ineligible to participate.

Yes: Continue to next screening question.

If YES TO ALL QUESTIONS: From what you have shared, you are eligible to participate in this study. Again, the discussion will be about 30-45 minutes of your time. Your participation and everything you say during the discussion will remain confidential. You will receive a $20 e-gift card for participating. Are you ready to begin the interview?

Yes: Continue

No: Ask about what times would work best for them.

I would like to send you a copy of the informed consent form. We go through the form. Once you have received the consent form and all your questions regarding the form have been answered, all I would need from you is your verbal consent to participate. Can you provide me with your name, email address, and phone number. This information is needed to send the e-gift card.

Name:

Email:

Phone Number:

[review informed consent, receive verbal consent, and conduct the phone interview]

Appendix 4c: Interview Guide

Telephone Interview Script

Thank you for talking with me! As a reminder, my name is Chelse Spinner, and I am a Doctoral Student at the University of North Carolina at Charlotte completing my doctoral studies. I am interested in talking to you about your experiences with discrimination, decision-making, patient-provider relationships, and cesarean birth to gain a better understanding of the experiences of patients following a cesarean birth. The interview will be about 30-45 minutes in length, but please feel free to let me know if you need to take a break.

Everything you share today will be kept confidential. I will be recording this interview. You may stop the interview at any time if you feel uncomfortable or would no longer like to participate further. At the end of the interview, you will receive a $20 Amazon e-gift card. I am going to start recording now.

Demographic Questions

1) What race do you identify with?
2) What age group do you fall within?
    a. 18-24 years
    b. 25-34 years
    c. 35 or more years
3) What is your highest level of education?
4) How many children do you have?
5) When was your most recent child born?
6) Did you attend prenatal care appointments throughout your pregnancy? *Explain what prenatal care is (i.e., appointments you attend to check on the health of you and your baby during your pregnancy) *
    a. If yes, how many prenatal care appointments did you attend?
    b. If no, what barriers did you face that prevented you from attending a prenatal care appointment?
7) Was your pregnancy planned?
8) Where was your delivery? A) hospital, B) home, or C) birth center
    a. Did you have a doula or midwife present during your delivery?
    b. Who else was with you during your delivery?
9) Was this your first cesarean birth?
10) Did you have health insurance?
    a. What type of health insurance did you have during your pregnancy/delivery?

11) During the 12 months before your new baby was born, did you feel emotionally upset (e.g., angry, sad, or frustrated) because of how you were treated based on your race?
    a. Yes
    b. No
12) During the 12 months before your new baby was born, how often did you experience discrimination, or harassment, or were made to feel inferior because of your race, ethnicity, or culture?
    a. Always
    b. Often
    c. Sometimes
    d. Rarely
    e. Never

Semi-Structured Interview Questions

1) Can you describe the experiences you have had with the health system before delivery [during the prenatal period]? (i.e., preparing for motherhood, attending appointments with a provider, developing a birth plan, or any changes [mental and/or physical] that occurred before delivery).
2) Can you walk me through a typical appointment with your medical provider or midwife before delivery?
    a. What are some thoughts or feelings that you had at the end of your appointment?
3) How would you describe your relationship with your medical provider or midwife before you delivered your baby?
    a. For example, did you face any challenges in accessing (i.e., receiving) care (i.e., was it difficult to find your way through the healthcare system)?
    b. Did you feel that your provider expressed interest and/or concern in your care before your delivery (i.e., prenatal period)?
        i. In what ways did your provider let you know that they were concerned about your health before your delivery?
4) Can you tell me about your labor/delivery experience?
    a. What led up to you having a cesarean birth?
        i. Was it an emergency cesarean? If so, please provide more detail about the circumstances. *If a participant is not sure what emergency cesarean entails, provide examples*
5) How did you feel about having a cesarean birth?

   a. Do you feel that you were prepared for the cesarean delivery (i.e., knowledgeable and/or aware of what to expect)?

   b. Did anything surprise you during the delivery process?

6) How has your identity as a Black woman impacted your experience of maternity care?

   a. Are there any specific things about being a Black woman that helped you before or during the delivery of your baby?

   b. Are there any specific things about being a Black woman that made it harder for you before or during the delivery of your baby (i.e., perceived racism or racial discrimination)?

      i. For example, can you tell me about any experiences you have had with discrimination?

7) If you had to choose, what is one thing that your provider could have done to improve your overall experience (pregnancy to postpartum)?

8) How did your home environment (i.e., during pregnancy and delivery) impact your experience of care during the delivery of your baby?

   a. For example, did you have a positive or negative home environment? How did it affect you in adjusting to your pregnancy and childbirth experience?

   b. Did you feel that you had support from family and/or friends during your pregnancy and childbirth experience?

9) If you could change anything about your experience, what would it be, and why?

Closing Script

Thank you so much for your time and participation in this research study. Your labor and delivery experiences are personal and important, so I thank you for sharing them with me.

The research team will be emailing the $20 e-gift card. Will you please re-confirm the email address that I have on file? [confirm that the email address is correct]

Please accept it as an appreciation for your time today. Please let me know if you have any questions. Our contact information is located on your copy of the informed consent form, so please reach out if you would like to add anything else to today's conversation.

Appendix 4e: Informed Consent

Consent to be Part of a Research Study

Understanding the determinants and experiences of Black women after cesarean birth

Title of the Project: Understanding the determinants and experiences of Black women after cesarean birth
Principal Investigator: Chelse Spinner, MPH, CPH, University of North Carolina at Charlotte
Co-investigator: Lorenzo N. Hopper, PhD, MPH, Sharon Watson, PhD, MPH, and Janaka Lewis, PhD; University of North Carolina at Charlotte
Faculty Advisor: Michael Dulin, MD, PhD, University of North Carolina at Charlotte
Study Sponsor: Department of Public Health Sciences

You are being invited to participate in a research study. Participation in this research study is voluntary. The information provided is to help you decide to participate. If you have any questions, please ask.

Important Information You Need to Know

- The purpose of this research study is to understand Black women's experiences, perceptions, and needs during labor/delivery, following a cesarean birth. The overall goal of this research study is to obtain information on Black women's needs to improve the quality of care they receive during labor/delivery, following a cesarean birth.
- You must be 18 or older, identify as a Black or African American woman, had a cesarean birth in the past five years, and be able to complete the phone interview and brief demographic form in English to participate in this research study.
- We are asking eligible participants to complete one phone interview about their experiences, perceptions, and needs during labor/delivery after having a cesarean birth. The interview will last approximately 45-60 minutes. After the phone interview, we will provide you with a $20 e-gift card.
- The risks associated with this research are minimal. Some of the questions during the phone interview will ask you to reflect upon your personal labor/delivery experiences, which may cause slight discomfort or emotional distress. This research study is completely voluntary, and you may choose to stop participation in the research study at any time. Additionally, you may choose to skip a question if you do not feel comfortable enough to answer or stop the phone interview. You will not personally benefit from participating in this research study.
- Your privacy will be protected, and confidentiality will be maintained. Your responses will be treated as confidential. We might use the interview data for future research studies. You may choose not to take part in the research study. You may start participating and change your mind or stop participation at any time.
- After this study is complete, identifiers will be removed from the data, and the data could be used for future research studies or distributed to another investigator for future research studies without additional informed consent. The information we share with other investigators will not contain information that could directly identify you.

Consent to be audio recorded:

To assist with the accurate recording of participant responses, phone interviews will be audio recorded and then transcribed. Audio files will be deleted after transcription. Participants have the right to refuse to allow such recording without penalty, although you will not be able to participate in the research study.

We will ask for your email address and/or phone number to send you the $20 Amazon e-gift card as an incentive for completing the phone interview. Incentive payments are considered taxable income. Therefore, we are required to meet the University's Financial Services requirements for logging the names of all individuals who received a gift card. This log is for tax purposes only and is separate from the research data, which means the names will not be linked to interview responses. Email addresses will be kept separate from your interview recordings and transcriptions. While the research study is active, all data will be protected. Only the research team will have routine access to the data. Other individuals, including those who work for UNC Charlotte or other agencies, may need to see the information that we collect about you, as required by law, or allowed by federal regulations.

If you have questions concerning the research project, contact the Principal Investigator, Chelse Spinner, MPH, CPH by email at cspinne1@charlotte.edu or Michael Dulin, MD, PhD by email at mdulin3@charlotte.edu. If you have further questions or concerns about your rights as a participant in this study, contact the Office of Research Protections and Integrity at (704)-687-1871 or irb-uncc@charlotte.edu.

You may print a copy of this form. If you have read and understand the information provided and freely consent to participate in this research study, you may proceed to the phone interview. On the day of your scheduled phone interview, we will go over the purpose of the project and answer any questions that you may have before beginning the phone interview.

Permission to record: Is it okay with you if I audio record the interview? Please voice your response to the interviewer.

Yes_____ No_____

Consent to participate in phone interview—Please read carefully

By verbally saying you agree (or consent) to participate in this study, you are indicating that you are making a conscious decision (or free choice) to participate in this study. Your verbal consent indicates that you have read the information provided above, you have had all your questions answered, and you have decided to take part in this study.

[**YES**] Continue to phone interview

[**NO**] I understand that you no longer want to participate in this study. Thank you for your time. Have a great day.

Appendix 4d: IRB Approval Letter

CHARLOTTE
DIVISION OF RESEARCH

To:	Chelse Spinner Graduate School
From:	Office of Research Protections and Integrity
RE:	Notice of Exemption with Limited Review
Approval Date:	09-Nov-2023
Exemption Category:	2~4
Study #:	IRB-24-0285
Study Title:	Understanding the determinants and experiences of Black women after cesarean birth

This submission has been reviewed by the Office of Research Protections and Integrity (ORPI) and was determined to meet the Exempt category cited above under 45 CFR 46.104(d). In addition, this Exemption has received Limited Review by the IRB under 45 CFR 46.111(a)(7). This determination has no expiration or end date and is not subject to an annual continuing review. However, you are required to obtain approval for all changes to any aspect of this study before they can be implemented and to comply with the Investigator Responsibilities detailed below.

Your approved study documents are available online at Submission Page.

Investigator's Responsibilities:

1. Amendments must be submitted for review and the amendment must be approved before implementing the amendment. This includes changes to study procedures, study materials, personnel, etc.
2. Researchers must adhere to all site-specific requirements mandated by the study site (e.g., face mask, access requirements and/or restrictions, etc.).
3. Data security procedures must follow procedures as approved in the protocol and in accordance with OneIT Guidelines for Data Handling.
4. Promptly notify the IRB office (uncc-irb@charlotte.edu) of any adverse events or unanticipated risks to participants or others.
5. Five years (5) following this approval, ORPI will request a study status update.
6. Be aware that this study is now included in the Office of Research Protections and Integrity (ORPI) Post-Approval Monitoring program and may be selected for post-review monitoring at some point in the future.
7. Reply to ORPI post-review monitoring and administrative check-ins that will be conducted

periodically to update ORPI as to the status of the study

8. Complete the Closure eform via IRBIS once the study is complete

Please be aware that additional approvals may still be required from other relevant authorities or "gatekeepers" (e.g., school principals, facility directors, custodians of records).

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), where applicable.

CHAPTER FIVE. DISCUSSION

FINDINGS

This dissertation aimed to 1) understand the risk and protective factors associated with cesarean birth and 2) explore factors that influence disparities in cesarean birth rates in the United States. The dissertation research was designed to investigate racial disparities in cesarean birth. We found that several individual, community, and organizational-level risk and protective factors were associated with cesarean birth among Black women. We examined the association between experiencing racial discrimination and cesarean birth. We observed that the racial discrimination-delivery method relationship was no longer statistically significant in the adjusted model, even after stratifying by race/ethnicity. Furthermore, in having conversations with Black women about their cesarean birthing experiences, we revealed seven themes that provide suggestions for improvement of the maternity care environment.

The findings described in Chapter 2, highlight the need to revolutionize birth outcomes research. For example, many of the studies included in the scoping review were quantitative and used population-based datasets. Due to this, the included variables were limited, and researchers were unable to assess the impact of structural factors on racial disparities in cesarean birth. Also, none of the studies were informed by an anti-racist lens, which is concerning considering the noted research describing the influence of racism and discrimination on perpetuating health inequities, especially in maternal health (Chambers et al., 2022; Dayo et al., 2022).

Chapter 3 provides insight into measures of racial discrimination and their use in population-based datasets. The secondary data analysis used the Pregnancy Risk Assessment Monitoring System (PRAMS) to evaluate the potential relationship between experiencing racial discrimination and delivery method. Although, the findings differ from the original hypothesis; it

has highlighted the need to revise the current racial discrimination measure. The current measure of racial discrimination within the PRAMS Phase 8 survey asks participants about a specific timeframe (e.g., 12 months before delivery), which may unintentionally miss experiences of racial discrimination that occur during the birthing process.

In Chapter 4, the voices of Black women were centered in conversations surrounding their cesarean births. The seven themes that emerged were specific to their experiences, perceptions, and needs from pregnancy to postpartum. Based on their experiences, Black women expressed instances of mistreatment, feeling stress, and unfulfillment. Their perceptions emphasized their autonomy, as well as the impact of positive or negative patient-provider relationships on their care. Lastly, Black women expressed the need to prioritize their well-being and practice resourcefulness throughout the cesarean birth experience. The insight from Black women about their cesarean birth experiences can allow for health professionals to usher in a new level of maternity care.

LIMITATIONS

The dissertation was limited by the following: 1) unable to observe temporality, 2) unable to identify racial discrimination by setting, 3) limited generalizability, and 4) did not assess provider bias. Both Chapter 2 and Chapter 3 findings were limited by temporality. We were unable to observe when the risk or protective factor, or racial discrimination occurred; thus, unable to establish causality. The studies included in Chapter 2, as well as the study design of Chapter 3 were cross sectional in nature and only able to examine variables at a specific time point. With Chapter 3 findings, we were limited in our ability to identify the type of setting in which participants experienced racial discrimination, which has implications for understanding

racial disparities in cesarean birth. Lastly, we did not survey or interview providers about their attitudes or biases surrounding cesarean birth.

STRENGTHS

Although limitations were noted, there are several strengths of the dissertation research, which include: 1) incorporation of the Public Health Critical Race Theory-Ecological Model (PHCR-EM), 2) use of a racial discrimination measure, and 3) centering Black women's voices. The dissertation research is theoretically supported by both the Public Health Critical Race Praxis (PHCRP) and the Socio-Ecological Model (SEM), which help to frame the factors that influence racial disparities in cesarean birth. The incorporation of a combined PHCR-EM framework allows for the findings to be understood in a way that emphasizes the role of racism (e.g., structural, obstetric, etc.) in perpetuating inequities in maternal health. Furthermore, it encourages other researchers to adapt a PHCRP lens to their research, especially as it relates to addressing adverse birth outcomes in maternal health. Even though the racial discrimination measure is limited, it is necessary to observe how experiencing racial discrimination may impact an individual's experience with health care. Previous studies have tasked future research efforts to explore the influence of racial discrimination on health outcomes (Williams & Rucker, 2000). Thus, it is representative of a priority and focus for researchers that endeavor to address health inequities and improve maternal health outcomes. The qualitative component of the dissertation research provided an avenue for Black women's voices to be heard and stories to be told. Each conversation was personal and extremely important to showcase. To properly address racial disparities in cesarean birth it is critical to highlight the voices of Black women who are most often undergoing the surgical procedure.

FUTURE DIRECTIONS

The dissertation research supports the idea that there are racial and ethnic disparities in cesarean birth (Bartal et al., 2022; Braveman, 1995; Bryant et al., 2009; Canelón & Boland, 2021; Coonrod et al., 2008; Declercq et al., 2006; Edmonds et al., 2013; Ehrenburg et al., 2004; Ford et al., 2008; Hedderson et al., 2019; Huesch & Doctor, 2015; Janevic et al., 2014; Kabir et al., 2005; Linton et al., 2005; Ouyang et al., 2022; Shen et al., 2005; Shy et al., 2000; Valdes, 2021; Washington et al., 2012). Unfortunately, Black women experience higher rates of maternal mortality and morbidity, making the maternity care environment seemingly unsafe. The dissertation research has identified avenues for future research efforts to address racial disparities in cesarean birth. Firstly, in the development of strategies to reduce cesarean births among Black women, researchers must include Black women in the decision-making process surrounding their care. A study by Attanasio et al. (2018), found that Black women who delivered by cesarean had low shared decision making. According to Zisman-Illani and colleagues (2023), Black patients preferred the inclusion of shared decision-making models that understood the importance of storytelling and input of patients and their family members. Secondly, research should be conducted to assess providers' attitudes and biases as it relates to cesarean birth. A study by Edwards et al. (2023) observed racial bias in cesarean delivery clinical management, which correlates with the notion that there is subjectivity in the decision to perform a cesarean (Johnson et al., 2019). Lastly, there is limited research that endeavors to understand the root causes of racial disparities in cesarean birth. For example, many studies do not observe the association between racial discrimination and cesarean birth. A study by Mulla et al. (2022), found that lifetime everyday discrimination and ethnic discrimination were associated with increased risk for cesarean birth. Future studies should include a measure of racial discrimination, as well as be

informed by an anti-racist lens, to further understand how discrimination may influence cesareans.

Within the obstetrical care community there are various quality improvement initiatives that focus on reducing cesarean births; however, those initiatives do not always account for differences in cesarean birth experiences among racial and ethnic minorities. The dissertation research observed that Black women are at increased risk of cesarean birth, and that the risk persisted even after adjustment of sociodemographic and clinical risk factors. Furthermore, Black women described their experiences, perceptions, and needs following a cesarean birth. Oftentimes, the experience could be considered positive or negative depending on the patient-provider relationship. The findings from the dissertation research indicate the need to develop quality improvement initiatives that are tailored to the experiences, perceptions, and needs of Black women from pregnancy to postpartum. Creating quality improvement initiatives that are grounded in an anti-racist lens is critical to advancing health equity and promoting optimal maternity care for Black women.

GENERAL REFERENCES

Akinyemi, O. A., Lipscombe, C., Omokhodion, O. V., Akingbule, A. S., Fasokun, M. E., Oyeleye, O. A., Tanna, R., Akinwumi, B., Elleissy Nasef, K., & Fakorede, M. (2022). Disparities in incidence of cesarean section among women with gestational diabetes mellitus in the United States. *Cureus, 14*(9), e29400. https://doi.org/10.7759/cureus.29400

Akobirshoev, I., Mitra, M., Parish, S. L., Moore Simas, T. A., Dembo, R., & Ncube, C. N. (2019). Racial and ethnic disparities in birth outcomes and labour and delivery-related charges among women with intellectual and developmental disabilities. *Journal of Intellectual Disability Research, 63*(4), 313-326. https://doi.org/10.1111/jir.12577

Alhalel, J., Patterson, L., Francone, N. O., Danner, S., Osei, C., O'Brian, C. A., Tom, L. S., Masinter, L., Adetoro, E., Lazar, D., Ekong, A., & Simon, M. A. (2022). Addressing racial disparities in perinatal care for African American/Black individuals in the Chicago community health setting: A qualitative study. *BMC Pregnancy and Childbirth, 22*. https://doi.org/10.1186/s12884-022-05100-4

Alhusen, J. L., Bower, K., Epstein, E., & Sharps, P. (2016). Racial discrimination and adverse birth outcomes: An integrative review. *Journal of Midwifery & Women's Health, 61*(6), 707-720. https://doi.org/10.1111/jmwh.12490

Alliance for Innovation on Maternal Health. (n.d). *AIM patient safety bundles*. https://saferbirth.org/patient-safety-bundles/

Althubaiti, A. (2016). Information bias in health research: Definition, pitfalls, and adjustment methods. *Journal of Multidisciplinary Healthcare, 9*, 211-217. https://doi.org/10.2147/JMDH.S104807

American College of Obstetricians and Gynecologists, Society for Maternal-Fetal Medicine, Caughey, A. B., Cahill, A. G., Guise, J., & Rouse, D. J. (2014). Safe prevention of the primary cesarean delivery. *American Journal of Obstetrics and Gynecology, 210*(3), 179-193. https://doi.org/10.1016/j.acog.2014.01.026

American College of Obstetricians and Gynecologists. (2018). *Importance of social determinants of health and cultural awareness in the delivery of reproductive health care*. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/01/importance-of-social-determinants-of-health-and-cultural-awareness-in-the-delivery-of-reproductive-health-care

American College of Obstetricians and Gynecology. (2021). *Cesarean birth.* https://www.acog.org/womens-health/faqs/cesarean-birth

Antoine, C. & Young, B. K. (2020). Cesarean section one hundred years 1920-2020: The good, the bad, and the ugly. *Journal of Perinatal Medicine, 49*(1), 5-16. https://doi.org/10.1515/jpm-2020-0305

Arksey, H. & O'Malley, L. (2007). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32. https://doi.org/10.1080/1364557032000119616

Arksey, H. & O'Malley, L. (2007). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32. https://doi.org/10.1080/1364557032000119616

Arrington, L. A., Edie, A. H., Sewell, C. A., & Carter, B. M. (2021). Launching the reduction of peripartum racial/ethnic disparities bundle: A quality improvement project. *Journal of Midwifery & Women's Health, 66*(4), 526-533. https://doi.org/10.1111/jmwh.13235

Bailey, Z. D., Krieger, N., Agénor, M., Graves, J., Linos, N., & Bassett, M. T. (2017). Structural racism and health inequities in the USA: Evidence and interventions. *The Lancet, 389*(10077), P1453-1463. https://doi.org/10.1016/S0140-6736(17)30569-X

Barnett, K. S., Banks, A. R., Morton, T., Sander, C., Stapleton, M., & Chisolm, D. J. (2022). "I just want us to be heard": A qualitative study of perinatal experiences among women of color. *Women's Health, 18*. https://doi.org/10.1177/17455057221123439

Bartal, M. F., Chen, H. Y., Mendez-Figueroa, H., Wagner, S. M., & Chauhan, S. S. P. (2022). Racial and ethnic disparities in primary cesarean birth and adverse outcomes among low-risk nulliparous people. *Obstetrics and Gynecology, 140*(5), 842-852. https://doi.org/10.1097/AOG.0000000000004953

Betran, A. P., Torloni, M. R., Gülmezoglu, A. M., & for the WHO Working Group on Caesarean Section*. (2016). WHO statement on caesarean section rates. *BJOG, 123*, 667-670. https://doi.org/10.1111/1471-0528.13526

Black Mamas Matter Alliance. (n.d.). *About Us*. https://blackmamasmatter.org/about/

Braveman, P., Egerter, S., Edmonston, F., & Verdon, M. (1995). Racial/ethnic differences in

likelihood of cesarean delivery, California. *American Journal of Public Health, 85*(5), 625-630. https://doi.org/ 10.2105/ajph.85.5.625

Braveman, P., Egerter, S., & Williams, D. R. (2011). The social determinants of health: Coming of age. *Annual Review of Public Health, 32*, 381-398. https://doi.org/10.1146/annurev-publhealth-031210-101218

Braveman, P. & Gottlieb, L. (2014). The social determinants of health: It's time to consider the causes of the causes. *Public Health Reports, 129*(2), 19-31. https://doi.org/ 10.1177/00333549141291S206

Braveman, P. & Dominguez, T. P. (2021). Abandon "Race." Focus on racism. *Frontiers in Public Health, 9*, 1-8. https://doi.org/10.3389/fpubh.2021.689462

Braveman, P., Dominguez, T. P., Burke, W., Dolan, S. M., Stevenson, D. K., Jackson, F. M., Collins Jr., J. W., Driscoll, D. A., Haley, T., Acker, J., Shaw, G. M., McCabe, E. R. B., Hay Jr., W. W., Thornburg, K., Acevedo-Garcia, D., Cordero, J. F., Wise, P. H., Legaz, G. Rashied-Henry, K., Frost, J., Verbiest, S., & Waddell, L. (2021). Explaining the black-White disparity in preterm birth: A consensus statement from a multi-disciplinary scientific work group convened by the March of Dimes. *Frontiers in Reproductive Health, 3*, 1-24. https://doi.org/10.3389/frph.2021.684207

Brazier, E., Borrell, L. N., Huynh, M., Kelly, E. A., & Nash, D. (2023). Variation and racial/ethnic disparities in cesarean delivery at New York City hospitals: The contribution of hospital-level factors. *Annals of Epidemiology, 73*, 1-8. https://doi.org/10.1016/j.annepidem.2022.06.003

Bryant, A. S., Washington, S., Kuppermann, M., Cheng, Y. W., & Caughey, A. B. (2009). Quality and equality in obstetric care: Racial and ethnic differences in caesarean section delivery rates. *Pediatric and Perinatal Epidemiology, 23*(5), 454-62. https://doi.org/10.1111/j.1365-3016.2009.01059.x

Budtz-Jørgensen, E., Keiding, N., Grandjean, P., & Weihe, P. (2007). Confounder selection in environmental epidemiology: Assessment of health effects of prenatal mercury exposure. *Annals of Epidemiology, 17*(1), 27-35. https://doi.org/10.1016/j.annepidem.2006.05.007

Campbell, C. (2021). Medical violence, obstetric racism, and the limits of informed consent for black women. *Michigan Journal of Race and Law, 26,* 1-33. https://doi.org/10.36643/mjrl.26.sp.medical

Canelón, S. P. & Boland, M. R. (2021). Not all c-sections are the same: Investigating emergency vs. elective c-section deliveries as an adverse pregnancy outcome. *Pacific Symposium on Biocomputing, 26*, 67-78.

Carlson, N. S., Carlson, M. S., Erickson, E. N., Higgins, M., Britt, A. J., & Amore, A. D. (2023). Disparities by race/ethnicity in unplanned cesarean birth among healthy nulliparas: A secondary analysis of the nuMoM2b dataset. *BMC Pregnancy and Childbirth, 23*(1), 342. https://doi.org/ 10.1186/s12884-023-05667-6

Carmichael, S. L., Abrams, B., El Ayadi, A., Lee, H. C., Liu, C., Lyell, D. J., Lyndon, A., Main, E. K., Mujahid, M., Tian, L., & Snowden, J. M. (2021). Ways forward in preventing severe maternal morbidity and maternal health inequities: Conceptual frameworks, definitions, and data from a population health perspective. *Women's Health Issues, 32*(3), P213-218. https://doi.org/10.1016/j.whi.2021.11.006

Centers for Disease Control and Prevention. (2016). *Health, United States, 2015: With special feature on racial and ethnic health disparities*. https://www.cdc.gov/nchs/hus/contents2015.htm#010

Centers for Disease Control and Prevention. (2022). *Maternal and infant health*. https://www.cdc.gov/reproductivehealth/maternalinfanthealth/index.html

Centers for Disease Control and Prevention. (2023). *PRAMS questionnaires*. https://www.cdc.gov/prams/questionnaire.htm

Centers for Disease Control and Prevention. (2024). *Are PRAMS data available to researchers?* https://www.cdc.gov/prams/prams-data/researchers.htm

Chambers, B. D., Taylor, B., Nelson, T., Harrison, J., Bell, A., O'Leary, A., Arega, H. A., Hashemi, S., McKenzie-Sampson, S., Scott, K. A., Raine-Bennett, T., Jackson, A. V., Kuppermann, M., & McLemore, M. R. (2022). Clinicians' perspectives on racism and Black women's maternal health. *Women's Health Reports, 3*(1), 476-482. https://doi.org/10.1089/whr.2021.0148

Clarke, S. L., Belfort, M. A., Dildy, G. A., Herbst, M. A., Meyers, J. A., & Hankins, G. D. (2008). Maternal death in the 21st century: Causes, prevention, and relationship to cesarean delivery. *American Journal of Obstetrics and Gynecology, 199*(1), 36.e1-36.e5. https://doi.org/10.1016/j.ajog.2008.03.007

Cook, L. A., Sachs, J., & Weiskopf, N. G. (2021). The quality of social determinants data in the electronic health record: A systematic review. *Journal of the American Medical Informatics Association, 29*(1), 187-196. https://doi.org/10.1093/jamia/ocab199

Coonrod, D. V., Drachman, D., Hobson, P., & Manriquez, M. (2008). Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. *American Journal of Obstetrics and Gynecology, 198*(6), e1-e11. https://doi.org/10.1016/j.ajog.2008.03.026

Creanga, A. A., Bateman, B. T., Kuklina, E. V., & Callaghan, W. M. (2014). Racial and ethnic disparities in severe maternal morbidity: A multistate analysis, 2008-2010. *American Journal of Obstetrics & Gynecology, 210*(5), e1-e8. https://doi.org/10.1016/j.ajog.2013.11.039

Davis, D. (2018). Obstetric racism: The racial politics of pregnancy, labor, and birthing. *Medical Anthropology, 38*(7), 560-573. https://doi.org/ 10.1080/01459740.2018.1549389

Dayo, E., Christy, K., & Habte, R. (2022). Health in colour: Black women, racism, and maternal health. *The Lancet, 17*, 100508. https://doi.org/10.1016/j.lana.2022.100408

Debbink, M. P., Ugwu, L. G., Grobman, W. A., Reddy, U. M., Tita, A. T. N., El-Sayed, Y. Y., Wapner, R. J., Rouse, D. J., Saade, G. R., Thorp, J. M., Chauhan, S. P., Costantine, M. M., Chien, E. K., Casey, B. M., Srinivas, S. K., Swamy, G. K., Simhan, H. N., Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network. (2022). Racial and ethnic inequities in cesarean birth and maternal morbidity in a low-risk, nulliparous cohort. *Obstetrics & Gynecology, 139*(1), 73-82. https://doi.org/ 10.1097/AOG.0000000000004620

Declercq, E., Menacker, F., & MacDorman, M. (2006). Maternal risk profiles and the primary cesarean rate in the United States, 1991-2002. *American Journal of Public Health, 96*(5), 867-872. https://doi.org/ 10.2105/AJPH.2004.052381

Delgado, R. & Stefancic, J. (2017). *Critical race theory: An introduction* (3rd ed.). NYU Press.

Deneux-Tharaux, C., Carmona, E., Bouvier-Colle, M., & Bréart, G. (2006). Postpartum maternal mortality and cesarean delivery. *Journal of Obstetrics & Gynecology, 108*(3 Part 1), 541-548. https://doi.org/10.1097/01.AOG.0000233154.62729.24

Doherty, E. A., Cartmell, K., Griffin, S., Heo, M., Chen, L., Britt, J. L., & Crockett, A. H. (2023). Discrimination and adverse perinatal health outcomes: A latent class analysis. *Preventing Chronic Disease, 20*, 230094. https://doi.org/10.5888/pcd20.230094

Dugat, V., Dake, J. A., Czaja, E., Saltzman, B., Knippen, K. L. (2023). Do stressful events and racial discrimination explain racial gaps in exclusive breastfeeding duration? A qualitative interview study with Black, Hispanic, and White mothers living in Ohio. *Journal of Racial and Ethnic Health Disparities*. https://doi.org/10.1007/s40615-023-01748-6

Durand, M., Carpenter, L., Dolan, H., Bravo, P., Mann, M., Bunn, F., & Elwyn, G. (2014). Do interventions designed to support shared decision-making reduce health inequalities? A systematic review and meta-analysis. *PLoS One, 9*(4), 94670. https://doi.org/10.1371/journal.pone.0094670

Edmonds, J. K., Yehezkel, R., Liao, X., & Moore Simas, T. A. (2013). Racial and ethnic differences in primary, unscheduled cesarean deliveries among low-risk primiparous women at an academic medical center: A retrospective cohort study. *BMC Pregnancy and Childbirth, 13*, 168. https://doi.org/10.1186/1471-2393-13-168

Edwards, S. E., Class, A. Q., Ford, C. E., Alexander, T. A., & Fleisher, J. D. (2023). Racial bias in cesarean decision-making. *American Journal of Obstetrics & Gynecology MFM, 5*(5), 100927. https://doi.org/10.1016/j.ajogmf.2023.100927

Ehrenberg, H. M., Durnwald, C. P., Catalano, P., Mercer, B. M. (2004). The influence of obesity and diabetes on the risk of cesarean delivery. *American Journal of Obstetrics and Gynecology, 191*(3), 969-974. https://doi.org/10.1016/j.ajog.2004.06.057

Eliner, Y., Gulerson, M., Chervenak, F. A., Lenchner, E., Grunebaum, A., Phillips, K., Bar-El, L., & Bornstein, E. (2022). Maternal education and racial/ethnic disparities in nulliparous, term, singleton, vertex cesarean deliveries in the United States. *AJOG Global Reports, 2*(1), 100036. https://doi.org/10.1016/j.xagr.2021.100036

Few, A. L., Stephens, D. P., & Rouse-Arnett, M. (2003). Sister-to-sister talk: Transcending boundaries and challenges in qualitative research with black women. Family Relations, 52(3), 205-215.

Fletcher, F. E., Jiang, W., & Best, A. L. (2021). Antiracist praxis in public health: A call for ethical reflections. *The Hastings Center Report, 51*(2), 6-9. https://doi.org/10.1002/hast.1240

Fliss, M. D., Baumgartner, F. R., Delamater, P., Marshall, S. W., Poole, C., & Robinson, W. (2022). Public health critical race praxis at the intersection of traffic stops and injury epidemiology. *Injury Epidemiology, 9*, 9. https://doi.org/10.1186/s40621-022-00375-9

Ford, C. L. & Airhihenbuwa, C. O. (2010). Critical race theory, race equity, and public health: Toward antiracism praxis. *American Journal of Public Health, 100*(Suppl 1), S30-S35. https://doi.org/10.2105/AJPH.2009.171058

Ford, C. L. & Airhihenbuwa, C. O. (2018). Commentary: Just what is critical race theory and what's it doing in a progressive field like public health? *Ethnicity and Disease, 28*(Supp 1), 223-230. https://doi.org/10.18865/ed.28.S1.223

Ford, J., Grewal, J., Mikolajczyk, R., Meikle, S., & Zhang, J. (2008). Primary cesarean delivery among parous women in the United States, 1990-2003. *Obstetrics and Gynecology, 112*(6), 1235-1241. https://doi.org/10.1097/AOG.0b013e31818ce092

Forde, B. & DeFranco, E. A. (2020). Association of prior cesarean delivery with early term delivery and neonatal morbidity. *Obstetrics & Gynecology, 135*(6), 1367-1376. https://doi.org/10.1097/AOG.0000000000003878

Fries, K. S. (2010). African American women & unplanned cesarean birth. *MCN: The American Journal of Maternal/Child Nursing, 35*(2), 110-5. https://doi.org/ 10.1097/NMC.0b013e3181caebd7

Garcia, J. J., Gee, G. C., & Jones, M. (2016). A critical race theory analysis of public park features in Latino immigrant neighborhoods. *Du Bois Review: Social Science Research on Race,13*(2), 397-411. https://doi.org/10.1017/S1742058X16000187

Gee, G. C. & Ford, C. L. (2011). Structural racism and health inequities: Old issues, new directions. *Du Bois Review, 8*(1), 115-132. https://doi.org/10.1017/S1742058X11000130

Getahun, D., Strickland, D., Lawrence, J. M., Fassett, M. J., Koebnick, C., Jacobsen, S. J. (2009). Racial and ethnic disparities in the trends in primary cesarean delivery based on indications. *American Journal of Obstetricians and Gynecologists, 201*(4), e1-e7. https://doi.org/ 10.1016/j.ajog.2009.07.062

Gregory, K. D., Jackson, S., Korst, L., & Fridman, M. (2012). Cesarean versus vaginal delivery: Whose risks? Whose benefits? *American Journal of Perinatology, 29*(1), 7-18. https://doi.org/ 10.1055/s-0031-1285829

Gunja, M. Z., Tikkanen, R., Seervai, S., & Collins, S. R. (2018). What is the status of women's health and health care in the U.S. compared to ten other countries? *Commonwealth Fund*. https://doi.org/https://doi.org/10.26099/wy8a-7w13

Hall, W. J., Chapman, M. V., Lee, K. M., Merino, Y. M., Thomas, T. W., Payne, B. K., Eng, E., Day, S. H., & Coyne-Beasley, T. (2015). Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: A systematic review. *American Journal of Public Health, 105*(12), e60-e76. https://doi.org/10.2105/AJPH.2015.302903

Hamilton, B. E., Martin, J. A., & Osterman, M. J. K. (2021). Births: Provisional data for 2020. *National Vital Statistics Reports, 12*, 1-11. https://www.cdc.gov/nchs/data/vsrr/vsrr012-508.pdf

Hamilton, B. E., Martin, J. A., & Osterman, M. J. K. (2023). Births: Provisional data for 2022. *National Vital Statistics Report, 28*. https://doi.org/10.15620/cdc:127052

Hanson, C., Samson, K., Anderson-Berry, A. L., Slotkowski, R. A., & Su, D. (2022). Racial disparities in caesarean delivery among nulliparous women that delivered at term: cross-sectional decomposition analysis of Nebraska birth records from 2005-2014. *BMC Pregnancy and Childbirth, 22*, 329. https://doi.org/10.1186/s12884-022-04666-3

Hedderson, M. M., Xu, F., Liu, E., Sridhar, S. B., Quesenberry, C. P., & Flanagan, T. A. (2021). Mediating effects of cardiometabolic risk factors on the association between maternal

race-ethnicity and cesarean delivery among low-risk women. *Journal of Women's Health, 30*(7), 1028-1037. https://doi.org/10.1089/jwh.2019.8171

Henke, R. M., Wier, L. M., Marder, W. D., Friedman, B. S., Wong, H. S. (2014). Geographic variation in cesarean delivery in the United States by payer. *BMC Pregnancy and Childbirth, 14*, 387. https://doi.org/10.1186/s12884-014-0387-x

Hill, L., Artiga, S., & Ranji, U. (2022). *Racial disparities in maternal and infant health: Current status and efforts to address them*. https://www.kff.org/racial-equity-and-health-policy/issue-brief/racial-disparities-in-maternal-and-infant-health-current-status-and-efforts-to-address-them/

Hoxha, I., Syrogiannouli, L., Braha, M., Goodman, D. C., da Costa, B. R., & Jüni, P. (2017). Caesarean sections and private insurance: Systematic review and meta-analysis. *BMJ Open, 7*(8), e016600. https://doi.org/10.1136/bmjopen-2017-016600

Hoyert, D. (2023). *Maternal mortality rates in the United States, 2021*. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2021/maternal-mortality-rates-2021.htm

Huesch, M. & Doctor, J. N. (2015). Factors associated with increased risk among African American women: Evidence from California, 2010. *American Journal of Public Health, 105*(5), 956-962. https://doi.org/10.2105/AJPH.2014.302381

Irwin, D. E., Savitz, D. A., Bowes Jr., W. A., & St. André, K. A. (1996). Race, age, and cesarean delivery in a military population. *Obstetrics and Gynecology, 88*(4 Pt 1), 530-533. 10.1016/0029- 7844(96)00263-3

Jenabi, E., Khazaei, S., Bashirian, S., Aghababaei, S., & Matinnia, N. (2020). Reasons for elective cesarean section on maternal request: a systematic review. *Journal of Maternal-Fetal & Neonatal Medicine, 33*(22), 3867-3872. https://doi.org/10.1080/14767058.2019.1587407

Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A review of the quality indicators of rigor in qualitative research. *American Journal of Pharmaceutical Education, 84*(1), 7120. https://doi.org/ 10.5688/ajpe7120

Johnson, J., Asiodu, I. V., McKenzie, C. P., Tucker, C., Tully, K. P., Bryant, K., Verbiest, S., & Stuebe, A. M. (2019). Racial and ethnic inequities in postpartum pain evaluation and management. *Obstetrics & Gynecology, 134*(6), 1155-1162. https://doi.org/ 10.1097/AOG.0000000000003505

Jolly, M. C., Sebire, N., Harris, J., Robinson, S., & Regan, L. (2000). Obstetric risks of pregnancy in women less than 18 years old. *Obstetrics & Gynecology, 96*(6), 962-966. https://doi.org/10.1016/s0029-7844(00)01075-9

Jones, C. P. (2000). Levels of racism: A theoretic framework and gardener's tale. *American Journal of Public Health, 90*(8), 1212-1215. https://doi.org/10.2105/ajph.90.8.1212

Kabir, A. A., Pridjian, G., Steinmann, W. C., Herrera, E. A., & Khan, M. M. (2005). Racial differences in cesareans: An analysis of U.S. 2001 National Inpatient Sample data. *Obstetrics and Gynecology, 105*(4), 710-718. https://doi.org/10.1097/01.AOG.0000154154.02581.ce.

Keag, O.E., Norman, J. E., Stock, S. J. (2018). Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: Systematic review and

meta-analysis. *PLoS Medicine*, *15*(1), e1002494. https://doi.org/10.1371/journal.pmed.1002494

Kilanowski, J. (2017). Breadth of the socio-ecological model. *Journal of Agromedicine, 22*(4), 295-297. https://doi.org/10.1080/1059924X.2017.1358971

Knoll, C., Massa-Buck, B., Abdelatif, D., Madkour, A., Mohamed, M. (2021). Maternal opioid usage and cesarean delivery rates: A retrospective cross sectional analysis. *Maternal and Child Health Journal, 25*(10), 1575-1580. https://doi.org/10.1007/s10995-021-03174-8

Korb, D., Goffinet, F., Seco, A., Chevret, S., Deneux-Tharaux, C., & EPIMOMS Study Group. (2019). Risk of severe maternal morbidity associated with cesarean delivery and the role of maternal age: A population-based propensity score analysis. *Canadian Medical Association Journal*, *191*(13), E352-E260. https://doi.org/10.1503/cmaj.181067

Korstjens, I. & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice, 24*(1), 120-124 https://doi.org/10.1080/13814788.2017.1375092

Kozhimannil, K. B., Law, M. R., & Virnig, B. A. (2013). Cesarean delivery rates vary tenfold among US hospitals; Reducing variation may address quality and cost issues. *Health Affairs, 32*(3), 527-535. https://doi.org/10.1377/hlthaff.2012.1030

Kozi-Kazimierczuk, F., Summers, C., & Lotz, K. V. (2021). A phenomenological study of the breastfeeding experiences of African American women and the implications of societal racialization. *Journal of Critical Dietetics, 6*(1), 49-58.

Krieger, N. (2014). Discrimination and health inequities. *International Journal of Health Services, 44*(4), 643-710. https://doi.org/10.2190/HS.44.4.b

Lagrew, D. C., Kane, L., Brennan, R., Corry, M. P., Edmonds, J. K., Gilpin, B. G., Frost, J., Pinger, W., Reisner, D. P., & Jaffer, S. (2018). National partnership for maternal safety: Consensus bundle on safe reduction of primary cesarean births—supporting intended vaginal births. Obstetrics & Gynecology, 131(3), 503-513. https://doi.org/ 10.1097/AOG.0000000000002471

Leonard, S. A., Main, E. K., & Carmichael, S. L. (2019). The contribution of maternal characteristics and cesarean delivery to an increasing trend of severe maternal morbidity. *BMC Pregnancy and Childbirth, 19*(16), 1-9. https://doi.org/10.1186/s12884-018-2169-3

Lett, E., Asabor, E., Beltrán, S., Cannon, A. M., & Arah, O. A. (2022). Conceptualizing, contextualizing, and operationalizing race in quantitative health sciences research. *Annals of Family Medicine, 20*(2), 157-163. https://doi.org/10.1370/afm.2792

Linton, A. & Peterson, M. R. (2004). Effect of preexisting chronic disease on primary cesarean delivery rates by race for births in US military hospitals, 1992-2002. *Birth, 31*(3), 165-175. https://doi.org/10.1111/j.0730-7659.2004.00301.x

Linton, A., Peterson, M. R., & Williams, T. V. (2005). Clinical case mix adjustment of cesarean delivery rates in U.S. military hospitals, 2002. *Obstetrics and Gynecology, 105*(3), 598-606, https://doi.org/ 10.1097/01.AOG.0000149158.21586.58

Little, S. E., Orav, E. J., Robinson, J. N., Caughey, A. B., & Jha, A. K. (2016). The relationship between variations in cesarean delivery and regional health care use in the United States. *American Journal of Obstetrics and Gynecology, 214*(6), e1-e8. https://doi.org/ 10.1016/j.ajog.2015.12.023

Lori, J. K., Yi, C. H., & Martyn, K. K. (2012). Provider characteristics desired by African American women in prenatal care. *Journal of Transcultural Nursing, 22*(1), 71-76. https://doi.org/10.1177/1043659610387149

Main, E. K., Morton, C., Melsop, K., Hopkins, D., Guiliani, G., & Gould, J. B. (2012). Creating a public agenda for maternity safety and quality in cesarean delivery. *Obstetrics and Gynecology, 120*(5), 1194-1198. https://doi.org/10.1097/AOG.0b013e31826fc13d

Martin, J. A., Hamilton, B. E., & Osterman, J. K. (2023). Births in the United States, 2022. National Center for Health Statistics Data Brief, 477, 1-8.

Martin, J. A., Hamilton, B. E., Osterman, J. K., Driscoll, A. K. (2021). Births: Final data for 2019. National Vital Statistics Reports, 70(2), 1-51. https://doi.org/10.15620/cdc:100472

Masters, R. K., Tilstra, A. M., Simon, D. H., & Coleman-Minahan, K. (2023). Differences in determinants: Racialized obstetric care and increases in U.S. state labor induction rates. *Journal of Health and Social Behavior, 64*(2), https://doi.org/10.1177/00221465231165284

McLemore, M. R., Altman, M. R., Cooper, N., Williams, S., Rand, L., & Franck, L. (2018). Health care experiences of pregnant, birthing, and postnatal women of color at risk for preterm birth. *Social Science & Medicine, 201*, 127-135. https://doi.org/10.1016/j.socscimed.2018.02.013

Mocarski, M. & Savitz, D. A. (2012). Ethnic differences in the associations between gestational diabetes and pregnancy outcome. *Maternal and Child Health Journal, 16*(2), 364-373. https://doi.org/ 10.1007/s10995-011-0760-6

Molina, G., Weiser, T. G., Lipsitz, S. R., Esquivel, M. M., Uribe-Leitz, T., Azad, T., Shah, N., Semrau, K., Berry, W. R., Gawande, A. A., Haynes, A. B. (2015). Relationship between cesarean delivery rate and maternal and neonatal mortality. *JAMA, 314*(21), 2263-70. https://doi.org/10.1001/jama.2015.15553

Montoya-Williams, D., Lemas, D. J., Spiryda, L., Patel, K., Neu, J. & Carson, T. L. (2017). What are optimal cesarean section rates in the US and how do we get there? A review of evidence-based recommendations and interventions. *Journal of Women's Health, 26*(12), 1285-1291. https://doi.org/10.1089/jwh.2016.6188

Morris, T., Meredith, O., Schulman, M., & Morton, C. H. (2016). Race, insurance status, and nulliparous, term, singleton, vertex cesarean indication: A case study of a New England tertiary hospital. *Women's Health Issues, 26*(3), 329-335. https://doi.org/10.1016/j.whi.2016.02.005

Muhammad, M., De Loney, E. H., Brooks, C. L., Robinson, D., & Caldwell, C. H. (2018). "I think that's all a lie…I think it's genocide": Applying a critical race praxis to youth perceptions of Flint water contamination. *Ethnicity & Disease, 28*, 241-246. https://doi.org/10.18865/ed.28.S1.241

Mulla, Y., Shepherd, S., & Hux, V. (2022). Experiences of discrimination are associated with risk for cesarean delivery. *Obstetrics & Gynecology, 139*, 45S-46S. https://doi.org/10.1097/01.AOG.0000825904.38212.c6

Munn, Z., Peters, M. D. J., Stern, C., Tufanaru, C., McArthur, A., & Edoardo, A. (2018). Systematic review or scoping review? Guidance for authors when choosing between a

systematic or scoping review approach. *BMC Medical Research Methodology, 18*, 143. https://doi.org/10.1186/s12874-018-0611-x

Murphy, L., Liu, F., Keele, R., Spencer, B., Ellis, K. K., & Sumpter, D. (2022). An integrative review of the perinatal experiences of Black women. *Nursing for Women's Health, 26*(6), 462-472. https://doi.org/10.1016/j.nwh.2022.09.008

Nagle, A. & Samari, G. (2021). State-level structural sexism and cesarean sections in the United States. *Social Science & Medicine, 289*, 114406. https://doi.org/10.1016/j.socscimed.2021.114406

Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspectives on Medical Education, 8*(2), 90-97. https://doi.org/ 10.1007/s40037-019-0509-2

Nicoloro-SantaBarbara, J., Rosenthal, L., Auerbach, M. V., Kocis, C., Busso, C., Lobel, M. (2017). Patient-provider communication, maternal anxiety, and self-care in pregnancy. *Social Science & Medicine, 190*, 133-140. https://doi.org/10.1016/j.socscimed.2017.08.011

Njoku, A., Evans, M., Nimo-Sefah, L., Bailey, J. (2023). Listen to the whispers before they become screams: Addressing black maternal morbidity and mortality in the United States. *Healthcare, 11*(3), 438. https://doi.org/10.3390/healthcare11030438

Office of Disease Prevention and Health Promotion. (n.d.). *Reduce cesarean births among low-risk women with no prior births—MICH-06*. https://health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth/reduce-cesarean-births-among-low-risk-women-no-prior-births-mich-06

Okwandu, I. C., Anderson, M., Postlethwaite, D., Shirazi, A., & Torrente, S. (2022). Racial and ethnic disparities in cesarean delivery and indications among nulliparous, term, singleton, vertex women. *Journal of Racial and Ethnic Health Disparities*, *9*(4), 1161–1171. https://doi.org/10.1007/s40615-021-01057-w

Olapeju, B., Hong, X., Wang, G., Summers, A., Burd, I., Cheng, T. L., & Wang, X. (2021). Birth outcomes across the spectrum of maternal age: dissecting aging effect versus confounding by social and medical determinants. *BMC Pregnancy and Childbirth, 21*(1), 594. https://doi.org/10.1186/s12884-021-04077-w

Osterman, M. J. K., Hamilton, B. E., Martin, J. A., Driscoll, A. K., & Valenzuela, C. P. (2023). Births: Final data for 2021. *National Vital Statistics Reports, 72*(1), 1-53. https://www.cdc.gov/nchs/data/nvsr/nvsr72/nvsr72-01.pdf

Ouyang, L., Cox, S., Ferre, C., Xu, L., Sappenfield, W. M., & Barfield, W. (2022). Variations in low-risk cesarean delivery rates in the United States using Society for Maternal-Fetal Medicine definition. *Obstetrics and Gynecology, 139*(2), 235-243. https://doi.org/ 10.1097/AOG.0000000000004645

Peterson, E. E., Davis, N. L., Goodman, D., Cox, S., Syverson, C., Seed, K., Shapiro-Mendoza, C., Callaghan, W. M., & Barfield, W. (2019). Racial/ethnic disparities in pregnancy-related deaths—United States, 2007-2016. *Morbidity and Mortality Weekly Report, 68*, 762-765. https://doi.org/10.15585/mmwr.mm6835a3

Peterson, S., Khangura, R., Fitzgerald, M., Sousa, D., & Goyert, G. (2017). Risk of cesarean with obesity and advancing maternal age. *Obstetrics & Gynecology, 129*(5), 31S. https://doi.org/10.1097/01.AOG.0000514314.07880.1d

Pietkiewicz, I. & Smith, J. A. (2014). A practical guide to using interpretative phenomenological analysis in qualitative research psychology. *Psychology Journal, 20*, 7-14. https://doi.org/10.14691/CPPJ.20.1.7

Prater, C., Cohen, L., Chau, E., Carter, E. B., Kuebee, B., Tepe, M., & Keegan, M. (2023). Perceived discrimination during prenatal care at a community health center. *Journal of Racial and Ethnic Health Disparities, 10*(3), 1304-1309. https://doi.org/10.1007/s40615-022-01315-5

Prather, C., Fuller, T. R., Jeffries, W. L., Marshall, K. J., Howell, V. A., Belyue-Umole, A., & King, W. (2018). Racism, African American women, and their sexual and reproductive health: A review of historical and contemporary evidence and implications for health equity. *Health Equity, 2*(1), 249-259. http://doi.org/10.1089/heq.2017.0045

Ramos, A. M., Marceau, K., Neiderhiser, J. M., De Araujo-Greecher, M., Natsuaki, M. N., & Leve, L. D. (2021). Maternal consistency in recalling prenatal experiences at 6 months and 8 years postnatal. *Journal of Developmental and Behavioral Pediatrics, 41*(9), 698-705. https://doi.org/10.1097/DBP.0000000000000841

Rao, J. N. K. & Scott, A. J. (1981). The analysis of categorical data from complex sample surveys: Chi-squared tests for goodness-of-fit and independence in two-way tables. *Journal of the American Statistical Association, 76*, 221-230.

Rosenburg, T. J., Garbers, S., Lipkind, H., & Chiasson, M. A. (2005). Maternal obesity and diabetes as risk factors for adverse pregnancy outcomes: Differences among 4 racial/ethnic groups. *American Journal of Public Health, 95*(9), 1545-1551. https://doi.org/ 10.2105/AJPH.2005.065680

Roth, L. M. & Henley, M. M. (2012). Unequal motherhood: Racial-ethnic and socioeconomic disparities in cesarean sections in the United States. *Social Problems, 59*(2), 207-227. https://doi.org/10.1525/sp.2012.59.2.207

Sadler, M., Santos, M., Ruiz-Berdún, D., Rojas, G. L., Skoko, E., Gillen, P., & Clausen, J. A. (2016). Moving beyond disrespect and abuse: Addressing the structural dimensions of obstetric violence. *Reproductive Health Matters, 24*(47), 47-55. https://doi.org/10.1016/j.rhm.2016.04.002

Sakai-Bizmark, R., Ross, M. G., Estevez, D., Bedel, L. E. M., Marr, E. H., & Tsugawa, Y. (2021). Evaluation of hospital cesarean delivery-related profits and rates in the United States. *JAMA Network Open, 4*(3), e212235. https://doi.org/10.1001/jamanetworkopen.2021.2235

Salahuddin, M., Mandell, D. J., Lakey, D. L., Eppes, C. S., & Patel, D. A. (2019). Maternal risk factor index and cesarean delivery among women with nulliparous, term, singleton, vertex deliveries, Texas, 2015. *Birth, 46*(1), 182-192. https://doi.org/10.1111/birt.12392

Saluja, B. & Bryant, Z. (2021). How implicit bias contributes to racial disparities in maternal morbidity and mortality in the United States. *Journal of Women's Health, 30*(2), 270-273. https://doi.org/10.1089/jwh.2020.8874

Sandall, J., Tribe, R. M., Avery, L., Mola, G., Visser, G. H. A., Gibbons, D., Kelly, N. M., Kennedy, P., Kidanto, H., Taylor, P., & Temmerman, M. (2018). Short-term and long-term effects of caesarean section on the health of women and children. *The Lancet, 392*(10155), 1349-1357. https://doi.org/10.1016/S0140-6736(18)31930-5

Scott, K. A. & Davis, D. (2021). Obstetric racism: Naming and identifying a way out of Black women's adverse medical experiences. *American Anthropologist, 123*(3), 681-684. https://doi.org/10.1111/aman.13559

Scott, K. A., Chambers, B. D., Baer, R. J., Ryckman, K. K., McLemore, M. R., & Jelliffe-Pawlowski, L. L. (2020). Preterm birth and nativity among Black women with gestational diabetes in California, 2013-2017: A population-based retrospective cohort study. *BMC Pregnancy and Childbirth, 20*, 593. https://doi.org/10.1186/s12884-020-03290-3

Scott-Wright, A. O., Flanagan, T. M., & Wrona, R. M. (1999). Predictors of cesarean section delivery among college-educated black and White women, Davidson County, Tennessee, 1990-1994. *Journal of the National Medical Association, 91*(5), 273-277.

Shen, J. J., Tymkow, C., & MacMullen, N. (2005). Disparities in maternal outcomes among four ethnic populations. *Ethnicity & Disease, 15*(3), 492-497.

Shorten, A., Shorten, B., Fagerlin, A., Illuzzi, J., Powell Kennedy, H., Pettker, C., Raju, D., & Whittemore, R. (2019). A study to assess the feasibility of implementing a web-based decision aid for birth after cesarean to increase opportunities for shared decision making in ethnically diverse settings. *Journal of Midwifery & Women's Health, 64*, 78-87. https://doi.org/10.1111/jmwh.12908

Shulman, H. B., D'Angelo, D. V., Harrison, L., Smith, R. A., & Warner, L. (2018). The pregnancy risk assessment monitoring system (PRAMS): Overview of design and methodology. *American Journal of Public Health, 108*(10), 1305-1313. https://doi.org/10.2105/AJPH.2018.304563

Shy, K., Kimpo, C., Emanuel, I., Leisenring, W., & Williams, M. A. (2000). Maternal birth weight and cesarean delivery in four race-ethnic groups. *American Journal of Obstetrics and Gynecology, 182*(6), 1363-1370. https://doi.org/10.1067/mob.2000.106175

Smith Barber, K. F. & Robinson, M. D. (2021). Examining the influence of racial discrimination on adverse birth outcomes: An analysis of the Virginia Pregnancy Risk Assessment Monitoring System (PRAMS), 2016-2018. *Maternal and Child Health Journal, 26*, 691-699. https://doi.org/ 10.1007/s10995-021-03223-2

Smith, J. A. & Osborn, M. (2015). Interpretive phenomenological analysis as a useful methodology for research on the lived experience of pain. *British Journal of Pain, 9*(1), 41-42. https://doi.org/10.1177/2049463714541642

Spall, S. (1998). Peer debriefing in qualitative research: Emerging operational models. *Qualitative Inquiry, 4*(2), 280-292.

Spinner, C. & Huber, L. R. B. (2024). How much is too much? High utilization of prenatal care and its impact on primary cesarean birth among women in the United States. *Maternal and Child Health Journal*. https://doi.org/10.1007/s10995-023-03887-y

Spong, C. Y., Berghella, V., Wenstrom, K. D., Mercer, B. M., & Saade, G. R. (2012). Preventing the first cesarean delivery: Summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, and American College of Obstetricians and Gynecologists Workshop. *Obstetrics & Gynecology, 120*(5), 1181-1193. https://doi.org/10.1097/AOG.0b013e3182704880

Spurlock, E. J. & Pickler, R. H. (2024). Birth experience among Black women in the United States: A qualitative meta-synthesis. *Journal of Midwifery & Women's Health, 0*(0). https://doi.org/10.1111/jmwh.13628

Stephenson, J. (2022). Rate of first-time cesarean deliveries on the rise in the US. *JAMA Health Forum, 3*(7), e222824. https://doi.org/10.1001/jamahealthforum.2022.2824

Taffel, S. M., Placek, P. J., & Liss, T. (1987). Trends in the United States cesarean section rate and reasons for the 1980-85 rise. *American Journal of Public Health, 77*(8), 955-959. https://doi.org/10.2105/ajph.77.8.955

Taylor, J. K. (2020). Structural racism and maternal health among Black women. *The Journal of Law, Medicine, & Ethics, 48*(3), 506-517. https://doi.org/10.1177/1073110520958875

Taylor, J., Novoa, C., Hamm, K., & Phadke, S. (2019). *Eliminating racial disparities in maternal and infant mortality*. https://www.americanprogress.org/article/eliminating-racial-disparities-maternal-infant-mortality/

Teitler, J. O., Plaza, R., Hegyi, T., Kruse, L., & Reichman, N. E. (2019). Elective deliveries and neonatal outcomes in full-term pregnancies. *American Journal of Epidemiology, 188*(4), 674-683. https://doi.org/10.1093/aje/kwz014

The Black Maternal Health Momnibus Act of 2021, H.R. 959, 117th Cong. (2021). https://www.congress.gov/bill/117th-congress/house-bill/959

Thompson, T. M., Young, Y., Bass, T. M., Baker, S., Njoku, O., Norwood, J., & Simpson, M. (2022). Racism runs through it: Examining the sexual and reproductive health experience of Black women in the South. *Health Affairs, 41*(2), 195-202. https://doi.org/10.1377/hlthaff.2021.01422

Thygesen, L. C. & Ersbøll, A. K. (2014). When the entire population is the sample: Strengths and limitations in register-based epidemiology. *European Journal of Epidemiology, 29*, 551-558. https://doi.org/10.1007/s10654-013-9873-0

Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., Lewin, S., … Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Annals of Internal Medicine*, *169*(7), 467–473. https://doi.org/10.7326/M18-0850

Tuffour, I. (2017). A critical overview of interpretive phenomenological analysis: A contemporary qualitative research approach. *Journal of Health Care Communications*, 2(4), 1-5. https://doi.org/10.4172/2472-1654.100093

U.S. National Library of Medicine. (1998). *Cesarean section—A brief history*. https://www.nlm.nih.gov/exhibition/cesarean/part3.html

Valdes, E. G. (2021). Examining cesarean delivery rates by race: A population-based analysis using the Robson Ten-Group Classification System. *Journal of Racial and Ethnic Health Disparities, 8*(4), 844-851. https://doi.org/ 10.1007/s40615-020-00842-3

Vedam, S., Stoll, K., Taiwo, T. K., Rubashkin, N., Cheyney, M., Strauss, N., McLemore, M., Cadena, M., Nethery, E., Rushton, E., Schummers, L., Declercq, E., & the GVtM-US Steering Council. (2019). The Giving Voice to Mothers study: Inequity and mistreatment during pregnancy and childbirth in the United States. *Reproductive Health, 16*, 77. https://doi.org/10.1186/s12978-019-0729-2

Venkatesh, K. K., Lynch, C. D., Powe, C. E., Costantine, M. M., Thung, S. F., Gabbe, S. G., Grobman, W. A., & Landon, M. B. (2022). Risk of adverse pregnancy outcomes among pregnant individuals with gestational diabetes by race and ethnicity in the United States, 2014-2020. *JAMA, 327*(14), 1356-1367. https://doi.org/10.1001/jama.2022.3189

Walton, Q. L., Kennedy, P. P., Oyewuwo, O. B., & Allen, P. (2022). "This person is safe": An exemplar of conducting individual interviews in qualitative research with Black women. *International Journal of Qualitative Methods, 21*. https://doi.org/10.1177/16094069221147776

Wang, X. & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *CHEST, 158*(1), S65-S71. https://doi.org/10.1016/j.chest.2020.03.012

Washington, S., Caughey, A. B., Cheng, Y. W., & Bryant, A. S. (2012). Racial and ethnic differences in indication for primary cesarean delivery at term: Experience at one U.S. institution. *Birth, 39*(2), 128-134. https://doi.org/10.1111/j.1523-536X.2012.00530.x

Wetcher, C. S., Kirshenbaum, R. L., Alvarez, A., Gerber, R. P., Pachtman Shetty, S. L., De Four Jones, M., Suarez, F., Combs, A., Nimaroff, M., Lewis, D., & Blitz, M. J. (2023). Association of maternal comorbidity burden with cesarean birth rate among nulliparous, term, singleton, vertex pregnancies. *JAMA Network Open, 6*(10), e2338604. https://doi.org/10.1001/jamanetworkopen.2023.38604

White VanGompel, E., Main, E. K., Tancredi, D., & Melnikow, J. (2018). Do provider birth attitudes influence cesarean delivery rate: A cross-sectional study. *BMC Pregnancy and Childbirth, 18*(184). https://doi.org/10.1186/s12884-018-1756-7

Williams, D. R. & Rucker, T. D. (2000). Understanding and addressing racial disparities in health care. *Health Care Financing Review, 21*(4), 75-90.

Wilson, B. L., Effken, J., & Butler, R. J. (2010). The relationship between cesarean section and labor induction. *Journal of Nursing Scholarship, 42*(2), 130-138. https://doi.org/10.1111/j.1547-5069.2010.01346.x

Witt, W., Wisk, L., Cheng, E., Mandell, K., Chatterjee, D., Wakeel, F., Godecker, A., & Zarak, D. (2015). Determinants of cesarean delivery in the US: A lifecourse approach. *Maternal and Child Health Journal, 19*(1), 84-93. https://doi.org/10.1007/s10995-014-1498-8

World Health Organization. (2015). Caesarean sections should only be performed when medically necessary says WHO. *https://www.who.int/reproductivehealth/topics/maternal_perinatal/cs-statement/en/*

Yearby, R., Clark, B., & Figueroa, J. F. (2022). Structural racism in historical and modern US health care policy. *Health Affairs, 41*(2), 187-194. https://doi.org/10.1377/hlthaff.2021.01466

Zheng, Z., Bennett, W. L., Mueller, N. T., Appel, L. J., & Wang, X. (2019). Gestational weight gain and prepregnancy complications in a high-risk, racially and ethnically diverse population. *Journal of Women's Health, 28*(3), 375-383. https://doi.org/ 10.1089/jwh.2017.6574