Racial Discrimination, Social Support and Psychological Distress among Black Pregnant Women

Camilla Carey
University of Central Florida

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RACIAL DISCRIMINATION, SOCIAL SUPPORT, AND PSYCHOLOGICAL DISTRESS AMONG BLACK PREGNANT WOMEN

by

CAMILLA LISBETH CAREY
B.S.N. Southeastern University, 2018

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Nursing in the College of Nursing at the University of Central Florida Orlando, Florida

Spring Term
2023

Major Professor: Carmen Giurgescu
ABSTRACT

The purpose of this dissertation research was to examine the associations among racial discrimination, social support, and psychological distress among Black pregnant women. The dissertation was guided by the Ecological Systems theory which has three domains that pertain to this research: individual, interpersonal, and community. A literature review was conducted to investigate what is known about the association between racial discrimination and psychological distress among Black pregnant women. This review found that seventeen of the nineteen studies included reported a positive association between racial discrimination and psychological distress among Black pregnant or postpartum women. Limited research focused on the potential moderating effect of social support on the association between racial discrimination with psychological distress among Black pregnant women. Using a cross-sectional design, this dissertation research examined the moderating effect of social support on the association of racial discrimination with psychological distress among a sample of 599 Black pregnant women. I found that experiences of racial discrimination were related to lower levels of social support and higher levels of psychological wellbeing among these women. Social support related to lower levels of psychological wellbeing; however, social support did not moderate the association of racial discrimination with psychological distress in this sample. Finally, I found that the most frequently reported experiences of discrimination were *in a store or restaurant* and *on the street or public setting* and the least frequently reported experience was *getting medical care* among women in this study. Women who reported discrimination in all, but one situation reported lower levels of psychological wellbeing compared with women who did not report discrimination in these situations. This dissertation research adds to the knowledge related to the
associations among racial discrimination, social support, and psychological distress among Black pregnant women.
This dissertation is dedicated to Jesus, my Lord and savior; my husband, Kevin, and my daughter, Isabella Lisbeth; my mother, Lisbeth, grandfather, Raymond, and the rest of my loving family, for your endless prayers and support. I could not have finished this program without any of you.
ACKNOWLEDGMENTS

I express my sincere gratitude to my doctoral dissertation chair and adviser, Dr. Carmen Giurgescu, who has abundantly blessed me throughout the Ph.D. program and the writing of this dissertation. I would like to thank her for always reflecting a steadfast example of Christ with her compassion throughout my Ph.D. journey and for challenging me to expand my academic horizons through her generous mentorship and unhindered support. She has inspired the scientist in me with her supreme innovation in research, transcendent wisdom, and devoted heart of discovery. I am also incredibly grateful for the support of my committee members: Dr. Jean Davis, for your inspirational words of unrelenting grace, distinguished expertise, and wisdom throughout this Ph.D. program, and for your enthusiasm to mentor me and help me grow as a scholar; Dr. Rui Xie, for your patience, flexibility, and invaluable insights on statistical analysis throughout the dissertation process; and Dr. Jacqueline Lamanna, for your willingness to guide me through your exemplary mastery of the literature and admirable commitment to advancing the science.

I especially recognize Dr. Donna Neff for connecting me with my adviser and making this entire journey possible. I express my gratitude to Andrew Todd, our marvelous librarian and most invaluable asset. I would not be the scholar I am today without these exemplary academic pioneers who embody the culture and mission of the University of Central Florida of unleashing the potential within every individual; enriching the human experience through inclusion, discovery, and innovation; and propelling prosperity in the many communities we serve. Finally, I thank the Biosocial Impact on Black Births study team for paving the way for my dissertation research with groundbreaking discoveries, and for helping me to create unforgettable memories.
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CHAPTER ONE: INTRODUCTION

Compared with non-Hispanic White women, non-Hispanic Black (hereafter referred to as Black) women experience higher rates of adverse maternal (e.g., pre-eclampsia, cesarean section, mortality) and infant (e.g., preterm birth; low birthweight) health outcomes (Centers for Disease Control and Prevention [CDC] 2020, 2021; Office of Disease Prevention and Health Promotion, 2020; World Health Organization, 2020). Improved access to medical care, increased socioeconomic status, or higher levels of education are not likely to independently resolve the maternal health crisis in the United States (Collins et al., 2004; Johnson et al., 2020). Racial discrimination has been identified in the literature as a deleterious hinderance to progress in maternal and infant health outcomes among Black women (Chambers et al., 2018).

Black women are at a greater risk for experiencing racial discrimination compared with White women (Dole et al., 2004; Grobman et al., 2016). Racial discrimination is defined as being hassled or made to feel inferior due to one’s race, ethnicity, or skin color (Krieger et al., 2010). One study including 10,323 singleton live births revealed that 36.9% (95% confidence interval [CI] = 32.9%, 40.9%) of Black women reported chronic worry about racial discrimination compared with 5.5% (95% CI = 4.5%, 6.5%) of White women, with the highest rates among Black women of higher income (49.7%) and higher education levels (47.5%; Braveman et al., 2017). Experiences of racial discrimination may influence psychological wellbeing of Black pregnant and postpartum women.

Black pregnant women are also more likely to experience psychological distress during pregnancy compared with White women (Catov et al., 2010; Michopoulos et al., 2015; Seng et al., 2011). Psychological distress in pregnant women is referred to as a state of maternal distress
during pregnancy, including high levels of psychological stress, anxiety and depressed mood often exacerbated by psychosocial stressors (Isgut et al., 2017; Vehmeijer et al., 2019). Psychological distress is also well known to place Black pregnant women at a higher risk for poor maternal and birth outcomes (Giurgescu et al., 2015; Mustillo et al., 2004; Rondó et al., 2003). A meta-analysis of 28 independent samples with a total of 6,131 Black participants (51% females) found that racial discrimination was positively related to psychological distress, showing small to medium effects (4.4% of total variance shared between racial discrimination and psychological distress; Lee & Ahn, 2013). Research also reported that experiencing more racial discrimination are related to higher levels of psychological distress in Black pregnant women (Earnshaw et al., 2013; Ertel et al., 2012; Giurgescu et al., 2012; Rosenthal et al., 2015). These results suggest that racial discrimination relates to psychological distress among Blacks.

Black women also report lower levels of social support compared with White women (Grobman et al., 2016; Nkansa-Amankra et al., 2010). Social support is defined as the availability and reciprocal exchange of tangible and emotional assistance (Dailey, 2009; Sherbourne & Stewart, 1991). Experiences of racial discrimination have been related to lower levels of social support among Black pregnant women (Dailey, 2009; Dove-Medows et al., 2021; Giurgescu et al., 2017; Khan et al., 2019).

Although research has examined the associations among racial discrimination, social support and psychological distress among Black pregnant women, studies seldomly explored the moderating effect of social support on the association between racial discrimination and psychological distress among pregnant women (Giurgescu et al., 2017). One study that explored the moderating effect of social support on the association of racial discrimination with
psychological distress among Black pregnant women found null results; however, the sample size was small (N= 107; Giurgescu et al., 2017). Data are also limited on the moderating effect of social support on the association of racial discrimination with psychological distress among Black non-pregnant women. In one study among Black non-pregnant women, women who received greater levels of social support tailored for racial discrimination were protected from the negative impacts of racial discrimination on their psychological wellbeing (Seawell et al., 2014). Similarly, church-based social support moderated the association of racial discrimination with psychological distress among another sample of Black mothers (Odom & Vernon-Feagans, 2010).

Therefore, a gap in the literature exists related to the moderating effect of social support on the relationship between racial discrimination and psychological distress among Black pregnant women. Thus, the purpose of this study was to fill this gap. The aims of the study were to:

Specific Aim 1: Examine the associations among experiences of racial discrimination, social support, and psychological wellbeing.

H.1.1 Women who report more experiences of racial discrimination will have lower levels of social support and lower levels of psychological wellbeing.

H.1.2 Women who report lower levels of social support will have lower levels of psychological wellbeing.

Specific Aim 2: Examine the moderating effect of social support on the association of racial discrimination with psychological distress.
H.2.1. Social support will moderate the association of racial discrimination with psychological distress.

This dissertation research includes three manuscripts focused on the associations among racial discrimination, social support, and psychological distress among Black pregnant women. The first manuscript (Chapter 2) is an integrative literature review of studies that examined the relationship between racial discrimination and psychological wellbeing among Black pregnant women. Studies do not adequately explore the moderating effect of social support on the relationship between racial discrimination and psychological distress among Black pregnant women. Thus, the second manuscript (Chapter 3) is a secondary analysis of cross-sectional survey data that examines the associations among racial discrimination, social support, and psychological distress among a sample of 599 Black pregnant women. Research is limited on the context/situations in which Black pregnant women experience racial discrimination and how their psychological wellbeing may differ depending on where these women encounter racism. Thus, the third manuscript (Chapter 4) is a secondary analysis of the situational domains in which Black pregnant women experience racial discrimination. It also investigates differences in the psychological wellbeing of women who experience racial discrimination in certain situations and women who do not experience discrimination in these situations among a sample of 599 Black pregnant women.
Theoretical Framework

The dissertation research was based on the social-ecological theory which includes three main domains that are pertinent to this study: individual, interpersonal, and community domains (Bronfenbrenner, 1986; see Figure 1). The social ecological theory offers a perspective on how individual risk factors (e.g., psychological distress) are influenced by interpersonal (e.g., social support) and community (e.g., racial discrimination) factors (Bronfenbrenner, 1986). The theory is based on dynamic interactions between individual’s and their social and environmental communities. It was used as a framework to guide this study related to experiences of racial discrimination, social support, and psychological distress among Black pregnant women. Studies suggest that the social-ecological theory is well suited to the concept of psychological distress prevention because it uses psychosocial measures (Bronfenbrenner, 2005). Furthermore, the social-ecological model is appropriate for assessing the environmental impacts of racial disparities that result in chronic psychological distress that produces negative long-term health effects (Bronfenbrenner, 2005).

Figure 1. Social-Ecological Model
References


https://doi.org/10.1016/j.annepidem.2012.10.001


https://doi.org/10.1097/NMC.0000000000000297


Isgut, M., Smith, A. K., Reimann, E. S., Kucuk, O., & Ryan, J. (2017). The impact of psychological distress during pregnancy on the developing fetus: Biological mechanisms


CHAPTER 2: RACIAL DISCRIMINATION AND PSYCHOLOGICAL WELLBEING AMONG BLACK PREGNANT AND POSTPARTUM WOMEN: AN INTEGRATED REVIEW

Abstract

Black women in the United States are at a higher risk than people of any other race or ethnicity in developed nations to experience racial discrimination and psychological distress during the perinatal period. It is well documented that these factors place Black women at greater risk for developing complications that may influence their mental and physical health during the perinatal period. This chapter presents what is known about the relationship between racial discrimination and psychological distress among Black pregnant or postpartum women. An integrative literature review of studies published in English between 2008 and 2022 was conducted using the method set forth by Whittemore and Knafl. Studies were included if Black pregnant or postpartum women were included in the sample, and if a quantitative design was used to examine the association between racial discrimination and psychological distress. Nineteen articles met the inclusion criteria. The percentage of Black participants in the studies ranged from 8% to 100%. Seventeen studies reported a significant positive association between racial discrimination and psychological distress among Black pregnant or postpartum women. Understanding the relationship between racial discrimination and psychological distress may elucidate underlying risk factors for poor maternal health outcomes in this population. Nurses should advocate for policy changes that promote screening Black women for racial discrimination and psychological distress throughout the perinatal period and beyond.
Background

Non-Hispanic Black pregnant and postpartum women are more likely to experience racial discrimination compared with non-Hispanic White women (Chambers et al., 2020; Dole et al., 2004). Racial discrimination is defined as being hassled or made to feel inferior due to one’s race, ethnicity, or color (Krieger et al., 2010). Racial discrimination has been related to adverse maternal (e.g., pre-eclampsia, cesarean section, mortality) and infant (e.g., preterm birth, defined as less than 37 completed weeks’ gestation; low birthweight or less than 2,500 grams) health outcomes among Blacks (Alhusen et al., 2016; Braveman et al., 2017; CDC, 2021; Mulla et al., 2022; Mustillo, 2002; Ukoha et al., 2022). Black women have higher rates of adverse maternal and infant health outcomes compared with White women (CDC, 2023). Further, the United States has the highest maternal mortality rates among the developed nations, with the greatest risk for mortality occurring among Black women (Taylor et al., 2019). These health disparities persist among Black women of higher income who have access to maternal care (Sakala et al., 2018).

Black pregnant women are also more likely to report higher levels of psychological distress than White pregnant women (Michopoulos et al., 2015; Seng et al., 2011). Psychological distress (e.g., anxiety symptoms, depressive symptoms) has been related to adverse maternal and infant health outcomes (Hendrix et al., 2022; Isgut et al., 2017; Vehmeijer et al., 2019). Despite the Black maternal health crisis in the United States, research is limited on the association of racial discrimination with psychological distress which are individual factors that place Black women at risk for complications during the perinatal period (March of Dimes, 2021; Mendez et al., 2013; Molina & Kiely, 2011; Rondó et al., 2003). Thus, the purpose of this integrative
literature review was to examine what is known about the relationship between racial discrimination and psychological distress among Black pregnant and postpartum women and identify knowledge gaps.

Methods

The method set forth by Whittemore and Knafl (2005) was used to conduct the review. An integrative review of the literature was conducted in January 2023 to determine what is known about the relationship between racial discrimination and psychological distress among Black pregnant women. The search employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021). A nurse (RN) librarian (A.T.) and I conducted a search for articles that reported research studies that examined the association between racial discrimination and psychological distress among Black pregnant and postpartum women. The following terms and their derivations were used: psychological distress, emotional distress, anxiety, depression, stress, psychological wellbeing, pregnancy, prenatal, African American, Black, racism, perceived racism, and racial discrimination. The search was conducted in four databases: PsycINFO, Medline, Academic Search Premiere, and CINAHL (Table 1). Articles were included in this review if they (1) included Black pregnant and postpartum women in their sample, (2) were available in full text, (3) employed a quantitative study design, (4) were conducted in the United States, and (5) were published in English.

Table 1. Subject Terms and Queries, Organized by Database

<table>
<thead>
<tr>
<th>Database</th>
<th>Subject Terms</th>
<th>Query</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINAHL</td>
<td>Blacks (African Americans Use: Black Persons; Blacks Use: Black Persons)</td>
<td>((MH “Black Persons”) OR “African American” OR black* OR rac* “United States” OR minorit* “United States” OR color* OR colour*) AND</td>
</tr>
<tr>
<td>Database</td>
<td>Subject Terms</td>
<td>Query</td>
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<td>------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Pregnant</td>
<td>(Pregnant Use: Expectant Mothers; Pregnant Women Use: Expectant Mothers)</td>
<td>((MH “Expectant Mothers”) OR preg* OR prenatal OR antenatal OR postnatal OR perinatal OR postpart* OR antepart*) AND</td>
</tr>
<tr>
<td></td>
<td>Racial Discrimination (Racial Discrimination Use: Racism; Discrimination, Racial Use: Racism)</td>
<td>((MH “Racism”) OR (MH “Discrimination”) OR racis* OR discriminat*) AND</td>
</tr>
<tr>
<td></td>
<td>Psychological Distress (Emotional Distress Use: Psychological Distress)</td>
<td>((MH “Psychological Distress”) or distress* or psycho* or wellbeing or (MH “Anxiety”) OR (MH “Depression”) or anxi* or depress*)</td>
</tr>
<tr>
<td>MEDLINE</td>
<td>Blacks (African American Use: African Americans)</td>
<td>((MH “African Americans”) OR (MH “Blacks”) OR “african american” OR black*) AND</td>
</tr>
<tr>
<td></td>
<td>Pregnant (Pregnant Woman Use: Pregnant Women)</td>
<td>((MH “Pregnant Women”) OR preg* OR prenatal OR antenatal OR postnatal OR perinatal OR postpart* OR antepart*) AND</td>
</tr>
<tr>
<td></td>
<td>Psychological Distress (Use: Psychological Distress)</td>
<td>((DE “Distress”) or psycho* or psycho* stress or psycho* distress or psycho* wellbeing or psychological distress OR</td>
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</table>
The initial search resulted in 1,120 unduplicated records. Citation searches revealed no additional articles. All records were imported into the EndNote X9 citation management software for initial removal of duplicates. This review process included examination of titles, abstracts, and full-text articles. Records were narrowed by title, then by abstract using the following exclusion criteria: studies without abstracts and those that did not include the major study variables (e.g., racial discrimination and psychological distress) or that examined one of the major study variables but not both; publications that were not published in a journal article or research study format (e.g., dissertation; thesis; literature review; integrative review; systematic review; case reports; meta-analysis; concept, thematic or evolutionary analysis; editorial; policy; theoretical or conceptual framework development., etc.); studies that did not include Black pregnant or postpartum women in their samples, or that did not examine the perinatal or antenatal period, or within a year of the postpartum period; and studies that employed a qualitative methodology.

Title and abstract reviews and the first full-text review were conducted by me. The use of this process yielded 38 full-text records that were screened and assessed for eligibility. Twenty-four articles were included in the level three final full-text review. The final full-text review included independent review of the texts by the Dissertation Chair, one of the committee members (J.L.), and me. A final discussion to reach consensus on differing opinions regarding retention or rejection of studies was conducted with the Dissertation Chair and one of the
committee members (J.L.). Full-text articles were ultimately excluded if they did not examine the association of racial discrimination with psychological distress in a population that included Black pregnant or postpartum women. The year of publication for the studies was not limited. Data were extracted based on the association between racial discrimination and psychological distress. Figure 2 depicts the PRISMA flow diagram of the studies included in the review. Nineteen studies were retained and met the criteria for inclusion in the review (Figure 2; see Table 2 for further details).
Figure 2. Flow Diagram of Literature Search According to the PRISMA Statement
Results

Nineteen studies published between 2008 and 2022 were included in this review (see Table 2). Some of the studies measured psychological distress while others measured anxiety or depressive symptoms or used the terms interchangeably. None of the studies measured emotional distress. Seventeen of the nineteen studies defined psychological distress as depressive symptoms, anxiety, and/or prenatal distress (Bennett et al., 2010; Bossick et al., 2022; Canady et al., 2008; Cohen et al., 2022; Dailey & Humphreys, 2011; Dominguez et al., 2008; Earnshaw et al., 2013; Eick et al., 2020; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2020; Noroña-Zhou et al., 2022; Reid et al., 2016; Rosenthal et al., 2015; Segre et al., 2021; Shour et al., 2021; Weeks et al., 2022). Only two of the studies defined psychological distress explicitly (Giurgescu et al., 2012; 2017).
Table 2. Data Summary Table

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Study Aim</th>
<th>Design</th>
<th>Sample Characteristics</th>
<th>Instruments</th>
<th>Results</th>
<th>Conclusion</th>
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<tbody>
<tr>
<td>Bennett et al., 2010</td>
<td></td>
<td>To determine whether perceived discrimination was associated with important targets of maternal health care among low-income pregnant women</td>
<td>Cross-sectional</td>
<td>N = 4,454 pregnant women</td>
<td>Everyday Discrimination Scale (EDS; 9 items; Cronbach’s α not specified) with a modified assessment of major experiences of discrimination (EOD)</td>
<td>Of the 4,454 pregnant women, 1,111 (25%) reported either moderate or high everyday discrimination, whereas 789 (18%) reported either one or two major discrimination events. A relatively large percentage of women had depressive symptoms (n = 959, 22%) of which 678 were Black pregnant women.</td>
<td>Moderate and high levels of discriminatory experiences are related to depressive symptoms among pregnant women. Study did not report results by race. Perceived generalized discrimination (e.g., race, income level, SES, religion, sexual orientation, gender) was studied not racial discrimination. This study did not examine association between racial discrimination and postpartum depression among only Black pregnant women.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Design</td>
<td>Sample Characteristics</td>
<td>Instruments</td>
<td>Results</td>
<td>Conclusion</td>
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<tr>
<td>Bossick et al., 2022</td>
<td>Cross-sectional</td>
<td>N = 632,387 postpartum women</td>
<td>EUR (1 item; Cronbach’s $\alpha$ not specified)</td>
<td>44% of Black postpartum women reported experiences of emotional upset due to racism during the 12 months before delivery compared to 6.4% of multiracial and 18% of Hispanic White individuals.</td>
<td>A large proportion of Black postpartum women experienced emotional upset due to racism.</td>
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<td>n1 = 260,528 (41.2%) Black postpartum women</td>
<td>Patient Health Questionnaire-2 (PHQ-2; 2 items; Cronbach’s $\alpha$ not specified)</td>
<td>In weighted unadjusted models, all PPOC that experienced EUR had a higher prevalence of PPD symptomology compared with the difference of 13.1 percentage points (95% CI = 9.6, 16.7); Non-Hispanic PPOC (16% points; 95% CI = 11.9, 21.5) and Hispanic PPOC (6.3% points; 95% CI = 2.0, 10.6) that experienced EUR had a higher prevalence of PPD symptomology compared with those that did not experience EUR.</td>
<td>Experiences of EUR are associated with an increased prevalence of PPD symptoms especially for non-Hispanic PPOC. EUR and PHQ-2 were not reported by race and may not adequately give insight to race-specific disparities.</td>
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<td></td>
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<td>Age: ≤29 years 55.3% 30 – 39 years 40.8% ≥ 40 years 3.9% (Age not specified by race)</td>
<td></td>
<td>After adjustment for age, education, timely prenatal care, stressors, payment method, and</td>
<td>This study did not examine association between racial discrimination and postpartum depression among only Black pregnant women.</td>
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<tr>
<td></td>
<td></td>
<td>Education: &lt;12 years 19.8% 12 years 28.1% &gt;12 years 52.1%</td>
<td></td>
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<td>Annual Income: Not specified.</td>
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<td></td>
<td></td>
<td>GA: N/A</td>
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<tr>
<td></td>
<td></td>
<td>Location: Pregnancy Risk Assessment Monitoring System (PRAMS, 2015–)</td>
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</table>
2017) for 11 states and New York City

Pre-pregnancy depression the prevalence of PPD symptomology among all PPOC was 10.3% points (95% CI = 6.8, 13.8; \( p < 0.001 \)) and 13.6% points (95% CI = 8.8, 18.5; \( p < 0.0001 \)) among non-Hispanic PPOC.

In the unadjusted model, EUR was associated with a significantly higher prevalence of depression diagnosis for overall sample with a difference of 10.4% points (95% CI = 4.9, 15.9; \( p < 0.001 \)) and for non-Hispanic PPOC with a difference of 12.7% points (95% CI = 5.8, 19.6; \( p < 0.001 \)).

In the adjusted model (age, education, timely prenatal care, stressors, payment method, and pre-pregnancy depression), EUR was associated with higher prevalence of depression diagnosis for PPOC (4.6% points; 95% CI = 1.0, 8.4; \( p < 0.05 \)) and non-Hispanic PPOC (6.0% points; 95% CI = 0.8, 11.2; \( p < 0.05 \)).

EUR was not associated with asking for help for depression.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Study Aim</th>
<th>Design</th>
<th>Sample Characteristics</th>
<th>Instruments</th>
<th>Results</th>
<th>Conclusion</th>
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</thead>
<tbody>
<tr>
<td>Canady et al., 2008</td>
<td></td>
<td>To examine the associations between depression and depressive symptoms in poor women and African American women and their lifelong EOD</td>
<td>Cross-sectional</td>
<td>N = 2,731 pregnant women</td>
<td>Discrimination scale from the Coronary Artery Risk Development in Young Adults (CARDIA) Study including subscales for racial, socioeconomic, and gender discrimination (21 items; Cronbach’s α = .83)</td>
<td>Black women were more likely to report having experienced race discrimination in more than one setting (51%) compared to White women (14%). Black women were also more likely to have a CES-D score of greater than 16 (49%) compared to white women (28%).</td>
<td>Black pregnant women had greater levels of depressive symptoms than White women.</td>
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<td>N1 = 732 (27%) Black pregnant women</td>
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<td>Self-reported total discrimination and discrimination types were each positively associated with depressive symptomatology in all women.</td>
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<td>Age: 26.5 years SD: not specified</td>
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<td>Education: &lt;12 years 18% 12 years 28% &gt;12 year 54%</td>
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<td>Annual Income: Not specified</td>
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<td>GA: 15–27 weeks M: not specified SD: not specified</td>
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<td>Location: Michigan</td>
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<td>Cohen et al., 2022</td>
<td></td>
<td>Examine associations between discrimination and self-reported total discrimination and discrimination types among Black pregnant women</td>
<td>Prospective Cohort</td>
<td>N = 567 Black pregnant women</td>
<td>EOD scale (9 items; Cronbach’s α = .83)</td>
<td>40% of women reported never being exposed to racial/ethnic discrimination.</td>
<td>Experiences of racial/ethnic discrimination related to depressive symptoms among Black pregnant women. Black pregnant women may</td>
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<td>Dailey &amp; Humphreys</td>
<td>2011</td>
<td>To describe depressive symptomatology and examine the relationship between social stressors and depressive symptoms in pregnant African American women</td>
<td>Cross-sectional</td>
<td>N = 119 Black pregnant women</td>
<td>EDS (9 items; Cronbach’s α = .87)</td>
<td>~87% (n = 103) of the women encountered discrimination.</td>
<td>Black pregnant women who experience discrimination are more prone to exhibiting elevated levels of depressive symptoms</td>
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<td>Age: 25 ± 5.3 years</td>
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<td>Education: &lt; 12 years 24%</td>
<td>CES-D (20 items; Cronbach’s α = .85)</td>
<td>42% of the women had CES-D scores at or above 16 indicating possible risk for depression (n = 550) and 23% (n = 527) of the women had CES-D scores at or above 23 suggesting probable depression</td>
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<td>sleep health during early and mid-pregnancy among Black women within a framework that acknowledges the importance of intersectional identities in shaping health outcomes</td>
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<td>Age: 25.36 ± 5.08 years</td>
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<td>Education: &lt;12 years 15.9% 12 years 40.2% 12 year 44.0%</td>
<td>Jackson, Hogue, Phillips Contextualized Stress (JHP; Cronbach’s α = .84) Edinburgh Postnatal Depression Scale (EPDS; Cronbach’s α = .83, early pregnancy, and .86, mid-pregnancy)</td>
<td>EPDS 7.18 ± 5.48 prenatal visit 1 and 7.03 ± 5.53 prenatal visit 2.</td>
<td>Racial/ethnic discrimination related to depressive symptoms in both early (r = .26, p &lt; .01) and mid-pregnancy (r = .16, p &lt; .01).</td>
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<td>Education: &lt;100% Federal Poverty Level (FPL) 44.2% 100 – 199% FPL 38.5% &gt;200% FPL 17.3%</td>
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<td>Annual Income: T1 11.16 ± 2.25</td>
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<td>T2 26.59 ± 2.73</td>
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<td>Dominguez et al.,</td>
<td>2008</td>
<td>Examine the roles of stress—general, pregnancy, and racism—on birth weight and gestation age in Black women</td>
<td>Prospective, repeated measures design</td>
<td>N = 124 pregnant women</td>
<td>Items from racial and gender discrimination scale (4 items; Cronbach’s α = not specified)</td>
<td>Black pregnant women were more likely to experience racial discrimination compared with pregnant non-Hispanic white women (2.88 vs 1.31, respectively, p &lt; .001).</td>
<td>Racial discrimination is related to anxiety among pregnant women.</td>
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<td>n1= 51 (41%) Black pregnant women</td>
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<td>Spielberger State- Trait Anxiety Inventory (10 items; STA1; Cronbach’s α = .88 -.91 at 3 timepoints for overall sample)</td>
<td>Perceived racism significantly correlated with state anxiety (r = .35, p &lt; .001) and pregnancy anxiety to (r = .25, p &lt; .001).</td>
<td>Smaller sample size may limit generalizability of results.</td>
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<td>Age:</td>
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<td>Pregnancy Anxiety (number of items not available) (Cronbach’s α = .75 -.81 at 3 timepoints for overall sample)</td>
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<td>This study did not examine association between racial discrimination and anxiety among only Black pregnant women.</td>
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<td>Black 28.65 ± 5.14 years</td>
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<td>White 31.43 ± 4.07 years</td>
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<td>≤ 12 years 28%</td>
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<td>≤ 12 years 4%</td>
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<td>&gt;12 years 96%</td>
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<tr>
<td>Earnshaw et al., 2013</td>
<td>To examine the association between maternal everyday discrimination and infant birth weight among young, urban women of color as well as mediators (depressive symptoms, pregnancy distress, and pregnancy symptoms) and moderators (age, race/ethnicity, attributions of discrimination) of this association</td>
<td>Longitudinal</td>
<td>N = 420 pregnant and postpartum women</td>
<td>EDS (10 items; Cronbach’s $\alpha$: English = .84 and Spanish = .85) administered at each time point</td>
<td>17.6% reported discrimination because of race.</td>
<td>Everyday discrimination was associated with higher levels of depressive symptoms among Black and Latina women. This study did not examine association between racial discrimination and depressive symptoms among only Black pregnant women.</td>
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<td>GA: Recruited at &lt;18 weeks.</td>
<td>T1 18–20 weeks</td>
<td>n1= 158 (37.6%) Black pregnant and postpartum women</td>
<td>CES-D (20 items; Cronbach’s $\alpha$: English = .87 and Spanish = .79) administered during second interview</td>
<td>CES-D 10.78 ± 8.10</td>
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<td>T2 24–26 weeks</td>
<td>T3 30–32 weeks</td>
<td>Age: 18.56 ± 1.68 years</td>
<td>Revised Prenatal Distress Questionnaire (17 items: Cronbach’s $\alpha$: English = .86 and Spanish = .82.) administered during second interview</td>
<td>Revised Prenatal Distress Questionnaire 12.35 ± 6.63.</td>
<td>Every discrimination is associated with higher levels of depressive symptoms ($r = .44$, $p &lt; .01$) and pregnancy distress ($r = .27$, $p &lt; .01$).</td>
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<td></td>
<td>M ± SD: Not specified</td>
<td>Location: Los Angeles, CA</td>
<td>Education: 10.92 ± 2.06 years</td>
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<td>Annual Income: Not specified</td>
<td>GA: T1 19.35 ± 3.20</td>
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<td>Eick et al., 2020</td>
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<td>To examine the associations between stressors from different sources, which may be helpful to better inform causal pathways leading to adverse birth outcomes</td>
<td>Prospective cohort N = 510 pregnant women</td>
<td>n1 = 41 (8.0%) Black pregnant women Location: San Francisco GA: Second trimester Age: M = 32 years $SD = 5.4$</td>
<td>Chemicals In Our Bodies-2 (CioB) Questionnaire (1 item; race/ethnicity, religion, or skin color) CES-D scale (10 item; Cronbach’s α not specified)</td>
<td>7% reported discrimination. CES-D 7.3 ± 5.2 Experiences of discrimination were directly associated with higher depression scores ($β = 3.76$; 95% CI = 1.60, 5.85). EOD ($β = 3.76$; 95% CI = 1.60, 5.85).</td>
<td>Women who experienced discrimination had increased depressive symptoms. Results were not reported for Black pregnant women alone. Discrimination was not related to race and small percent of Black women were included in the study.</td>
</tr>
<tr>
<td>Ertel et al., 2012</td>
<td></td>
<td>To assess the association between self-reported racial discrimination and prenatal depressive symptoms among Black women</td>
<td>Two prospective cohort cross-sectional comparative design. Project ACCESS N = 526 Black pregnant Women</td>
<td>Project Viva N = 352 Black pregnant Women</td>
<td>EOD (8 item; Cronbach’s α not specified). EPDS (10 item; Cronbach’s α not specified)</td>
<td>54% percent of ACCESS and 78% of Viva participants (higher prevalence in the more economically affluent cohort) reported experiencing racial discrimination. EPDS scores $\geq 13$ (probable depression) 25% for ACCESS participants and 13% for Viva participants</td>
<td>Higher levels of perceived racial discrimination may increase depressive symptoms among Black pregnant women. Socioeconomic status may have an impact on the intensity of this association.</td>
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<tr>
<td>Gillespie et al., 2021</td>
<td></td>
<td>Cross-sectional</td>
<td>EOD (9 items; Cronbach’s α not specified)</td>
<td>N = 93 Black pregnant women</td>
<td>EOD Score 3 ± 4.94.</td>
<td>Of the 93 assessed participants, 65 (69.90%) had a CES-D score</td>
<td>Racial discrimination relates to higher levels of depressive symptoms among Black pregnant women.</td>
</tr>
</tbody>
</table>

Age:
- M: 30 years
- SD: not specified

Education:
- ACCESS
  - <12 years ~20%
  - 12 years ~31%
  - >12 years ~49%
- Viva
  - <12 years ~1%
  - 12 years ~8%
  - >12 years ~91%

Annual Income:
- ACCESS
  - ≤ $20,000 57%
  - >$20,000 43%
- Viva
  - ≤ $20,000 7%
  - >$20,000 93%

GA: 8 – 22 weeks
M ± SD: Not specified

Location: Boston, Massachusetts

After adjusting for age, marital status, income, education, and nativity, a one-unit increment in EOD score was associated with 48% increased odds of EPDS (OR = 1.48; 95% CI = 1.24, 1.76) for ACCESS participants.

Racial discrimination was not significantly associated with EPDS among Viva participants (OR = 1.12; 95% CI = 0.92, 1.37).
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<tbody>
<tr>
<td>Examine racial discrimination and markers of systemic inflammation, perceived stress, and depressive symptoms during pregnancy</td>
<td>2012</td>
<td>Examine racial discrimination and markers of systemic inflammation, perceived stress, and depressive symptoms during pregnancy</td>
<td>Cross-sectional comparative design</td>
<td>Age: 26 ± 4.47 years&lt;br&gt;Education: Not specified&lt;br&gt;Annual Income: Not specified&lt;br&gt;GA: 30 ± 2.3 weeks</td>
<td>CES-D scale (20 items; Cronbach’s α not specified)</td>
<td>&gt;16, which represents clinically significant depressive symptoms. Racial discrimination was related to higher levels of depressive symptoms ($r = .241$, $p \leq .05$).</td>
<td>Small sample size may have limited generalizability.</td>
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<tr>
<td>Giurgescu et al., 2012</td>
<td></td>
<td>Examine the relationships among objective and perceived indicators of neighborhood environment, racial discrimination, psychological distress, and GA at birth; determine if neighborhood environment and racial discrimination predicted psychological distress; determine if neighborhood environment, racial discrimination and psychological distress predicted preterm birth and determine if psychological distress mediated the</td>
<td>Cross-sectional comparative design</td>
<td>N = 72 Black postpartum women&lt;br&gt;Age: Full term 23.38 ± 5.44 years Preterm 23.37 ± 5.24 years&lt;br&gt;Education: &lt;12 years 12% 12 years 38% &gt;12 years 50%&lt;br&gt;Annual Income: ≤$10,000 42% &gt;$10,000 58%&lt;br&gt;GA: 30 ± 2.3 weeks</td>
<td>Psychological General Well-Being index (22 item; Cronbach’s α = .91)</td>
<td>EOD $M = 2.5$ SD: Not specified. PGWB $M ± SD$: Not specified. Experiences of racial discrimination were positively related to psychological distress ($r = .437$, $p &lt; .01$), however, experiences of racial discrimination did not predict psychological distress ($t = -5.97$, $p = .553$).</td>
<td>Black postpartum women who report more experiences of racial discrimination may experience higher levels of psychological distress. Small sample size may limit generalizability.</td>
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<td>Study Aim</td>
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<td>effects of neighborhood environment and racial discrimination on preterm birth</td>
<td>Data collected 24 to 72 hours after birth</td>
<td>N (M = 36.7) &lt;br&gt; n1 = 33 with preterm birth (&lt;37 weeks; 33.5 ± 2.76) &lt;br&gt; n2 = 39 with full-term birth (≥ 37 weeks; 39.4 ± 1.23)</td>
<td>EOD (9 items; Cronbach’s α = .79), PGWB index (22 item; Cronbach’s α = .94)</td>
<td>EOD 1.53 ± (1.99), PGWB 77.50 ± (18.48)</td>
<td>Black pregnant women who experienced psychological distress reported twice as many experiences of racial discrimination compared with those who did not report psychological distress. Racial discrimination predicted psychological distress among Black pregnant women.</td>
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<tr>
<td>Giurgescu et al., 2017 &lt;br&gt;To determine if social support moderates’ effects of racial discrimination on psychological wellbeing among pregnant African American women</td>
<td>Quantitative cross-sectional study</td>
<td>N = 107 Black pregnant women &lt;br&gt; Age: 23.80 ± 5.30 years &lt;br&gt; Education: &lt;br&gt; &lt;12 years 13% &lt;br&gt; 12 years 26% &lt;br&gt; &gt;12 years 61% &lt;br&gt; Annual Income: ≤ $10,000 47% &lt;br&gt; &gt; $10,000 48% &lt;br&gt; Unreported Income 5% &lt;br&gt; GA: 19.85 ± 2.50 weeks</td>
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<td>Experiences of racial discrimination related to lower levels of psychological wellbeing (r = −.313, p = .001).</td>
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<tr>
<td>Giurgescu et al.,</td>
<td>2020</td>
<td>Examine whether cigarette smoking mediated the association of racial discrimination with depressive symptoms among Black pregnant women</td>
<td>Cross-sectional</td>
<td>N = 200 Black pregnant Women</td>
<td>EOD (9 item; Cronbach’s α = .83) CES-D (20 item; Cronbach’s α = .89)</td>
<td>household income, multiple linear regression analysis showed that experiences of racial discrimination were negatively associated with psychological wellbeing ($\beta = -1.963$; 95% CI = $-3.80, -.21$; $p = .031$).</td>
<td>Racial discrimination is positively associated with depressive symptoms among Black pregnant women.</td>
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<td>Age: 26.9 ± 5.7 years</td>
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<td>The interaction term between racial discrimination and social support was not associated with psychological wellbeing ($\beta = -0.047$; 95% CI = $-0.09, .06$; $p = .624$).</td>
<td>Cigarette smoking during pregnancy partially mediated the association between lifetime experiences of racial discrimination and prenatal depressive symptoms among Black pregnant women.</td>
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<td>Education &lt;12 years 14%</td>
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<td>59% reported ever (lifetime) experiencing discrimination in at least one situation.</td>
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<td>12 years 49%</td>
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<td>27% had prenatal CES-D scores ≥ 23.</td>
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<td>&gt;12 years 36%</td>
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<td>Racial discrimination was significantly positively associated with CES-D scores ($\beta = 0.60$; 95% CI = 0.01, 1.19; $p &lt; 0.05$).</td>
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<td>Unreported education 1%</td>
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<td>Racial discrimination had a standardized indirect effect on CES-D scores through prenatal smoking (SE = 0.03; 95% CI = .001, .094; $p = .042$).</td>
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<td>Annual Income: ≤ $10,000 39%</td>
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<td>&gt; $10,000 57%</td>
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<td>Unreported annual income 4%</td>
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<td>GA: 15.6 ± 5.7 weeks</td>
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<tr>
<td>Noroña-Zhou et al., 2020</td>
<td>To examine how EOD relates to depression symptoms during pregnancy in a socioeconomically, racially, and ethnically diverse sample of pregnant adult women</td>
<td>Longitudinal</td>
<td>Location: Midwest United States</td>
<td>N = 129 pregnant women</td>
<td>EOD Score 1.66 ± 2.26.</td>
<td>Women who reported more EOD had higher depression symptoms at 17 gestational weeks, and these elevated levels persisted throughout pregnancy.</td>
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<td>n1= 17 (13%) Black pregnant women</td>
<td>EPDS Score</td>
<td></td>
<td>Primary analyses showed that higher levels of racial discrimination were associated with higher depression symptoms that persisted throughout pregnancy, however, experiences of racial discrimination did not predict trajectories of change in depression symptoms after adjustment for race/ethnicity, maternal age, marital status, and income-to-needs ratio.</td>
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<td>Age: 30.4 ± 5.3 years</td>
<td>T1 7.16 ± 5.84</td>
<td>EOD scores were positively correlated with depression symptoms at 17 (r = 0.17, p &lt; .05) and 29 (r = 0.18, p &lt; .05) weeks gestation.</td>
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<td>Education: &lt; 12 years 2% 12 years 39% &gt; 12 years 59%</td>
<td>T2 6.12 ± 5.94</td>
<td>Higher levels of racial discrimination predicted depression trajectories over pregnancy (p &lt; .05).</td>
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<td>Annual Income: $77,282.3 ± 58,643.8</td>
<td>T3 5.82 ± 5.77</td>
<td>Racial discrimination did not predict depressive symptoms after adjustment for race/ethnicity, maternal age, marital status, and income-to-needs ratio.</td>
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<td>GA: 17-37 weeks</td>
<td>T4 5.75 ± 5.58</td>
<td>Sample size of Black pregnant women in this study was small.</td>
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<td>T1 16.50 ± 4.54</td>
<td></td>
<td>This study did not examine association between racial discrimination and depression among only Black pregnant women</td>
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<td>T2 21.89 ± 6.53</td>
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<td>T3 25.74 ± 6.22</td>
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<td>T4 28.80 ± 4.23</td>
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<td>EOD (9 items; Cronbach’s α = .80) administered at T4</td>
<td>EPDS (10 item; Cronbach’s α = 0.91 ± 0.02) administered at each time point</td>
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<td>Author(s)</td>
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<td>Reid et al., 2016</td>
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<td>To examine the influence of discrimination, a culturally relevant stressor, on odds of gaining weight beyond Institute of Medicine recommendations during pregnancy and assess whether that effect is moderated by race/ethnicity, age, or depressive symptoms was also examined.</td>
<td>Prospective Cohort</td>
<td>N = 413 pregnant women</td>
<td>Everyday Discrimination Scale (10 items; Cronbach’s α = not specified) CES-D (15 item; Cronbach’s α = 0.86)</td>
<td>EDS M ± SD: Not specified. CES-D 11.79 ± 8.58 among women with appropriate weight gain. 12.18 ± 8.77 among women with excessive weight gain. 86% of Black pregnant women reported experiencing discrimination. Women who reported experiencing discrimination had higher concurrent depressive symptomatology (M = 13.04) than those who did not (M = 8.43) (t = 208.17, −5.55, p &lt; .001).</td>
<td>Discrimination related to depressive symptomatology among pregnant women. This study did not examine association between racial discrimination and postpartum depression among only Black pregnant women.</td>
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<td>Rosenthal et al., 2015</td>
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<td>To examine patterns of change over time and critical life periods to fully understand the effects of discrimination on health, with a focus on the period</td>
<td>Longitudinal</td>
<td>N = 549 pregnant and postpartum women n1= 186 (38%) Black pregnant and postpartum women</td>
<td>EDS (10 items; Cronbach’s α = .84-.86) administered at each interview CES-D scale (20 items; Cronbach’s α = .71-.94) administered at each interview</td>
<td>EDS M ± SD: T1 1.46 ± 0.46 T2 1.37 ± 0.45 T3 1.46 ± 0.51 T4 1.43 ± 0.48 CES-D M ± SD: T1 12.29 ± 8.73</td>
<td>Discrimination was related to depressive symptoms spanning from the second trimester up to one year postpartum. Findings were not reported for Black women only.</td>
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<td>Author(s) Study Aim</td>
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| of pregnancy and postpartum and mental health outcomes                              | 18.66 ± 1.68 years                  |                         | Generalized Anxiety Disorder Scale (7 items; Cronbach's α = .71–.94)       | T2 10.65 ± 8.19  
T3 10.16 ± 9.05  
T4 10.4 ± 8.65 | Discrimination measure did not exclusively assess racial discrimination |
| Education                                                                           | 11.02 ± 2.01                        |                         | GADS M ± SD:                                                               | T1 5.83 ± 5.11  
T2 5.78 ± 5.28  
T3 4.84 ± 5.07  
T4 4.78 ± 4.91 |                                                                       |
| Annual Income:                                                                      | Not specified                        |                         |                                                                             |                                  |                                                                       |
| GA                                                                                | T1 18.81 ± 3.31                      |                         |                                                                             |                                  |                                                                       |
| T2                                                                                 | 30.34 ± 5.34                        |                         | Discrimination related to depressive symptoms at each timepoint.            | T1 (r = .46, p < .01)  
T2 (r = .54, p < .01)  
T3 (r = .52, p < .01)  
T4 (r = .52, p < .01) |                                                                       |
| T3 (postpartum)                                                                    | 26.47 ± 5.42                        |                         |                                                                             |                                  |                                                                       |
| T4 (postpartum)                                                                    | 58.29 ± 13.48                       |                         |                                                                             |                                  |                                                                       |
| Location: Seven sites across New York City                                         |                                     |                         |                                                                             |                                  |                                                                       |

Racial discrimination predicted depressive symptoms (β = 1.728; SE = 0.526, 95% CI: 0.695, 2.761; ≤ 3.77, p = .001) and anxiety symptoms (β = 1.175, SE = 0.302, 95% CI = −.045, .017; p <.001) after controlling for site clustering, age, race/ethnicity, parity, relationship status, birth outcomes, food insecurity.
Segre et al., 2020
To assess the prevalence of an experience with emotionally upsetting racial discrimination and rates of depressed postpartum mood, implement a principal component analysis to identify distinct domains of stress experienced by postpartum women and evaluate whether perceived racial discrimination is a distinct domain. To use a domain-specific approach to assess the contribution of perceived racial discrimination, relative to other stress domains, in
<table>
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<th>Sample Characteristics</th>
<th>Instruments</th>
<th>Results</th>
<th>Conclusion</th>
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<tr>
<td>Segre et al., 2020</td>
<td>To assess the prevalence of an experience with emotionally upsetting racial discrimination and rates of depressed postpartum mood, implement a principal component analysis to identify distinct domains of stress experienced by postpartum women and evaluate whether perceived racial discrimination is a distinct domain. To use a domain-specific approach to assess the contribution of perceived racial discrimination, relative to other stress domains, in</td>
<td>Cross-sectional</td>
<td>N = 2,805 postpartum women</td>
<td>EUR (1 item; Cronbach’s α not specified)</td>
<td>Racial discrimination predicted anxiety symptoms among participants reporting food insecurity (β = 1.764, SE = 0.468, 95% CI: 0.842, 2.686; ≤ 3.77, p &lt; .001). The association of discrimination with anxiety symptoms was weaker among women who did not report food insecurity (β = 0.709; SE = 0.399; 95% CI = –0.076, 1.494; t = 1.78; p = .077).</td>
<td>Racial discrimination was related to depressed mood among postpartum women. This study did not examine association between racial discrimination and postpartum depression among only Black women.</td>
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<td>Author(s)</td>
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<td>Study Aim</td>
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<td>Shour et al.</td>
<td>2021</td>
<td>To analyze the association between racial bias and PPD among women in Wisconsin</td>
<td>Cross-sectional</td>
<td>N = 2,609 postpartum women</td>
<td>EUR (1 item; Cronbach’s α not reported)</td>
<td>6.6% of women experienced racial bias.</td>
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<td>n1= 1,291 Black postpartum women</td>
<td></td>
<td>PHQ-2 (PPD symptomology; 2 items; Cronbach’s α not specified)</td>
<td>21.2% of Black women had postpartum depression.</td>
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<td>Age:</td>
<td>≤ 19 years 7%</td>
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<td>20.75% of women who reported racial bias also reported postpartum depression.</td>
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<td>20-24 years 23%</td>
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<td>Among women reporting depressive symptomatology, Black women were six times more likely report racial bias than any other racial/ethnic group (OR = 6.01; 95% CI =1.69, 21.41).</td>
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<td>25-29 years 29%</td>
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<td>In the unadjusted weighted analysis, women who reported experiencing racial bias were more likely to report experiencing postpartum depression compared to those who did not (OR = 2.15; 95% CI = 1.35, 3.41).</td>
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<td>30-34 years 28%</td>
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<td>≥ 35 years 14%</td>
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<td>Education:</td>
<td>≤ 12 years 44%</td>
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<td>&gt; 12 years 56%</td>
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<td>Annual Income:</td>
<td>≤ 199% FPL 68%</td>
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<td>&gt; 200% FPL 32%</td>
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<td>GA:</td>
<td>Data collected between 60-180 days after patients had given birth.</td>
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<td></td>
<td></td>
<td></td>
<td>Location: Iowa</td>
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<td></td>
<td></td>
<td></td>
<td>Location: Wisconsin</td>
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<td>Author(s)</td>
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<td>Study Aim</td>
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<tr>
<td>Weeks et al.</td>
<td>2022</td>
<td>To examine the associations between self-reported racial discrimination and PPD symptoms in a multistate sample of mothers of color with a recent live birth</td>
<td>Cross-sectional</td>
<td>N = 16,533 postpartum women</td>
<td>EUR (1 item; Cronbach’s α not reported)</td>
<td>45.5% of Black women reported experiencing racial discrimination.</td>
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<td>N1= 6,348 (38.4%) Black postpartum women</td>
<td>PHQ-2 (PPD symptomology; 2 items; Cronbach’s α not reported)</td>
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<td>Black women had the highest prevalence of discrimination compared to any other racial group (OR = 18.1; 95% CI = 16.3, 19.9).</td>
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<td>Age:</td>
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<td>Black women who reported experiencing racial discrimination also reported a higher prevalence of postpartum depressive symptoms (OR = 45.5; 95% CI = 42.2, 48.9) compared with those who did not (OR = 37.2; 95% CI = 35.8, 38.5).</td>
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<td></td>
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<td>Education:</td>
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<td>Racial discrimination was associated with increased postpartum depressive symptoms among Black women (OR = 3.5; 95% CI = 2.6, 4.8).</td>
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<td>Annual Income:</td>
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<td>GA:</td>
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<td>Location: Iowa, Louisiana, Minnesota, New York City, North Carolina, Ohio, Utah, Virginia, and Wisconsin.</td>
<td>Data collected between 60-180 days after patients had given birth.</td>
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<td>EUR (1 item; Cronbach’s α not reported)</td>
<td>45.5% of Black women reported experiencing racial discrimination.</td>
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*Note.* All sources in the table are included in the references list for Chapter 2. SE = Standard Error, GA = gestational age, PR = prevalence ratio, M = mean, SD = standard deviation.
**Design**

All studies were prospective design studies with nonprobability sampling or secondary analyses of prospectively collected data. Each used a quantitative study design. The majority of studies included in the review used a cross-sectional study design (n = 12; Bennett et al., 2010; Bossick et al., 2022; Canady et al., 2008; Dailey & Humphreys, 2011; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2012; 2017; 2020; Segre et al., 2021; Shour et al., 2021; Weeks et al., 2022). Three of the studies used a longitudinal study design (Earnshaw et al., 2013; Noroña-Zhou et al., 2022; Rosenthal et al., 2015) and two studies assessed women during pregnancy (baseline) and followed them up to one year postpartum (Earnshaw et al., 2013; Rosenthal et al., 2015). The remaining studies used a prospective cohort design (Cohen et al., 2022; Dominguez et al., 2008; Eick et al., 2020; Reid et al., 2016).

**Sample Characteristics**

The sample size for the 19 studies ranged from 72 (Giurgescu et al., 2012) to 632,387 (Bossick et al., 2022) pregnant and/or postpartum women of which 8-100% were Black women. Twelve of the 19 studies included a sample size of less than 600 women (Cohen et al., 2022; Dailey & Humphreys, 2011; Dominguez et al., 2008; Earnshaw et al., 2013; Eick et al., 2020; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2012; 2017; 2020; Noroña-Zhou et al., 2022; Reid et al., 2016; Rosenthal et al., 2015). Two studies included pregnant women and followed them through the postpartum period (Earnshaw et al., 2013; Rosenthal et al., 2015). Five of the studies included postpartum women only (Bossick et al., 2022; Giurgescu et al., 2012; Segre et al., 2021; Shour et al., 2021; Weeks et al., 2022). The sample size for Black pregnant women ranged from 17 (Noroña-Zhou et al., 2022) to 260,528 (Bossick et al., 2022).
Participants’ ages ranged from 13 to 42 years, and the mean age per study varied from 18 (Rosenthal et al., 2015) to 32 years (Eick et al., 2020). All of the studies were conducted in the United States, and study participants were predominately English speaking. Four of the studies included participants who were Spanish or English speaking in their samples (Bennett et al., 2010; Earnshaw et al., 2013; Eick et al., 2020; Rosenthal et al., 2015).

**Measurement**

*Racial Discrimination*

Various data collection instruments were used to assess racial discrimination. Six of the studies (Cohen et al., 2022; Gillespie et al., 2021; Giurgescu et al., 2012; 2017; 2020; Noroña-Zhou et al., 2022) used the Krieger et al. (2005) Experiences of Discrimination (EOD) measure. The EOD instrument measures self-reported race-based EOD in nine situations (e.g., at school, at work, being served at a store or restaurant, obtaining medical care; Krieger et al., 2005). Of these six studies, four (Cohen et al., 2022; Gillespie et al., 2021; Giurgescu et al., 2017; Noroña-Zhou et al., 2022) reported a mean and standard deviation for average EOD score among Black pregnant women and one reported only the mean score among Black postpartum women (Giurgescu et al., 2012). Mean scores for the EOD among these six studies ranged from $1.53 \pm 1.99$ (Giurgescu et al., 2017) to $4.19 \pm 2.83$ (Noroña-Zhou et al., 2022) among Black pregnant and/or postpartum women. Five studies (Cohen et al., 2022; Giurgescu et al., 2012; 2017; 2020; Noroña-Zhou et al., 2022) reported the Cronbach’s $\alpha$ for their EOD scale as ranging from .78 to .83. Three studies (Canady et al., 2008; Dominguez et al., 2008; Ertel et al., 2012) used modified scales incorporating items from an earlier version of the Krieger Discrimination scale (Krieger, 1990). Canady et al. (2008) used a 21-item discrimination scale, Dominguez et al. (2008) used a
four-item scale, and Ertel et al. (2012) used an eight-item scale. No mean scores, standard
deviation or reliability data were specified among these modified scales.

Five of the studies (Bennett et al., 2010; Dailey & Humphreys, 2011; Earnshaw et al.,
2013; Reid et al., 2016; Rosenthal et al., 2015) used the Everyday Discrimination Scale (EDS)
(Williams et al., 1997). The EDS consists of nine items designed to measure the presence,
frequency, and sources of chronic and routine experiences of racial discrimination including
questions on unfair treatment, perception of racial identity, and frequency of experiences
(Williams et al., 1997). Three of the studies (Earnshaw et al., 2013; Reid et al., 2016; Rosenthal
et al., 2015) used the ten-item modified version of EDS (Lewis et al., 2013). Only one of the six
studies reported a mean and/or standard deviation for the scores, which ranged from 1.37 ± .45 to
1.46 ± .51 (Rosenthal et al., 2015). The Cronbach’s α for the EDS among these six studies were
.84 to .87 (Dailey & Humphreys, 2011). Five of the six studies did not report the Cronbach’s α
for the EDS (Bennett et al., 2010; Earnshaw et al., 2013; Ertel et al., 2012; Gillespie et al., 2021;
Reid et al., 2016).

Five studies utilized other instruments to measure racism (Bossick et al., 2022; Eick et
al., 2020; Segre et al., 2021; Shour et al., 2021; Weeks et al., 2022). For example, four studies
used the Emotional Upset due to Racism (EUR) scale (Bossick et al., 2022; Segre et al., 2021;
Shour et al., 2021; Weeks et al., 2022), which asks the question, “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?” (yes vs. no) from the Pregnancy Risk
Assessment Monitoring System (PRAMS) survey. Another study used the Chemicals in Our
Bodies-2 (CioB) questionnaire; participants reported how frequently they felt discriminated
against due to their race, ethnicity, religion, or skin color on a five-point scale (1 = “never” to 5 = “very often”; Eick et al., 2020).

Psychological Distress

Various data collection instruments were used to measure psychological distress. Most studies measured depressive symptoms. Nine studies (Bennett et al., 2010; Canady et al., 2008; Dailey & Humphreys, 2011; Earnshaw et al., 2013; Eick et al., 2020; Gillespie et al., 2021; Giurgescu et al., 2020; Reid et al., 2016; Rosenthal et al., 2015) used the Center for Epidemiologic Studies Depression (CES-D) scale, a 20-item scale that measures self-report of depressive symptoms with higher scores indicating the presence of more symptomatology (standard cut off scores of ≥16 for possible depression, and ≥23 for probable depression) (Radloff, 1977); four of the nine studies reported the Cronbach’s α for CES-D which ranged from .85 to .94 among Black pregnant and postpartum women (Dailey & Humphreys, 2011; Giurgescu et al., 2020; Reid et al., 2016; Rosenthal et al., 2015; see Table 2). Two studies used a modified CES-D (Radloff, 1977) consisting of a ten-item (Eick et al., 2020) and a 15-item version (Reid et al., 2016). Among these nine studies, five reported a mean and/or standard deviation for CES-D scores (Canady et al., 2008; Earnshaw et al., 2013; Eick et al., 2020; Reid et al., 2016; Rosenthal et al., 2015) among samples of 8% to 37.6% Black pregnant women. Mean scores for CES-D ranged from 10.16 ± 9.05 to 16.6 ± .59 (Canady et al., 2008; Earnshaw et al., 2013; Rosenthal et al., 2015) among studies using the 20-item version, 7.3 ± 5.2 for the 10-item version (Eick et al., 2020) and 11.79 ± 8.58 vs 12.18 ± 8.77 for the 15-item version (Reid et al., 2016; see Table 2).
Four studies used a modified version of the unvalidated Patient Health Questionnaire-2 (PHQ-2) which assesses postpartum depressive (PPD) symptomology using a five-point Likert scale to match the Pregnancy Risk Assessment Monitoring (PRAMS; Bossick et al., 2022; Segre et al., 2021; Shour et al., 2021; Weeks et al., 2022). Three studies (Cohen et al., 2022; Ertel et al., 2012; Noroña-Zhou et al., 2022) also used the 10-item Postnatal Edinburg Depression Scale (Cox et al., 1987) to measure depressive symptoms with scoring as follows: None or minimal depression (0–6), Mild depression (7–13), Moderate depression (14–19), Severe depression (20–30). Cronbach’s alpha was listed for only one of these studies (.83 in early pregnancy and .86 mid-pregnancy; Cohen et al., 2022). Two of the studies reported a mean and standard deviation (collected at various time points) ranging from 5.75 ± 5.58 (n = 17; Noroña-Zhou et al., 2022) to 7.18 ± 5.48 (n = 567; Cohen et al., 2022) among Black pregnant women.

Two studies included measures of anxiety symptoms. Dominguez et al. (2008) used the 20-item State-Trait subscale of the Spielberger Anxiety Inventory (STAI) which evaluates state or situational anxiety and trait or personal anxiety levels (Spielberger, 1983) and a pregnancy anxiety scale with unspecified number of items (Rini et al., 1999). No mean or standard deviation were reported for the STAI in this study. Rosenthal et al. (2015) used the Generalized Anxiety Disorder-7 Scale (Spitzer et al., 2006) to measure anxiety using 7 items scored 0 to 3 per item and a sum score of 0 to 21 (less than 4 = Minimal Anxiety, 5-9 = Mild Anxiety, 10-14 = Moderate Anxiety, 15 or more = Severe Anxiety) with a mean and standard deviation ranging from 4.78 ± 4.91 to 5.83 ± 5.11 among a sample which included 33.5% Black pregnant women who were followed up to a year postpartum.
Two studies (Giurgescu et al., 2012; 2017) used the Psychological General Wellbeing (PGWB) Index, a 22-item instrument that assesses subjective feelings of psychological wellbeing or distress (scores ≤72 indicate psychological distress; Dupuy, 1984). One of the studies reported a mean and standard deviation of 77.50 ± 18.48 for PGWB in a sample of 107 Black pregnant women (Giurgescu et al., 2017). Cronbach’s alpha were .91 (Giurgescu et al., 2012) and .94 (Giurgescu et al., 2017) for this instrument. One study also used a Revised Prenatal Distress Questionnaire, a questionnaire asking “how much are you bothered, worried, or upset” about 17 issues associated specifically with pregnancy on a scale from not at all (0) to very much (2) (Earnshaw et al., 2013). The Cronbach’s alpha for this measure was .86 (Earnshaw et al., 2013).

Findings

Prevalence of Experiences of Racial Discrimination and Psychological Distress

Ten of the 19 studies explicitly reported on the prevalence of experiences of racial discrimination for Black pregnant and postpartum women exclusively (Bossick et al., 2022; Canady et al., 2008; Cohen et al., 2022; Dailey & Humphreys, 2011; Ertel et al., 2012; Giurgescu et al., 2020; Reid et al., 2016; Segre et al., 2021; Shour et al., 2021; Weeks et al., 2022). Five of these 10 studies reported that 44-78% of their Black pregnant and/or postpartum participants experienced racial discrimination (Bossick et al., 2022; Canady et al., 2008; Ertel et al., 2012; Giurgescu et al., 2020; Weeks et al., 2022) and two studies found that 86-87% of Black pregnant women in their samples experienced racial discrimination (Dailey & Humphreys, 2011; Reid et al., 2016). For example, Bossick et al. (2022) noted that 44% of Black postpartum women reported experiences of EUR during the 12 months before delivery compared to 6.4 % of multiracial and 18% of Hispanic White individuals. Similarly, Weeks et al. (2022) found that
45.5% of Black postpartum women reported experiencing racial discrimination, and that Black women had the highest prevalence of discrimination compared to any other racial group (OR = 18.1%; 95% CI = 16.3, 19.9). Canady et al. (2008) found that Black pregnant women were more likely to report having experienced race discrimination in more than one setting (51%) compared to White women (14%). Ertel et al. (2012) found that among two cohorts of Black pregnant women, 54% percent of ACCESS and 78% of Viva participants (higher prevalence in the more economically affluent cohort) experienced racial discrimination. Segre et al. (2021) found that 17.18% of Black postpartum women reported experiencing discrimination. Shour et al. (2021) found that Black women were six times more likely report racial bias than any other racial/ethnic group (OR = 6.01; 95% CI = 1.69, 21.41). By contrast, Cohen et al. (2022) found that 40% of women reported never being exposed to racial/ethnic discrimination among a sample of 567 Black pregnant women. These results suggest that Black pregnant and/or postpartum women experience racial discrimination.

Eight studies reported on the prevalence of psychological distress among Black pregnant and postpartum women (Bennett et al., 2010; Canady et al., 2008; Dailey & Humphreys, 2011; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2020; Segre et al., 2021; Shour et al., 2021). Dailey and Humphreys (2011) found that 42% of the women had CES-D scores at or above 16 indicating possible risk for depression (n = 550) and 23% (n = 527) of the women had CES-D scores greater than or equal to 23 suggesting probable risk for a clinical diagnosis of depression. Bennett et al. (2010) found that a relatively large percentage of pregnant women had depressive symptoms (CES-D score ≥ 23; n = 959, 22%) of which 678 were Black. Similarly, Giurgescu et al. (2020) found that 27% of women had CES-D scores greater than or equal to 23
among 200 Black pregnant women. Two additional studies found that Black pregnant women experienced moderate depressive symptoms with CES-D scores of greater than 16 (49% and 69%, respectively; Canady et al., 2008; Gillespie et al., 2021). Ertel et al. (2012) noted that 25% for ACCESS participants and 13% for Viva participants had EPDS scores greater than or equal to 13 (probable depression). Shour et al. (2021) noted that 21.2% of Black postpartum women had PPD defined in the study using the CDC (2022) guidelines as a serious medical condition that is activated by and occurring after child delivery, including having feelings of extreme sadness and anxiety that result in energy, sleep, and appetite changes compared to 9% of non-Hispanic White women ($p < .01$). Similarly, 17.23% of Black postpartum women reported experiencing a depressed mood (Segre et al., 2021). Thus, research suggests that a large proportion of Black women experience psychological distress during the perinatal period.

**Associations of Racial Discrimination with Psychological Distress**

Seventeen studies reported an association between racial discrimination and psychological distress among samples which included Black pregnant or postpartum women (Bennett et al., 2010; Bossick et al., 2022; Cohen et al., 2022; Dailey & Humphreys, 2011; Dominguez et al., 2008; Earnshaw et al., 2013; Eick et al., 2020; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2012; 2017; 2020; Noroña-Zhou et al., 2022; Reid et al., 2016; Rosenthal et al., 2015; Segre et al., 2021; Weeks et al., 2022). Of these studies, racial discrimination was related to depressive symptoms among samples of exclusively Black pregnant women (Cohen et al., 2022; Dailey & Humphreys, 2011; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2012; Giurgescu et al., 2020). For example, Gillespie et al. (2021) found that Black pregnant women who reported more experiences of racial discrimination also
reported higher levels of depressive symptoms (N=93; $r = 0.241, p \leq .05$). Ertel et al. (2012) found that, after adjusting for age, marital status, income, education, and nativity, a 1-unit increase in EOD score was associated with a 48% increase in the odds of depressive symptoms (OR = 1.48; 95% CI = 1.24, 1.76) among Black pregnant women. Similarly, other studies suggest that experiences of racial discrimination are related to depressive symptoms among Black pregnant women (Cohen et al., 2022; Dailey & Humphreys, 2011; Giurgescu et al., 2020). These results suggest that experiences of racial discrimination are related to depressive symptoms among Black pregnant women.

Racial discrimination also related to depressive symptoms among samples that included less than 100% Black women in their studies (Bennett et al., 2010; Bossick et al., 2022; Dominguez et al., 2008; Earnshaw et al., 2013; Eick et al., 2020; Reid et al., 2016; Rosenthal et al., 2015; Segre et al., 2021; Weeks et al., 2022). Among these studies, two studies found that racial discrimination predicted psychological distress among Black pregnant and postpartum women (Rosenthal et al., 2015; Segre et al., 2021). For example, Rosenthal et al. (2015) found that racial discrimination predicted depressive symptoms ($\beta = 1.728, SE = .526, 95\% CI = .695, 2.761; p = .001$) after controlling for site clustering, age, race/ethnicity, parity, relationship status, birth outcomes, and food insecurity, among a sample of 549 pregnant minority women, 33.5% of which were Black women. Likewise, perceived racial discrimination before pregnancy predicted depressed mood (OR 2.15; 95% CI = 1.07–4.31) in a sample in which 33% of participants were Black postpartum women (Segre et al., 2021). Thus, racial discrimination relates to depressive symptoms among samples of pregnant or postpartum women that include subsamples of Black women.
Racial discrimination was related to anxiety symptoms in studies included in this review. Perceived racism significantly positively correlated with state anxiety ($r = .35$, $p < .001$) and pregnancy anxiety ($r = .25$, $p < .001$) among Black pregnant women throughout the second and the beginning of the third trimesters (Domínguez et al., 2008). Similarly, Rosenthal et al. (2015) found that racial discrimination predicted anxiety symptoms ($\beta = 1.175$; SE = .302; 95% CI = $-0.045, 0.017$; $p < .001$) after controlling for site clustering, age, race/ethnicity, parity, relationship status, birth outcomes, and food insecurity, among a population 549 pregnant minority women (33.5% of Black). These results suggest that racial discrimination relates to anxiety symptoms.

A few studies reported on the association of racial discrimination with psychological distress as measured by the Psychological General Wellbeing Index (PGWB) or the Revised Prenatal Distress Questionnaire. Giurgescu et al. (2017) found that Black pregnant women with psychological distress (PGWB scores $\leq 72$) reported twice as many experiences of racial discrimination as women without psychological distress (PGWB scores $> 72$; 2.3 and 1.1, respectively, $t(103) = -2.996$, $p = .003$). Giurgescu et al. (2017) also found that after adjustment for maternal age, gravidity, living with the father of the baby, level of education, employment and household income, multiple linear regression analysis showed that experiences of racial discrimination were negatively associated with psychological wellbeing ($\beta = -1.963$; 95% CI = $-3.80, -0.21$; $p = .031$). Similarly, among a sample of 72 Black postpartum women, experiences of racial discrimination were positively related to psychological distress ($r = .437$, $p < .01$); however, experiences of racial discrimination did not predict psychological distress ($t = -5.97$, $p = .553$; Giurgescu et al., 2012). Another study found that everyday discrimination was associated
with increased pregnancy distress ($p < .01$), and these results were similar for Black and Hispanic women (Earnshaw et al., 2013).

**Mediators and Moderators Among Racial Discrimination and Psychological Distress**

Three studies examined potential mediators or moderators which influenced the association of racial discrimination with psychological distress. One study found that cigarette smoking during pregnancy mediated the association of the racial discrimination with depressive symptoms among Black pregnant women (Giurgescu et al., 2020). Another study found that food insecurity moderated the association of racial discrimination with anxiety symptoms among pregnant women (33.5% Black; Rosenthal et al., 2015). Racial discrimination predicted anxiety symptoms among participants reporting food insecurity (Rosenthal et al., 2015). However, the association of discrimination with anxiety symptoms was weaker but still significant among women who did not report food insecurity (Rosenthal et al., 2015). One study did not find a moderating effect of social support on the association between racial discrimination and psychological wellbeing, but the small sample size (N=107) was a limitation of the study (Giurgescu et al., 2017).

**Discussion**

The findings of this review suggest a significant positive association between racial discrimination and psychological distress among pregnant and postpartum women at various stages in the perinatal period. The majority of studies examined the association of racial discrimination with depressive symptoms, as a measure of psychological distress, among pregnant or postpartum women. Given the maternal health crisis disproportionately evident in Black women in the United States, research initiatives have attempted to refocus on the impact of
social determinants of health such as racial discrimination on maternal mental health (March of Dimes, 2021). Studies included in this review were published between 2008 and 2022 which may reflect that researchers have become more aware of underlying mechanisms by which disparities have become prevalent among Black women within the perinatal period (Office of Disease Prevention and Health Promotion, 2020). Still this literature review found that a limited number of studies reported on the association of racial discrimination with psychological distress during the perinatal period among samples of Black women only. This suggests that there is still a need for more research focused on the relationship between racial discrimination and psychological distress among Black pregnant and postpartum women. Compared with White pregnant and postpartum women, Black pregnant and postpartum women are at higher risk for experiencing racial discrimination and concurrent depressive symptoms (Dole et al., 2004; Grobman et al., 2016; Obrochta et al., 2020). The review of the retained studies’ findings supports that Black pregnant and postpartum women continue to have a higher prevalence of racial discrimination and depressive symptoms compared with those of other races or ethnicities, especially White women.

This review found that data are limited on the mediating or moderating factors that influence the association of racial discrimination with psychological distress (Eick et al., 2020; Giurgescu et al., 2017; Giurgescu et al., 2020; Rosenthal et al., 2015). One of the studies included in the review found that although higher levels of racial discrimination predicted psychological distress, general social support did not moderate the association of racial discrimination with psychological wellbeing among Black pregnant women; however, small sample size was noted as a limitation in these findings (Giurgescu et al., 2017). Prior research
among Black non-pregnant women suggests that social support tailored to experiences of discrimination may moderate the relationship between racial discrimination and psychological wellbeing (Odom & Vernon-Feagans, 2010; Seawell et al., 2014). The findings of this review suggest that a gap in knowledge exists regarding the moderating effect of social support on the relationship between racial discrimination and psychological wellbeing among Black pregnant and/or postpartum women. These findings may reflect a paradigm shift in the focus on the mental health of pregnant women and its importance in evaluating the overall wellbeing of Black pregnant women.

Racial discrimination and psychological distress have been related to adverse maternal (e.g., pre-eclampsia, cesarean section, mortality) and infant (e.g., preterm birth, low birthweight) health outcomes among Blacks (Alhusen et al., 2016; Banks et al., 2006; Braveman et al., 2017; CDC, 2021; Mulla et al., 2022; Ukoha et al., 2022). Black women have higher rates of adverse maternal and infant health outcomes compared with White women (CDC, 2023). Further, the United States has the highest maternal mortality rates among the developed nations, with the greatest risk for mortality occurring among Black women (Taylor et al., 2019). These health disparities persist among Black women of higher income who have access to maternal care (Sakala et al., 2018). In light of the persistent disparities among Black pregnant women studies should evaluate the impact of racial discrimination and psychological wellbeing on these women’s health. Future studies should investigate the relationship between racial discrimination and psychological distress among Black pregnant and postpartum women. These studies should develop, and test interventions based on evidence. Clinically, screening throughout the perinatal period for experiences of discrimination and psychological distress symptoms should be routine
practice to allow for early recognition and intervention to help to promote mental health and protect against racial discrimination and its health sequelae among these women.

**Limitations**

Limitations were noted in the studies reviewed. All 19 of the studies included in this review used self-report as the primary method of data collection. The limitations of utilizing self-report methods (e.g., questionnaires or interviews) include potential bias as the data rely on accurate recollection by the participant. Researchers collected data at various time points during and after the prenatal period. Various tools were used to measure psychological distress, which may influence the consistency of the findings. Some of the studies did not report the reliability of the instruments. Future research should use data collection techniques that minimize bias and use instruments that are reliable for Black pregnant and postpartum women. Only three studies (Giurgescu et al., 2017; 2020; Rosenthal et al., 2015) examined the effects of mediating or moderating factors on the association of racial discrimination with psychological distress among Black pregnant or postpartum women. Future studies should consider moderating or mediating factors that may influence the relationship between racial discrimination and psychological distress among Black women during the perinatal period. Giurgescu et al. (2017) found that social support did not moderate the association of racial discrimination with psychological distress among Black pregnant women; however, the sample size was small.

**Research Implications**

Future research should examine the moderating effect of social support on the association of racial discrimination with psychological distress among a larger sample of Black pregnant women. If research founds that social support buffers the effects of racial discrimination on
psychological distress among Black women, interventions can be developed to increase social support levels for these women.

Clinical and Policy Implications

Studies in this review revealed that racial discrimination relates to psychological distress during the perinatal period. One study showed that experiences of racial discrimination during pregnancy, the immediate postpartum period and up to one-year postpartum increase the risk for PPD symptoms (Rosenthal et al., 2015). Another study found that Black women in the immediate postpartum period who experienced racial discrimination were two times more likely to experience depression (Shour et al., 2021). The American Academy of Pediatrics recommends maternal depression screening at one month, two months, four months and until the six months postpartum to promote maternal and infant bonding, reduce infant failure to thrive, reduce the risk of complications with growth and development, and prevent psychical injury to the infant or mother in extreme cases (Earls et al., 2010). Clinicians should not only include assessments for depressive symptoms but also assess for experiences of racial discrimination that may increase risk for depressive symptoms among Black pregnant and postpartum women. Educators and healthcare providers should implement seminars to raise awareness of the detrimental effects that racial discrimination has on mental health of Black women and provide resources to improve mental health and ultimately maternal-infant health among Black families (CDC, 2021).

The findings of this review have policy implications. Healthcare systems should urgently consider the importance of policies to screen pregnant and postpartum women for racial discrimination and depressive symptoms, up to one year after giving birth, as guidelines currently limit depression screenings to six months postpartum. Heightened awareness of the
perinatal health disparities among Black women is needed to address the US Black maternal health crisis (March of Dimes, 2021). Creating policies that are supported by research among Black pregnant and postpartum women will contribute to a greater understanding of barriers that may be inadvertently fueling current disparities. Policies and practices should investigate potential interventions to improve psychological wellbeing among Black pregnant and postpartum women.

**Conclusion**

This integrative literature review provides novel insights into the current state of knowledge regarding racial discrimination and psychological distress. The findings suggest that racial discrimination relates to psychological distress among Black pregnant and postpartum women. Racial discrimination and psychological distress may contribute to the disparities in maternal, infant and birth outcomes for Black women. Moreover, limited material and social resources may be an exacerbating factor of psychological distress in the presence of racial discrimination. Providers should consider the risk factors that may exist for Black pregnant and postpartum women and screen and intervene accordingly. Healthcare providers and policy makers should be aware of the importance of screening for experiences of racial discrimination and depressive symptomology throughout the perinatal period and advocate for early recognition and treatment.
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CHAPTER 3: RACIAL DISCRIMINATION, SOCIAL SUPPORT, AND PSYCHOLOGICAL DISTRESS AMONG BLACK PREGNANT WOMEN

Abstract

Black pregnant women in the United States are more likely than women of any other race or ethnicity to be exposed to racial discrimination and to experience psychological distress. Although some research reported that social support may moderate the effect of racial discrimination on psychological distress among Black women, little is known about the moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women. The purpose of this study was to examine the associations among racial discrimination, social support, and psychological distress among Black pregnant women. The current study used a cross-sectional, correlational, descriptive design to examine data collected from 599 non-Hispanic Black pregnant women enrolled in the Biosocial Impact on Black Births (BIBB) study prior to the COVID-19 pandemic. The BIBB study is a prospective, longitudinal design study that examined maternal factors related to preterm birth among Black women. Women completed questionnaires about racial discrimination, social support, and psychological distress during pregnancy. Participants had a mean age of 26±5 years and a mean gestational age at data collection of 17±6 weeks. Experiences of racial discrimination were related to lower levels of social support \((r_s(592) = -0.221, p < .001)\) and psychological wellbeing \((r_s(591) = -0.216, p < .001)\). Lower levels of social support also related to lower levels of psychological wellbeing \((r_s(591) = 0.403, p < .001)\). Experiences of racial discrimination predicted psychological distress in this sample \((\beta = 0.807; 95\% \ CI = 1.359, 3.699; p = .002)\), as did low levels of social support \((\beta = 1.354; 95\% \ CI = 0.153, 0.436; p < .001)\); however, social support did not moderate the effect of racial discrimination on psychological distress.
distress. Findings of the study contribute to evidence that experiences of racial discrimination and low levels of social support relate to psychological distress among Black pregnant women.
Introduction

Black women in the United States have the highest risk of experiencing adverse birth outcomes, including preterm birth (< 37 completed weeks gestation) and low birth weight infants (< 2,500 grams; CDC, 2020; Walani, 2020). Regardless of socioeconomic status, they also experience the highest rates of high-risk deliveries, preterm birth, and maternal mortality in the industrialized world (CDC, 2020; Hobel et al., 2008; Johnson et al., 2020; Miller & Tuan, 2018; World Health Organization, 2020). The alarmingly high rates of complications and mortality related to racial inequality in the pregnancy outcomes of Black women may have long term consequences for the health and development of their infants throughout the lifespan (Walani, 2020). These racial disparities cannot be explained by lack of education, low income, or lack of access to maternity care (Collins et al., 2004; Giurgescu et al., 2016; Johnson et al., 2020).

Evidence, instead, points to experiences of racial discrimination as a critical barrier to improving maternal outcomes for Black women (Chambers et al., 2018). Research suggests that Black women are at a greater risk for experiencing racial discrimination compared with White women (Dominguez et al., 2008; 2009; Grobman et al., 2016; 2018; Miller & Tuan, 2018; Simon et al., 2016). Racial discrimination is defined as being hassled or made to feel inferior due to one’s race, ethnicity, or color (Krieger et al., 2010). One study including 10,323 singleton live births revealed 36.9% (95% CI = 32.9, 40.9%) of Black women compared to 5.5% (95% CI = 4.5, 6.5%) of White women reported chronic worry about racial discrimination, with the highest rates occurring among Black women of higher income (49.7%) and higher education levels (47.5%; Braveman et al., 2017). Research also suggests that racial discrimination is related to adverse maternal health (e.g., mortality, morbidity, psychological distress) and birth outcomes.
(e.g., preterm birth, low-birth-weight infants) among Black pregnant women (Earnshaw et al., 2013; Taylor, 2020; Wynn, 2019).

**Literature Review**

Experiences of racial discrimination relate to psychological distress among Black pregnant women (Cohen et al., 2022; Dailey, 2009; Dailey & Humphreys, 2011; Dominguez et al., 2008; Earnshaw et al., 2013; Ertel et al., 2012; Giurgescu et al., 2012; 2017; 2020; Lee & Ahn, 2013). Psychological distress in pregnant women is referred to as a state of maternal distress during pregnancy, including high levels of psychological stress, anxiety, and depressed mood, that is often exacerbated by psychosocial stressors (Isgut et al., 2017; Vehmeijer et al., 2019). One study among 107 Black pregnant women revealed that women who reported more experiences of racial discrimination indicated higher levels of psychological distress, and that women who reported psychological distress (Psychological General Wellbeing [PGWB] Index scores ≤72) reported twice as many experiences of racial discrimination as women who did not report psychological distress (PGWB scores > 72; 2.3 and 1.1, respectively, \( t_{(103)} = -2.996, p = .003 \); Giurgescu et al., 2017). In another sample of Black pregnant women (N = 72), racial discrimination was significantly associated with higher levels of psychological distress \( (r = .44, p < .001; \) Giurgescu et al., 2012). One study found that emotional upset due to racism resulted in higher prevalence of depression diagnosis among non-Hispanic pregnant people of color \( (OR = 6.0\%; 95\% CI = 0.8, 11.2) \) of which 41.2% \( (n=260,528) \) of the total study sample were Black postpartum women (Bossick et al., 2022). Shour et al. (2021) found that among postpartum women who reported experiencing depressive symptoms, the odds of experiencing racial bias were six times higher for non-Hispanic Black women than other racial/ethnic groups \( (OR = 6.01; \)
95% CI = 1.69, 21.41), however, these results were not significant after adjusting for socioeconomic position (OR 1.17; 95% CI, 0.69-1.97), psychosocial factors (OR 1.07; 95% CI, 0.63-1.81), health risk behaviors (OR 0.90; 95% CI, 0.55-1.49), health care access (OR 1.01; 95% CI, 0.60-1.70), stress/obesity (OR 0.73; 95% CI, 0.41-1.30), and disease/morbidity (OR 0.85; 95% CI, 0.46-1.57). Another study among Black pregnant women found that racial discrimination was positively correlated with depressive symptoms ($r = .38, p < .001$; Dailey & Humphreys, 2011). These studies suggest that racial discrimination has adverse psychological consequences for Black pregnant women.

Racial discrimination has also been linked to lower levels of social support among Black pregnant women (Dailey, 2009; Dove-Medows et al., 2021; Giurgescu et al., 2017; Khan et al., 2019). Social support is defined as the availability and reciprocal exchange of tangible and emotional assistance (Dailey, 2009; Sherbourne & Stewart, 1991). Compared with White pregnant women, Black pregnant women have lower levels of social support (Grobman et al., 2016; Nkansah-Amankra et al., 2010). One study found that Black pregnant women who reported experiences of racial discrimination also reported lower levels of social support and that experiencing discrimination was significantly correlated with decreased social support ($r = -.20, p < .05$) (Dailey, 2009). Another study also revealed that Black pregnant women who reported more experiences of racial discrimination indicated lower levels of social support ($r = -.257, p = .008$) (Giurgescu et al., 2017). These studies suggest that experiences of racial discrimination related to lower levels of social support among Black pregnant women.

Moreover, lower levels of social support have been related to psychological distress among Black pregnant women (Giurgescu, et al., 2015a; Giurgescu, et al., 2015b; Molina &
Kiely, 2011). Lower levels of social support were related to psychological distress in a small sample of 49 Black pregnant women ($r = -0.33, p < 0.05$; Giurgescu et al., 2015b). Social support predicted psychological distress among a sample of 833 Black pregnant women (80% Black; $\beta = 0.21, p < 0.001$; Westdahl et al., 2007). Another study of 1,044 Black pregnant women found that higher levels of social support were significantly associated with lower levels of psychological distress ($\beta = -0.13; SE = 0.03; CI = -0.18, -0.08; p < 0.001$; Molina & Kiely, 2011). Similarly, lower levels of social support were associated with higher levels of depressive symptoms (CES-D; $\beta = -1.3; p < 0.001$), perceived stress ($\beta = -0.8, p < 0.001$), and anxiety ($\beta = -0.39, p < 0.01$), and lower levels of psychological wellbeing ($\beta = 2.2, p < 0.001$) among Black pregnant women ($n = 203$; Hawkins et al., 2021).

Although research has reported that experiences of racial discrimination and lower levels of social support relate to psychological distress among Black pregnant women, few studies focus on the potential moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant or postpartum women. In a sample of 107 Black pregnant women, participants who reported more experiences of racial discrimination also reported lower levels of social support and higher levels of psychological distress ($p < 0.01$); however, social support did not moderate the association of racial discrimination with psychological distress (Giurgescu et al., 2017). In a sample of 414 Black mothers, social support moderated the relationship between perceived racism and depressive symptomology (Odom & Vernon-Feagans, 2010). Studies do not adequately address the potential moderating effect of social support on the association between racial discrimination and psychological distress. Therefore, the purpose of this study was to investigate the moderating
effect of social support on the association of racial discrimination with psychological distress among Black pregnant women. The aims of the study were to:

Specific Aim 1: Examine the associations among experiences of racial discrimination, social support, and psychological wellbeing among Black pregnant women.

H.1.1. Women who report more experiences of racial discrimination will have lower levels of social support and lower levels of psychological wellbeing.

H.1.2 Women who report lower levels of social support will have lower levels of psychological wellbeing.

Specific Aim 2: Examine the moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women.

H.2.1. Social support will moderate the association of racial discrimination with psychological distress.

Methods

Design and Sample

This is a secondary analysis using a cross sectional, descriptive, correlational design study with data collected as part of the Biosocial Impact on Black Births (BIBB) study. The BIBB study is a longitudinal, prospective cohort study that examined maternal factors related to preterm birth among Black pregnant women. A sample of 605 women were enrolled in the BIBB study prior to the COVID-19 pandemic if they self-identified as Black or African American, were 18-45 years, had a singleton pregnancy, and spoke and read English. Women were recruited from the metropolitan areas of Detroit, Michigan and Columbus, Ohio. Women completed questionnaires about maternal characteristics, experiences of racial discrimination,
social support, and psychological wellbeing at 8-29 weeks’ gestation. Six questionnaires were not completed. Hence, the current study was restricted to data analysis of 599 Black pregnant women.

**Procedures**

The BIBB study and the current study were approved by the Institutional Review Board at the participating universities and clinical sites. All BIBB study staff was trained by the principal investigator of the BIBB study and designated staff with experience recruiting Black women. Flyers were posted at clinics with face-to-face recruitment before or after their prenatal visit or ultrasound examination. Staff explained the study for women who were interested in participating in the BIBB study. Women completed an informed consent and Health Insurance Portability and Accountability Act (HIPAA) prior to completion of the questionnaires. A detailed description of recruitment for the BIBB study has been reported (Vaughan et al., 2022). Women completed questionnaires on an electronic device. If women did not complete the questionnaires during the clinic visit, they were emailed the questionnaires and sent up to 3 reminders via text or email to complete them. Women were reimbursed with a $30 store gift card for their time to complete the questionnaires.

**Measures**

**Maternal Characteristics**

Maternal sociodemographic characteristics (e.g., maternal age, marital status, level of education, employment status, annual household income) were collected by self-report. Gestational age at data collection was calculated based on the date of completion of the survey and the date of delivery from the medical records.
**Racial Discrimination**

Racial discrimination was measured using the Experiences of Discrimination (EOD) scale which measures subjective reports of experiences of racial discrimination over the lifespan (Krieger et al., 2005). The EOD scale includes a 9 tier situational experiences of racial discrimination related to ethnic, racial, or color-based encounters (e.g., public settings, accessing medical care) (yes = 1 or no = 0). The scale scores can range from 0-9 with higher score representing more situations of experiences of racial discrimination across the lifespan. The EOD has established construct validity ($r = 0.79$) with an underlying latent discrimination factor in previous samples of non-Hispanic Black adults (Krieger et al., 2005). The EOD was reliable in studies among Black pregnant women (Cronbach’s $\alpha = 0.79$) (Giurgescu et al., 2017). In the current study, the EOD had good internal consistency reliability (Cronbach’s $\alpha = 0.82$).

**Social Support**

Social support was measured by the Medical Outcomes Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991). The MOS index is a 19-item (e.g., How often is this support available to you?; someone you can count on to listen to you when you need to talk, someone who shows you love and affection, someone to give you good advice about a crisis, to understand your problems) multidimensional instrument measuring the availability of support in four functional domains: emotional/informational, tangible, affectionate, and positive social interaction. The MOS uses a 5-point response scale to score each item (1= none of the time to 5= all of the time). A total score for the MOS can range from 19-95 with higher scores representing higher levels of social support. The MOS has established construct validity in previous samples of women (Kim & Mazza, 2014). The MOS Social Support Survey had good internal
consistency reliability among Black pregnant women, and Cronbach’s α were 0.97 among Black pregnant participants (Giurgescu, Misra, et al., 2015; Giurgescu et al., 2017). In the current study, Cronbach’s α was 0.98.

**Psychological Distress**

Psychological distress was measured using the Psychological General Wellbeing (PGWB) Index which measures an individual’s personal wellbeing and self-determination of psychological distress (Dupuy, 1984). The PGWB index includes 22-items (e.g., feel depressed; firm control of behaviors, thoughts, emotions, and feelings; been worried, anxious, or upset) that uses a 6-point response scale (most positive to most distress). A total score ranges from 0 to 110, with some items reverse scored. Psychological distress is indicated by a score of 72 or less. The measure has evidence of concurrent validity by acceptable correlations between the PGWB and other existing depression scales ranging from 0.52-0.80 (Dupuy, 1984). The PGWB was reliable in studies among Black pregnant and postpartum women with Cronbach’s α values ranging from .91 to .94 in these studies (Giurgescu et al., 2012; 2017). In the current study, the Cronbach’s α was 0.91.

**Data Management and Analysis**

Data were entered, cleaned, and prepared for analysis using the SPSS software. Descriptive statistic (mean, standard deviation, counts and frequencies) were analyzed for maternal characteristics (e.g., maternal age, gestational age at data collection, level of education, employment, annual household income) and major variables of the study (racial discrimination, social support, psychological wellbeing). Relying on strong inter-item correlation and a low missing item rate of less than 5%, missing data were imputed by predictive mean matching
method from the multiple imputation by the mice package in statistical software R (version 4.0.1). A Shapiro-Wilk test was performed and showed evidence of non-normality for MOS Social Support Survey ($W= 0.899, p < .001$) and PGWB index ($W = 0.994, p = .026$).

Spearman’s rho correlation was conducted to assess the bivariate relationships among experiences of racial discrimination, social support, and psychological distress. Logistic regression analyses were performed to investigate the moderating effect of social support on the associations of experiences of racial discrimination with psychological distress after controlling for maternal characteristics [maternal age, gestational age at time of data collection, levels of education (coded as 1 = Less than High School, 2 = Graduated High school or GED, 3 = Technical, Some college, Associates, Bachelor’s, or Graduate Degree), unemployment (coded as yes vs. no), marital status (coded as 1=married/partnered; 0=single), annual household income (coded as 1 = < $10,000, 2 = $10,000 – $29,999, and 3 = ≥ $30,000)]. Moreover, to prevent extreme positive skewness in the logistic regression, all major study variables were dichotomized: experiences of racial discrimination [1=yes (1–9 situations); 0=no (0 situations)]; social support [1= low levels of social support (MOS Social Support Survey scores ≤ 77; 0= high levels of social support (MOS Social Support Survey scores ≥ 78)]; and psychological distress [1= psychological distress (PGWB scores ≤ 72); 0= psychological wellbeing (PGWB scores ≥ 73)]. To avoid potentially problematic high multicollinearity with the interaction term, a variable for the interaction term Racial Discrimination*Social Support was created by first dichotomizing each variable and then using a process developed by Andrew F. Hayes which involves transforming the racial discrimination and social support variables and recoding into an interaction term that can be added to the logistic regression analysis (Hayes, 2017).
Results

Maternal Characteristics

Women had a mean age of 26± 5 years and a mean gestational age at data collection of 17± 6 weeks. The majority of women were single (59%), unemployed (50%), had less than a $19,999 annual household income (62%) and had less than high school education, graduated high school or obtained a GED (63%). The MOS mean score was 74 ± 20.3; the EOD mean score was 1.7 ± 2.2; and the PGWB mean score was 70 ±17.3 (see Table 3).

Table 3. Descriptive Statistics for Sample Characteristics (N = 599)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age (years)</td>
<td>26.54 (5.6)</td>
<td>18–31</td>
</tr>
<tr>
<td>Gestational age at data collection (weeks)</td>
<td>17.46 (6.0)</td>
<td>15–26</td>
</tr>
<tr>
<td>Experiences of discrimination</td>
<td>1.7 (2.2)</td>
<td>0–9</td>
</tr>
<tr>
<td>Social support</td>
<td>74 (20.3)</td>
<td>22–95</td>
</tr>
<tr>
<td>Psychological General Wellbeing index</td>
<td>70 (17.3)</td>
<td>11–110</td>
</tr>
</tbody>
</table>

Counts (Frequency)

<table>
<thead>
<tr>
<th>Level of education</th>
<th>Counts (Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>101 (16.9)</td>
</tr>
<tr>
<td>Graduated high school or GED</td>
<td>283 (47.2)</td>
</tr>
<tr>
<td>Technical school</td>
<td>46 (7.6)</td>
</tr>
<tr>
<td>Some college</td>
<td>135 (22.3)</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>20 (3.3)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>8 (1.3)</td>
</tr>
<tr>
<td>Graduate degree or higher</td>
<td>6 (1.0)</td>
</tr>
</tbody>
</table>

Employed

| Yes                                           | 292 (48.3)         |
| No                                            | 307 (50.7)         |
Bivariate Relationships Among Study Variables

Spearman’s rank-order correlations were conducted to assess the relationships among racial discrimination, social support, and psychological wellbeing. Experiences of racial discrimination related to lower levels of social support, \( r_s(592) = -0.221, p < .001 \) and lower levels of psychological wellbeing, \( r_s(591) = -0.216, p < .001 \). Lower levels of social support related to lower levels of psychological wellbeing \( r_s(591) = 0.403, p < .001 \); see Table 4.

Table 4. Associations among Racial Discrimination, Social Support, and Psychological Wellbeing (\( N = 599 \))

<table>
<thead>
<tr>
<th>Variable</th>
<th>Racial Discrimination</th>
<th>Social Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social support</td>
<td>-0.221**</td>
<td></td>
</tr>
<tr>
<td>Psychological wellbeing</td>
<td>-0.216**</td>
<td>0.403**</td>
</tr>
</tbody>
</table>

*Note.** Correlation is significant at \( p < .01 \); Spearman’s rho (2-tailed).
**Predictors of Psychological Distress**

The logistic regression model was statistically significant, \( \chi^2(4, N = 599) = 85.42, p < .001 \). The model accounted for 18.4\% (Nagelkerke R\(^2\)) of the variance in psychological wellbeing and correctly classified 66.4 \% of cases. Sensitivity was 58.6\%, specificity was 73.1\%, positive predictive value was 65\% and negative predictive value was 67.4\%. The Hosmer and Lemeshow Test indicated a good fit \( (p = .794) \). Women who reported experiences of racial discrimination were 2.2 times more likely to report psychological distress than women who did not report racial discrimination after adjustment for maternal age, gestational age at data collection, marital status, level of education, annual household income, and employment status [Odds ratio (OR) = 2.24; 95\% CI = 1.35, 3.70; \( p = .002 \)]. Women who reported low levels of social support (i.e., MOS social support scores below the median) were 3.4 times more likely to report psychological distress than women who reported high levels of social support after adjustment of covariates (OR = 3.84; 95\% CI = 2.27, 6.48; \( p = <.001 \)). The interaction term of Racial Discrimination and Social Support on psychological distress was not statistically significant (see Table 5).
Table 5. Logistic Regression Predictors of Psychological Distress \((N = 599)\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>(p)-value</th>
<th>Exp(B)</th>
<th>95% CI for Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Maternal age</td>
<td>−0.024</td>
<td>0.017</td>
<td>.170</td>
<td>0.977</td>
<td>0.944</td>
</tr>
<tr>
<td>Gestational age at data collection</td>
<td>−0.003</td>
<td>0.015</td>
<td>.845</td>
<td>0.997</td>
<td>0.968</td>
</tr>
<tr>
<td>Marital status (married or living with partner)</td>
<td>−0.310</td>
<td>0.189</td>
<td>.102</td>
<td>0.734</td>
<td>0.506</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school (reference)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school or GED</td>
<td>−0.160</td>
<td>0.269</td>
<td>.551</td>
<td>0.852</td>
<td>0.503</td>
</tr>
<tr>
<td>Technical, some college, associate’s, bachelor’s, or graduate degree</td>
<td>0.054</td>
<td>0.301</td>
<td>.857</td>
<td>1.056</td>
<td>0.585</td>
</tr>
<tr>
<td>Household income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $10,000 (reference)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$10,000–$29,999</td>
<td>−0.011</td>
<td>0.269</td>
<td>.968</td>
<td>0.989</td>
<td>0.584</td>
</tr>
<tr>
<td>≥ $30,000</td>
<td>−0.475</td>
<td>0.225</td>
<td>.035</td>
<td>0.622</td>
<td>0.400</td>
</tr>
<tr>
<td>Employment status (unemployed)</td>
<td>−0.154</td>
<td>0.198</td>
<td>.439</td>
<td>0.858</td>
<td>0.581</td>
</tr>
<tr>
<td>Racial discrimination</td>
<td>0.807</td>
<td>0.256</td>
<td>(\times .02)</td>
<td>2.242</td>
<td>1.359</td>
</tr>
<tr>
<td>Social support</td>
<td>1.345</td>
<td>0.267</td>
<td>(&lt; .001)</td>
<td>3.838</td>
<td>2.273</td>
</tr>
<tr>
<td>Racial discrimination*Social support</td>
<td>−0.258</td>
<td>0.366</td>
<td>.481</td>
<td>0.772</td>
<td>0.377</td>
</tr>
</tbody>
</table>

\(\chi^2(4, N = 599) = 85.42, p < .001;\) Nagelkerke \(R^2 = .184;\) B = log odds ratio; SE = standard error; \(p\)-value = level of significance; \(\text{Exp(B)}\) = odds ratio.
Discussion

Experiences or racial discrimination and social support predicted psychological distress among Black pregnant women in this study. However, social support did not moderate the effect of racial discrimination on psychological distress among these women. Similarly, Giurgescu et al. (2017) found that social support did not moderate the association of racial discrimination with psychological wellbeing among Black pregnant women. Research among Black non-pregnant women reported that the interaction between the experience of racial discrimination and social support for racism was statistically significant, $\beta = -0.16$, $t(582) = -2.29$, $p < .05$ (Seawell et al., 2014). Tailored social support for racism moderated the association between racial discrimination and depressive symptoms over time among these women (Seawell et al., 2014). Therefore, in order for social support to be effective, it may need to be tailored to racial discrimination to buffer psychological distress elicited by racial discrimination. Social support tailored to racial discrimination, not necessarily generalized social support, may be a better measure to examine the moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women (Giurgescu et al., 2017; Seawell et al., 2014). Future studies should consider the moderating effect of social support tailored to racial discrimination on the association of racial discrimination with psychological distress among Black pregnant women.

In this study, women who reported racial discrimination were twice as likely to report psychological distress than women who did not report racial discrimination. Giurgescu et al. (2017) found that Black pregnant women who reported psychological distress (PGWB scores $\leq 72$) reported twice as many experiences of racial discrimination as women who did not report
psychological distress (PGWB scores > 72; 2.3 and 1.1, respectively, \( t(103) = -2.996, p = .003 \)).

Other researchers also reported an association between racial discrimination and psychological distress among Black pregnant women (Cohen et al., 2022; Dailey, 2009; Dailey & Humphreys, 2011; Dominguez et al., 2008; Earnshaw et al., 2013; Ertel et al., 2012; Giurgescu et al., 2012; 2017; 2020). Black pregnant women who report more experiences of discrimination (e.g., due to race, gender, age, and education) reported psychosocial distress \( (p<.001; \text{Dailey, 2009}) \). Prior studies suggest that understanding the psychosocial context of Black pregnant women may be important in understanding the impact of racial discrimination on psychological wellbeing for these women.

The women in this study were also more likely to report psychological distress if they reported an annual income of $30,000 or higher. These findings are consistent with other studies among Black pregnant women (Grobman et al., 2016). Grobman et al. (2016) found that racial discrimination and depressive symptoms were exacerbated among Black pregnant women with higher income \( (\text{interaction, } p < 0.001) \) and not among White pregnant women. Also, a study among Black adults in the US suggests that structural factors such as residential segregation, higher psychological costs of upward social mobility, as well as interpersonal discrimination may contribute to the diminished gains of increased SES among Blacks compared to Whites (Assari et al., 2018). Because these findings are exclusive to Blacks this may suggest that socioeconomic status may have a paradoxical effect on the mental wellbeing of Black women.

Women in the current study who reported low levels of social support were 3 times more likely to report psychological distress than women who reported high levels of social support. These findings were consistent with various studies among Black pregnant women that suggest
social support is a key variable to consider when assessing the psychological wellbeing of Black pregnant women (Collins et al., 2021; Hawkins et al., 2021; Molina & Kiely, 2011). In a study among 95 Black pregnant women, social support was negatively correlated to depressive symptoms ($p < 0.01$; Giurgescu, Zenk, et al., 2015). In another study among Black pregnant women, higher family involvement was associated with higher levels of psychological wellbeing ($\beta = 2.2, p < 0.001$) (Hawkins et al., 2021). Although these findings reported that experiences of racial discrimination and lower levels of social support relate to lower levels of psychological wellbeing among Black pregnant women, future longitudinal research is needed to assess the impact of associations among these factors (e.g., racial discrimination, social support, and psychological distress) on disparities in maternal health and birth outcomes that disproportionately affect Black pregnant women.

Despite the rising national priority to reduce racial disparities in adverse maternal and birth outcomes, the highest rates of adverse maternal (e.g., pre-eclampsia, cesarean section, mortality) and infant (e.g., preterm birth, low-birthweight infants) disparities persist (CDC, 2020; Hobel et al., 2008; Miller & Tuan, 2018; Office of Disease Prevention and Health Promotion, 2020). Black women are 3 times more likely to experience birth related mortality than White women (Petersen et al., 2019). Black women are also 50% more likely to have preterm birth (14% vs 9%, respectively) and have a 1 in 7 chance to give birth to a low birthweight infant (14% vs 6%, respectively) compared with White women (CDC, 2020, 2021; Centers for Disease Control and Prevention, 2021; March of Dimes, 2021, 2022; Office of Disease Prevention and Health Promotion, 2020). Research suggests that racial discrimination is related to adverse maternal health and birth outcomes among Black women (Earnshaw et al.,
In one study, racial discrimination was associated with both preterm birth (OR = 2.54; 95% CI = 1.33, 4.85) and low-birthweight infant (OR = 4.24; 95% CI = 1.31, 13.67) among Black women only; these associations were not significant among White women (Mustillo et al., 2004). This same study found that among Black women, 50% of those with preterm birth and 61% of those with low-birthweight infants reported having experienced racial discrimination in at least 3 situations; among White women, the corresponding percentages were 5% and 0% (Mustillo et al., 2004). Previous studies have demonstrated a link between racial discrimination and negative maternal health outcomes (Taylor, 2020; Wynn, 2019).

Limitations

There were limitations to this study. Data for this study were collected at one point in time using convenience sampling creating an inherent risk for sampling bias. The survey method used to collect data presents the limitation of self-report bias. Furthermore, the cross-sectional study design assesses exposure and outcome simultaneously, resulting in an inability to establish a cause-and-effect relationship between study variables or examine the variables and change in behavior over time because there is no way to establish the temporal order of the variable relationships. Future studies may consider a longitudinal design with randomized sampling, however, given the constraints of dissertation research such study designs were not feasible. Women were also enrolled in the parent study based on their own voluntary election to participate. Therefore, it is possible that women who agreed to participate in the parent study may have pre-existing characteristics that are different from women who did not participate, making it acceptable to consider the limitation of self-selection bias for this study. However, the
larger sample size of nearly 600 women and use of multi-site recruitment may strengthen the representativeness of the sample. The survey method used to collect data presents the limitation of self-report bias.

Implications

Furthermore, this dissertation study adds to the literature, by filling a gap in the literature on limited research that examines the associations among racial discrimination, social support, and psychological distress in Black pregnant women. Given the gap in the literature, future research should consider longitudinal and or experimental study designs that offer insight into the relationships among racial discrimination, social support, and psychological distress in Black pregnant women over time. Although this study did not find a moderating effect of social support on the relationship between racial discrimination and psychological distress, future studies may consider assessing various kinds of social support, such as support against racial discrimination, to examine the moderating effect of these types of social support among Black pregnant women. Understanding that social support is associated with improved psychological wellbeing, Black pregnant women may benefit from interventions that evaluate the availability of a social support network and establish support groups that are easily accessible for women without other forms of assistance (Giurgescu & Murn, 2016). Research suggests that Black pregnant women may benefit specifically from public health interventions and policies that reduce the negative impact of racial discrimination by providing access to support groups that are tailored to combat racism and to other resources offered throughout the perinatal period to reduce psychological distress (Giurgescu et al., 2017).
Clinical Implications

Although the results of this study do not support a moderating effect of social support on the relationship between racial discrimination and psychological distress, they reveal that experiences of racial discrimination and inadequate social support predict psychological distress among Black pregnant women. Therefore, nurses who provide Black pregnant women with non-biased, culturally competent, and inclusive care while maintaining socially supportive experiences may improve Black pregnant patients’ psychological wellbeing. Nurses should also establish support networks with a specific focus on issues of racial discrimination for their Black pregnant patients. Nurses should make referrals for women who report experiencing increased depressive symptoms or psychological distress since these factors have been related to adverse maternal health and birth outcomes. The results of this study may progress nursing science by increasing knowledge related to individual risk factors that may negatively impact maternal and birth outcomes among Black pregnant women. Healthcare providers should evaluate the importance of assessing social support that may help reduce the risk of psychological distress experienced among Black pregnant women through early detection.

Conclusion

The results of this study suggest that racial discrimination and low social support predict psychological distress among Black pregnant women. Healthcare providers should consider the impact of a social support on the mental wellbeing of Black pregnant women and ways to promote social support for these women. The results of this study contribute to the current body of knowledge on the associations between racial discrimination, social support, and psychological distress. Ultimately, the results of this study display evidence of a need to focus in
future research on the influence of racial discrimination and social support on the psychological wellbeing of Black pregnant women.

Acknowledgment

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CHAPTER 4: RACIAL DISCRIMINATION AND PSYCHOLOGICAL DISTRESS AMONG BLACK PREGNANT WOMEN

Abstract

Black pregnant women encounter various social stressors which contribute to poor maternal health outcomes. Racial discrimination is a prominent social stressor for Black pregnant women that decreases psychological wellbeing, increases risk for birth complications, and disproportionately affects their high rates of maternal health disparities. Thus, the purpose of this study is to describe Black pregnant women’s experiences of discrimination in various settings, and how these experiences relate to psychological wellbeing among these women. The study used a cross-sectional, descriptive design to examine data from a sample of 599 Black pregnant women enrolled in the Biosocial Impact on Black Births (BIBB) study prior to the COVID-19 pandemic. Women completed questionnaires regarding experiences of racial discrimination and psychological wellbeing. The mean age of the sample was 26 ± 5 years, and the mean gestational age at data collection was 17.46 ± 6 weeks. Approximately 53.4% of women reported ever (lifetime) experiencing discrimination in at least one situation (e.g., in school) and 53.8% had a PGWB score of 72 or less, indicating psychological distress. The most frequently reported experiences of racial discrimination were getting service in a store or restaurant (32.7%) and on the street or in a public setting (30.4%). The least frequently reported experiences of discrimination were while getting medical care (8.7%). Women who reported experiencing racial discrimination in any situational domain except getting credit, bank loan, or a mortgage were more likely to report lower levels of psychological wellbeing compared with women who did not report experiencing racial discrimination ($p < .05$). Findings of the study contribute to the
literature on understanding situational experiences of racial discrimination among Black pregnant women and the impact it may have on their psychological wellbeing.
Introduction

Black pregnant women experience the highest rates of racial discrimination, compared with pregnant women from other races and ethnicities (Grobman et al., 2016). Research has found that greater than 50% of Black pregnant women report experiencing discrimination (Chambers et al., 2020; Giurgescu et al., 2020; Mustillo et al., 2004; Stancil et al., 2000; Zang et al., 2019). Another study found that Black pregnant women were 3 times more likely to report experiences of racial discrimination compared with White pregnant women (Dole et al., 2004). Research also shows that Black pregnant women experience discrimination in more settings than White women (Canady et al., 2008; Grobman et al., 2016; Mustillo et al., 2004; Simon et al., 2016).

Research suggest that experiences of racial discrimination are associated with higher levels of psychological distress among Black pregnant women (Bennett et al., 2010; Canady et al., 2008; Cohen et al., 2022; Earnshaw et al., 2013; Giurgescu et al., 2012; 2020; Zang et al., 2019). A meta-analysis of 28 independent samples with a total of 6,131 Black participants (51% females) found that racial discrimination was related to psychological distress, showing small to medium effects (4.4% of the total variance was shared between racial discrimination and psychological distress; Lee & Ahn, 2013). Psychological distress places Black pregnant women at a higher risk for adverse maternal and birth outcomes (Daniels et al., 2020; Field et al., 2009; Giurgescu, et al., 2013a; 2013b; Grote et al., 2010; Rondó et al., 2003; Vehmeijer et al., 2019) especially in the presence of racial discrimination (Slaughter-Acey et al., 2016). Racial discrimination may have a profound impact on the psychological wellbeing of Black pregnant women; however, little is known about the contexts in which these encounters occur.
Literature Review

Despite understanding the high prevalence of racial discrimination among Black pregnant women and its negative impact on maternal health (Taylor, 2020; Wynn, 2019), few studies examine the situational domains in which these women experience discrimination. Studies among clinicians caring for Black pregnant women reveal that these women may experience disproportionate racism (i.e., surveillance, provision of inequitable care, and structural care issues) based solely on their race or the color of their skin (Chambers et al., 2022). Black pregnant women are at risk for experiencing racial discrimination when receiving medical care throughout the perinatal period although this may often go unreported (Davis, 2019). One study among Black pregnant women found that nearly 6% of women reported experiencing racial discrimination while getting medical care (Giurgescu et al., 2017). Another study found similar results with 6.3% of Black pregnant women reporting experiencing discrimination while getting medical care (Giurgescu et al., 2016). In one qualitative study among a sample of Black and Latina pregnant women, 40% of which were Black, women reported experiencing racial discrimination while receiving obstetric care in a medical setting (Janevic et al., 2020). Compared with other women of color, Black pregnant women reported a nearly four-fold greater odds of experiencing discrimination in the medical setting after adjusting for age and parity (11% vs 31%, adjusted odds ratio [OR] = 3.9; 95% Confidence Interval [CI] = 1.2, 12.1; \( p < 0.05 \); Prater et al., 2022). Despite availability of research on the increased odds of experiencing discrimination in the medical setting, studies have found that Black pregnant women continue to be at risk for racial microaggressions related to the color of their skin and racial discrimination may place them at risk for delays in prenatal care (Slaughter-Acey et al., 2019). Black pregnant
women not only report experiencing discrimination in prenatal care but also report such experiences throughout their obstetric journey. Another study including 346 Black pregnant women reported that 21% Black women reported experiencing discrimination during pregnancy and delivery in the medical setting compared with White pregnant women (8%) (Attanasio & Kozhimannil, 2015). In a study among pregnant women (n = 20), 40% of Black women reported experiencing discrimination in a medical setting compared with 27% of White women (Janevic et al., 2021). These studies suggest that Black pregnant women experience racial discrimination in a medical setting.

Research also shows that Black pregnant women may be at risk for experiencing racial discrimination in public settings (i.e., getting service in a store or restaurant, on the street or in a public setting, at school). One study among Black pregnant women in Chicago, Illinois found that these women were more likely to experience discrimination in public settings (31%) and least likely to report discrimination while getting medical care (less than 1%) (Collins et al., 2004). Another study among Black pregnant women in metropolitan Detroit, Michigan reported that women were more likely to experiences of discrimination while getting service in a store or restaurant (40%) and on the street or in a public setting (34%; Giurgescu et al., 2020). One study among Black pregnant and immediately postpartum women in Oakland, California revealed that women were just as likely to report experiencing discrimination on the street or in a public setting (59.5%) as they were at school (59.5%) and that these were the two domains where women most commonly experienced discrimination (Chambers et al., 2020). Another study among 107 Black pregnant women from Chicago, Illinois reported that the majority of women reported racial discrimination outside of the health care system (e.g., getting service in a
store; Giurgescu et al., 2017). One qualitative study revealed that experiencing racial discrimination \textit{in school} left women feeling judged based on stereotypes about Black pregnant women (OjiNjideka Hemphill et al., 2023). In a study among 96 Black pregnant women, women experienced discrimination \textit{when getting service in a store or restaurant} (34.4%) and \textit{on the street or in a public setting} (20%) but only 10.6% reported experiencing discrimination \textit{at school} (Giurgescu et al., 2016). In a mixed-methods study among 11 Black pregnant women, four of the seven women who completed interviews reported experiencing discrimination \textit{while shopping} or \textit{when in a store/restaurant} but only half reported ever experiencing discrimination at school (Dove-Medows et al., 2020). Research has found that the racial micro aggressions that Black pregnant women experience in daily life may often go underreported (Slaughter-Acey et al., 2016). Among the four women who reported experiencing discrimination while shopping or when in a store or restaurant, one woman reported experiencing discrimination because of her race when eating at a restaurant table that was not waited on (Dove-Medows et al., 2020). Thus, Black pregnant women experience racial discrimination in numerous public settings.

Similarly, other studies among Black pregnant women also report on experiences of racial discrimination while \textit{at work} and while \textit{getting hired or getting a job}. One study among Black pregnant women found that 20\% of these women reported experiencing discrimination \textit{when getting hired or getting a job} (Giurgescu et al., 2016). Another study among Black pregnant women reported 28.7\% of women experiencing racial discrimination \textit{at work} or \textit{when applying for a job} (Stancil et al., 2000). In a study among Black pregnant women, 17\% of women experienced racial discrimination \textit{at work} while 19\% experienced discrimination when \textit{finding a job} (Collins et al., 2004). In a mixed-methods study among 11 Black pregnant women,
one woman reported that she had been removed from her work schedule for a period of time after reacting to co-workers’ comments about her friends’ race and another woman stated that the customers at her job made her put their IDs on the counter to avoid touching their hand and has been the target of racial commentary from customers (Dove-Medows et al., 2020). One study assessing pregnancy outcomes among Black mothers found that 37% of women indicated that racial discrimination was a problem in their life and 26% felt racially discriminated against when performing their job (Jackson et al., 2001).

Racial discrimination can also lead to unequal opportunities for home ownership and limitations with receiving credit, bank loans, or a mortgage among Black pregnant women (Bell et al., 2006; Pearlman & Robinson, 2022). A qualitative study including 24 Black pregnant women from New Haven, Connecticut, reported that women in the study explained difficulties finding housing due to racial discrimination during their pregnancy, with one woman even reporting that she felt that she was lied to by a leasing office because she was Black and pregnant (Mehra et al., 2020). Another study among 212 Black pregnant women found that 12% of women in the study experienced racial discrimination while getting credit, bank loans, or a mortgage and 16% of women reported experiencing discrimination while getting housing (Giurgescu et al., 2020). Findings were similar to a study among 96 Black pregnant women that reported 11% of women experienced racial discrimination while getting credit, bank loans, or a mortgage and 8% while getting housing (Giurgescu et al., 2016).

Black pregnant and postpartum women are also impacted by racial discrimination that they experience when interacting with the police and in the courts (Mehra et al., 2022). In a mixed methods study among Black pregnant women, one woman who did not report ever
experiencing racial discrimination in their quantitative survey revealed in the qualitative interview that while buying/test driving a car from two Caucasian men, two police officers came and ticketed her after asking various questions about illegal activity, stating that it was because she was behind the wheel even after she explained that it was not her car and let the sellers of the vehicle go (Dove-Medows et al., 2020). Another study among Black pregnant women from Chicago, Illinois found that nearly 19% of women reported experiencing racial discrimination from the police or in the courts (Giurgescu et al., 2016). In a study among 200 Black pregnant women, 27% of women in the study had experienced racial discrimination from the police or in the courts (Giurgescu et al., 2020). Another qualitative study among 24 Black pregnant women, reported that 79% of women stated that they had experienced racial discrimination and stress related to encounters with the police (Mehra et al., 2022). Thus, numerous studies reported that Black pregnant women experience discrimination in different situations including in medical care, public settings, at work, getting loans and from police. Racial discrimination often results in chronic experiences of stress or psychological distress among Black pregnant women (Giurgescu et al., 2016; Giurgescu et al., 2017).

Racial discrimination experienced by Black pregnant women is pervasive and insidious in leading to reduced psychological wellbeing throughout the perinatal period and beyond. Black pregnant women report experiencing racial discrimination throughout the perinatal period and experiences of racial discrimination were associated with depressive symptoms well into the first year postpartum ($p < .01$; Rosenthal et al., 2015). Studies have found that more experiences of racial discrimination are related to higher levels of psychological distress among Black pregnant women (Earnshaw et al., 2013; Ertel et al., 2012; Giurgescu et al., 2012; Giurgescu et
Experiences of racial discrimination were positively related to psychological distress ($r = .437, p < .01$) among Black postpartum women (Giurgescu et al., 2012). In one study among Black pregnant women ($n = 17$ Black), Black participants reported the highest experiences of discrimination scores compared to Hispanic and non-Hispanic White women ($M = 4.19, 2.36, \text{ and } .53$, respectively) and that these scores were positively correlated with depressive symptoms at 17 ($r = 0.17, p < .05$) and 29 ($r = 0.18, p < .05$) weeks gestation (Noroña-Zhou et al., 2022). One study among pregnant minority women (37.6% of which were Black) found that everyday discrimination was associated with increased levels of depressive symptoms and pregnancy distress ($p < .01$; Earnshaw et al., 2013). Ertel et al. (2012) found that after adjusting for age, marital status, income, education, and nativity, a 1-unit increment in Experiences of Discrimination score was associated with 48% increased odds of depressive symptoms ($OR = 1.48; 95\% CI = 1.24, 1.76$) among Black pregnant women in their ACCESS cohort. Another study found that racial discrimination predicted depressed mood ($OR = 2.15; 95\% CI = 1.07, 4.31$) among a sample of 812 Black postpartum women (Segre et al., 2021).

Although studies examine racial discrimination and psychological distress among Black pregnant and postpartum women, few studies investigate how the different situations in which these women experience racial discrimination may relate to psychological wellbeing. Examining the individual situations in which women encounter racial discrimination may provide rich insight into the social-cultural context that influences the psychological wellbeing of Black pregnant women. Although research has examined the prevalence and situational context of racial discrimination among pregnant women, few studies have investigated the association of situational context and psychological wellbeing among Black pregnant women. Thus, this study
sought to compare Black pregnant women who report experiences of racial discrimination in various settings compared with those who do not experience racial discrimination in those settings, and how these situations related to psychological wellbeing among Black pregnant women.

**Methods**

*Design and Sample*

This is a secondary analysis using a cross-sectional, comparative descriptive design with data collected as part of the Biosocial Impact on Black Births (BIBB) study. The BIBB study is a longitudinal, prospective cohort study that examined maternal factors related to preterm birth among Black pregnant women. A sample of 605 women were enrolled in the BIBB study prior to the COVID-19 pandemic if they self-identified as Black or African American, were 18-45 years, had a singleton pregnancy, and spoke and read English. Women were recruited from the metropolitan areas of Detroit, Michigan and Columbus, Ohio. Women completed questionnaires about maternal characteristics, experiences of racial discrimination, and psychological wellbeing at 8-29 weeks’ gestation. Six questionnaires were not completed. Hence, the current study was restricted to data analysis of 599 Black pregnant women.

*Measures*

Racial discrimination was measured by the Experiences of Discrimination (EOD) scale which measures self-reported lifetime experiences of racial discrimination in various situational domains (Krieger et al., 2005). The EOD scale includes a 9-tier situational racial discrimination related to ethnic, racial, or color-based lifetime experiences (*at school, getting hired or getting a job, at work, getting housing, getting medical care, getting service in store or restaurant, getting*
credit, bank loans, or a mortgage, on the street or in a public setting, police or in the courts)
(yes = 1 vs no = 0). The scale can range from 0-9 with higher score representing more situations
of experiences of racial discrimination. The EOD has established construct validity ($r = 0.79$)
with an underlying latent discrimination factor in previous samples of non-Hispanic Black adults
(Krieger et al., 2005). The EOD was reliable in studies among Black pregnant women
(Cronbach’s $\alpha$= 0.79; Giurgescu et al., 2017). In the current study, the EOD had good internal
consistency reliability (Cronbach’s $\alpha = 0.82$).

Psychological Wellbeing was measured using the Psychological General Wellbeing
(PGWB) Index which measures subjective reports of mental wellbeing or distress (Dupuy,
1984). The PGWB index includes 22-items and assesses emotional domains through six
subscales: anxiety, depressed mood, positive wellbeing, self-control, general health, and vitality
(e.g., firm control of behaviors, thoughts, emotions, and feeling; been worried, anxious, or upset;
feel depressed) on a 6-point Likert scale (most negative to most positive). A total score ranges
from 0 to 110, with some reverse scoring. Psychological wellbeing is indicated by a score of
greater than 72. PGWB scores between 61 and 72 represent moderate distress and scores 60 and
lower indicate severe distress. Evidence of concurrent validity had acceptable correlations
between the PGWB and other existing depression scales ranging from 0.52-0.80 (Dupuy, 1984).
The PGWB was reliable in studies among Black pregnant and postpartum women (Cronbach’s $\alpha$
ranged from 0.91to 0.94; Giurgescu et al., 2012; Giurgescu et al., 2017). In the current study, the
Cronbach’s $\alpha$ was 0.91.
Research Procedures

The BIBB study and the current study were approved by the Institutional Review Board at the participating universities and clinical sites. All BIBB study staff was trained by the principal investigators of the BIBB study and designated staff with experience recruiting Black women. Women completed an informed consent and Health Insurance Portability and Accountability Act (HIPAA) prior to completion of the questionnaires. A detailed description of recruitment for the BIBB study has been reported (Vaughan et al., 2022). Women completed questionnaires on an electronic device and any incomplete items were sent via secure email with up to three reminders via text or email to complete them. Women were reimbursed with a $30 store gift card for their time to complete the questionnaires.

Data Management and Analysis

Data were entered, cleaned, and prepared for analysis using the IBM SPSS 29 software. Descriptive statistics (number and frequencies) were analyzed for each individual situational domain of experiences of discrimination (e.g., at school, getting hired or getting a job, at work, getting housing, getting medical care, getting service in store or restaurant, getting credit, bank loans, or a mortgage, on the street or in a public setting, police or in the courts) and psychological wellbeing. Relying on strong inter-item correlation and a low missing item rate of less than 5%, missing data were imputed by predictive mean matching method from the multiple imputation by the mice package in statistical software R (version 4.0.1). An independent samples t-test was conducted to examine differences in psychological wellbeing between women who reported racial discrimination and women who did not report racial discrimination.
Results

Maternal Characteristics

Women had a mean gestational age at data collection of 17± 6 weeks and a mean age of 26 ± 5 years. The majority of women in this sample were single (59%), had completed a high school education or technical school (55%), and had less than a $19,999 annual household income (62%). Women in this sample also had a mean EOD score of 1.7 ± 2.2 indicating fewer lifetime experiences of racial discrimination and a mean PGWB score of 70 ± 17.3 indicating moderate levels of psychological distress. Approximately 53% of women reported ever (lifetime) experiencing discrimination in at least one situation (e.g., in school) and 54% had a PGWB score of 72 or less indicating either moderate or severe levels of psychological distress (see Table 6).
Table 6. Summarized Descriptive Statistics (n = 599)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Age (years)</td>
<td>26.54 ± 5.6</td>
<td>18-31</td>
</tr>
<tr>
<td>Gestational age at data collection (weeks)</td>
<td>17.46 ± 6.0</td>
<td>15-26</td>
</tr>
<tr>
<td>Counts (Frequency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than Highschool Education</td>
<td>101 (16.9)</td>
<td></td>
</tr>
<tr>
<td>Graduated Highschool or GED</td>
<td>283 (47.2)</td>
<td></td>
</tr>
<tr>
<td>Technical School</td>
<td>46 (7.6)</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>307 (50.7)</td>
<td></td>
</tr>
<tr>
<td>Household Income &lt; $10,000</td>
<td>273 (45.1)</td>
<td></td>
</tr>
<tr>
<td>Household Income $10,000 – 19,000</td>
<td>99 (16.4)</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>361 (59.6)</td>
<td></td>
</tr>
<tr>
<td>EOD scores ≥1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>278 (46.4)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>320 (53.4)</td>
<td></td>
</tr>
<tr>
<td>PGWBI scores &gt; 72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>272 (45.4)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>322 (53.8)</td>
<td></td>
</tr>
</tbody>
</table>

The frequencies of experiences of racial discrimination are reported in Table 7. The most frequently reported experiences of racial discrimination were getting service in a store or restaurant (32.7%), on the street or in a public setting (30.4), and from the police or in the courts (22.7%). The least reported experiences of discrimination were getting housing (13.2%), getting credit, bank loans, or a mortgage (9.5%), and while getting medical care (8.7%). Among women who reported experiencing racial discrimination while getting service in a store or restaurant, (n = 170), more women reported experiencing discrimination two or three times in this situation.
than women who reported four or more times and one time experiencing discrimination in this situation (105, 45 and 32, respectively). Among women who reported experiencing racial discrimination while getting service in a store or restaurant, more women also reported experiencing discrimination four or more times than in any other situation (45). Among women who reported experiencing racial discrimination on the street or in a public setting, more women reported experiencing discrimination two or three times in this situation than women who reported four or more times and one time experiencing discrimination in this situation (100, 44, and 26, respectively).

The differences in psychological wellbeing between women who reported racial discrimination and women who did not report racial discrimination are presented in Table 8. Women who reported racial discrimination in any situational domain except getting credit, bank loan, or a mortgage were more likely to report lower levels of psychological wellbeing compared with women who did not report experiencing racial discrimination ($p < .05$).
Table 7. Frequency Statistics for Experiences of Discrimination (n = 599)

<table>
<thead>
<tr>
<th>Variable</th>
<th>0 Times N (%)</th>
<th>1 Time N (%)</th>
<th>2–3 Times N (%)</th>
<th>4+ Times N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>At school</td>
<td>488 (81.5)</td>
<td>14 (2.3)</td>
<td>58 (9.7)</td>
<td>32 (5.3)</td>
</tr>
<tr>
<td>Getting hired or getting a job</td>
<td>483 (80.6)</td>
<td>33 (5.5)</td>
<td>57 (9.5)</td>
<td>15 (2.5)</td>
</tr>
<tr>
<td>At work</td>
<td>474 (79.1)</td>
<td>33 (5.5)</td>
<td>60 (10.0)</td>
<td>18 (3.0)</td>
</tr>
<tr>
<td>Obtaining housing</td>
<td>519 (86.6)</td>
<td>28 (4.7)</td>
<td>23 (3.8)</td>
<td>17 (2.8)</td>
</tr>
<tr>
<td>Obtaining medical care</td>
<td>546 (91.2)</td>
<td>12 (2.0)</td>
<td>20 (3.3)</td>
<td>11 (1.8)</td>
</tr>
<tr>
<td>Being served in a store or restaurant</td>
<td>402 (67.1)</td>
<td>32 (5.3)</td>
<td>105 (17.5)</td>
<td>45 (7.5)</td>
</tr>
<tr>
<td>Getting credit, bank loans, or a mortgage</td>
<td>541 (90.3)</td>
<td>21 (3.5)</td>
<td>23 (3.8)</td>
<td>12 (2.0)</td>
</tr>
<tr>
<td>On the street or in a public setting</td>
<td>416 (69.4)</td>
<td>26 (4.3)</td>
<td>100 (16.7)</td>
<td>44 (7.3)</td>
</tr>
<tr>
<td>From police or in the courts</td>
<td>462 (77.1)</td>
<td>29 (4.8)</td>
<td>60 (10.0)</td>
<td>35 (5.8)</td>
</tr>
</tbody>
</table>
Table 8. Differences in Psychological Wellbeing between Women Who Reported Racial Discrimination and Women Who Did Not (n = 599)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Psychological Wellbeing Score</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>Reports Yes for Discrimination</td>
<td>Reports No for Discrimination</td>
<td>t</td>
<td>p-value</td>
<td></td>
</tr>
<tr>
<td>At school</td>
<td>63.62 (17.76)</td>
<td>71.55 (16.92)</td>
<td>4.362</td>
<td>&lt; .001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting hired or getting a job</td>
<td>65.81 (17.03)</td>
<td>71.11 (17.27)</td>
<td>2.948</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At work</td>
<td>65.98 (17.27)</td>
<td>71.16 (17.21)</td>
<td>2.964</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtaining housing</td>
<td>64.48 (17.04)</td>
<td>70.95 (17.24)</td>
<td>3.118</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtaining medical care</td>
<td>61.00 (18.65)</td>
<td>70.97 (16.97)</td>
<td>4.014</td>
<td>&lt; .001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being served in a store or restaurant</td>
<td>66.65 (17.05)</td>
<td>71.79 (17.25)</td>
<td>3.437</td>
<td>&lt; .001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Getting credit, bank loan, or a mortgage</td>
<td>66.57 (18.44)</td>
<td>70.47 (17.19)</td>
<td>1.616</td>
<td>.053</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On the street or in a public setting</td>
<td>66.30 (17.64)</td>
<td>71.77 (16.95)</td>
<td>3.572</td>
<td>&lt; .001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>From police or in the courts</td>
<td>66.30 (18.58)</td>
<td>71.23 (16.80)</td>
<td>2.931</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussion

Women in this study who reported racial discrimination in the majority of the situational domains were more likely to report lower levels of psychological wellbeing than women who did not report experiencing racial discrimination. Although fewer women in the study reported experiencing discrimination *when receiving medical care*, women who reported experiencing racial discrimination in this situation had the lowest mean PGWB scores among those who reported experiencing racial discrimination in any domain. These findings add to the literature reporting that increased racial discrimination is associated with psychological distress (Giurgescu et al., 2017). Because of the pervasive nature of racial discrimination, Black pregnant women are at risk for allowing it to go unnoticed which may result in underreporting discrimination (Krieger et al., 2005). One mixed-methods study among Black pregnant women revealed that 71% of the women in the study recalled an experience of discrimination during their interview but reported never experiencing lifetime discrimination in a quantitative survey (Dove-Medows et al., 2022). Underreporting and ignoring discrimination in various situational domains, may be a pathway by which racial discrimination may negatively impact psychological wellbeing among Black pregnant women and impact health outcomes (Chambers et al., 2020; Ertel et al., 2012). One study among Black pregnant women in Baltimore, Maryland found that women were more likely to acknowledge racism impacts the lives of their family, close friends, and others than to acknowledge that racial discrimination impacts them personally with 42.3% denying racism but 68% acknowledging group racism (Slaughter-Acey et al., 2013). The study also found that among women who denied racism, they were less likely than women who acknowledged racism to seek out medical care during the prenatal period (Slaughter-Acey et al., 2013). Future studies
should consider the psychological impact of how Black pregnant women may ignore or underreport racial discrimination that they are exposed to in certain situational domains and how this may impact these women’s health.

The most reported experiences of discrimination in this study were *getting service in a store or restaurant* (33%) and *on the street or in a public setting* (30%). Similarly, Giurgescu et al. (2016) found that the most frequently reported experiences of discrimination among Black pregnant women when *receiving service in a store or restaurant* (34%) and with interactions *on the street or in a public setting* (20%). Nurses should advocate for public policies to reduce the negative impact of racial discrimination experienced by Black pregnant women in public settings. The least reported situation of racial discrimination was getting medical care (8.7%). Similarly, previous studies among Black pregnant women have found that approximately 6% of women report experiencing racial discrimination while *getting medical care* (Giurgescu et al., 2016; 2017). One qualitative study among Black pregnant women found that women who reported experiencing racial discrimination while *getting medical care* reported depressive symptoms related to how they were treated in the medical setting (OjiNjideka Hemphill et al., 2023). Studies also reveal that building trust and rapport with women may help to combat the racial discrimination they may perceive when receiving medical care (Altman et al., 2019). Nurses who provide care to Black pregnant patients should consider their own implicit racial bias and be aware that these women experience racial discrimination as they receive prenatal care and that this may impact their psychological wellbeing.

Furthermore, studies among Black pregnant women reveal that situational discrimination and experiencing discrimination in various situations can have a negative impact on birth
outcomes. Black pregnant women who report unfair treatment in their jobs have an increased risk for preterm birth (OR = 1.3; 95% CI = 1.1, 1.6) and a very low birth weight infant (OR = 1.4; 95% CI = 0.8, 2.2) these findings persisted regardless of having higher level of education (>16 years of education) (OR = 1.6; 95% CI = 1.1, 2.1; Rosenberg et al., 2002). Women in this study also had increased odds for preterm birth if they had been treated unfairly in housing, (OR = 2.4; 95% CI = 1.2, 4.6; Rosenberg et al., 2002). Another study among Black pregnant women found that exposure to interpersonal racial discrimination in one or more domains increased a woman’s risk of having a very low birth weight infant to (OR = 1.7; 95% CI = 1.0, 9.2; Collins et al., 2004). Thus, evidence suggests that repeated exposure to racial discrimination in various situational domains is detrimental to the health and wellbeing of Black women and their infants. There is also evidence to suggest that research focused on improving the understanding of racial discrimination can improve maternal health outcomes among Black pregnant women (CDC, 2021; March of Dimes, 2021).

Limitations

One limitation of this study is solely relying on self-reported experiences of racial discrimination on Black pregnant women. Black pregnant women are at risk for underreporting experiences of racial discrimination and underestimating the lifetime burden of such experiences (Slaughter-Acey et al., 2016; Van Dyke et al., 2021). Although self-report offers insight into women’s experiences of racial discrimination, research suggests that studies should seek to develop of measures of racial discrimination that include but are not limited to self-report (Williams & Mohammed, 2013). Such measures should explore exposure to racial bias over the life course, as well as biological measures which test physiological mechanisms that link
experiences of discrimination during pregnancy to psychological distress and attempt to capture
the impact of discrimination by assessing the threat of exposure to racism in addition to the
actual experience (Williams & Mohammed, 2009). Women in the study were recruited from two
urban and metropolitan areas which limits the generalizability of the study findings. A strength
of the study is the larger sample size of nearly 600 women. Results of this study revealed that
women were least likely to report discrimination when receiving medical care. This supports
studies which have found that the majority of Black pregnant women report experiencing racial
discrimination outside of the health care system (e.g., getting service in a store), compared with
those who report experiencing racial discrimination while getting medical care (Giurgescu et al.,
2017). However, future studies should consider independent factors such as recruitment site,
healthcare providers, underreporting and culturally congruent care, in considering how women
may report experiencing racial discrimination when receiving medical care.

Clinical Implications

Nurses who care for Black pregnant women should be aware that their psychological
wellbeing is negatively impacted by experiences of racial discrimination. Nurses should evaluate
the racial discrimination experienced by Black pregnant women in context of the various
situational domains in which they are encountered. Nurses should seek to increase psychological
wellbeing for Black pregnant women by helping them to establish support groups that are
tailored to combat racism experienced in specific domains. Domain specific racism support
groups may be effective in helping women to develop skills that are most effective in
confronting different types of domain specific racial barriers (i.e., interpersonal racism or
microaggressions experienced when shopping or in a public store versus restrictive housing or
bank loans, residential segregation, racial barriers to employment, or differential access to medical services based on race, etc.). The literature also supports the use of racism specific social support to reduce the deleterious effect of racial discrimination on the psychological wellbeing of Black women (Seawell et al., 2014). Women in this study were more likely to report experiencing racial discrimination while getting service in a store or restaurant and on the street or in a public setting. Nurses should advocate for policies to address the negative impact of racism on women who report discrimination in these specific situational domains.

**Conclusion**

The results of this study add to the literature reporting on the association between racial discrimination and psychological distress among Black pregnant women. This study also adds to the limited knowledge on situation specific experiences of discrimination reported by Black pregnant women. Nurses and healthcare providers should consider the burden of racial discrimination on the psychological wellbeing of Black pregnant women. Ultimately, this study may provide exploratory data for future research on the situational encounters in which Black pregnant women experience racial discrimination and potentially aid in the development of interventions to combat racism and improve mental health outcomes for these women.


https://doi.org/10.1002/smi.2922


https://doi.org/10.1016/j.sleep.2022.07.015


of Black women at the intersection of race, gender, and pregnancy. *Women’s Health Issues, 30*(6), 484–492. https://doi.org/10.1016/j.whi.2020.08.001


CHAPTER 5: CONCLUSION

Black pregnant women are more likely to experience racial discrimination compared with non-Hispanic White pregnant women (Dole et al., 2004; Grobman et al., 2016). Experiences of racial discrimination have been related to lower levels of social support and higher levels of psychological distress among Black pregnant women (Cohen et al., 2022; Dailey & Humphreys, 2011; Dominguez et al., 2008; Earnshaw et al., 2013; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2012; 2017; 2020; Shour et al., 2021). Although researchers have examined the associations among racial discrimination, social support and psychological distress among Black pregnant women, researchers seldomly explored the moderating effect of social support on the association between racial discrimination and psychological distress among these women. One study that explored the moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women found null results; however, the sample size was small (N= 107) (Giurgescu et al., 2017). Thus, one purpose of this dissertation research was to investigate the moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women. The aims of the dissertation research were to:

Specific Aim 1: *Examine the associations among experiences of racial discrimination, social support, and psychological wellbeing among Black pregnant women.*

H.1.1. Women who report more experiences of racial discrimination will have lower levels of social support and lower levels of psychological wellbeing.

H.1.2 Women who report lower levels of social support will have lower levels of psychological wellbeing.
Specific Aim 2: **Examine the moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women.**

H.2.1. Social support will moderate the association of racial discrimination with psychological distress.

This dissertation included three manuscripts focused on the associations among racial discrimination, social support, and psychological distress or wellbeing among Black pregnant women. The first manuscript (Chapter 2) was an integrative literature review of studies that examined the relationship between racial discrimination and psychological wellbeing among Black pregnant women. The second manuscript (Chapter 3) was a secondary analysis of cross-sectional survey data that examined the associations among racial discrimination, social support, and psychological distress among a sample of 599 Black pregnant women. Finally, the third manuscript (Chapter 4) was a secondary analysis of the situational domains in which Black pregnant women experience racial discrimination, and differences in psychological wellbeing between women who experience racial discrimination in certain situations and women who do not experience discrimination in these situations among a sample of 599 Black pregnant women. This chapter summarizes the findings of the three manuscripts.

**Summary of the Findings**

The integrative literature review presented in Chapter 2 included nineteen studies that examined the association of racial discrimination with psychological distress among Black pregnant women. The majority of studies included in the review used a cross-sectional design (Bennett et al., 2010; Bossick et al., 2022; Canady et al., 2008; Dailey & Humphreys, 2011; Ertel et al., 2012; Giurgescu et al., 2012; 2017; 2020; Reid et al., 2016; Segre et al., 2021; Shour et al.,
The studies included samples of 8% to 100% of Black pregnant (Bennett et al., 2010; Canady et al., 2008; Cohen et al., 2022; Dailey & Humphreys, 2011; Dominguez et al., 2008; Eick et al., 2020; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2017; 2020; Noroña-Zhou et al., 2022) and/or 33% to 100% Black postpartum women (Bossick et al., 2022; Giurgescu et al., 2012; Segre et al., 2021; Shour et al., 2021; Weeks et al., 2022). Three of the studies used longitudinal designs (Earnshaw et al., 2013; Noroña-Zhou et al., 2022; Rosenthal et al., 2015) and two assessed women during pregnancy at baseline and up to one year postpartum (Earnshaw et al., 2013; Rosenthal et al., 2015). Seventeen of the studies included in this review reported a statistically significant positive association between racial discrimination and psychological distress among samples including Black pregnant and postpartum women (Bennett et al., 2010; Bossick et al., 2022; Cohen et al., 2022; Dailey & Humphreys, 2011; Dominguez et al., 2008; Earnshaw et al., 2013; Eick et al., 2020; Ertel et al., 2012; Gillespie et al., 2021; Giurgescu et al., 2012; 2017; 2020; Noroña-Zhou et al., 2022; Reid et al., 2016; Rosenthal et al., 2015; Segre et al., 2021; Weeks et al., 2022). These findings suggest that racial discrimination may relate to psychological distress (e.g., anxiety symptoms, depressive symptoms) among Black pregnant and postpartum women.

In the second manuscript, I reported the findings of a secondary analysis of data collected from 599 Black pregnant women enrolled in the Biosocial Impact on Black Births study to examine the associations among racial discrimination, social support, and psychological wellbeing. I found that more experiences of racial discrimination were related to lower levels of social support ($r_s(592) = -.221, p < .001$) and lower levels of psychological wellbeing ($r_s(591) = -.216, p < .001$) among Black pregnant women. Lower levels of social support were also related
to lower levels of psychological wellbeing ($r_s(591) = .403, p < .001$) among these women. Experiences of racial discrimination ($\beta = .807; 95\% \text{ CI} = 1.359, 3.699; p = .002$) and low levels of social support ($\beta = -1.354; 95\% \text{ CI} = .153, .436; p = <.001$) predicted psychological distress; however, social support did not moderate the effect of racial discrimination on psychological distress among these women as hypothesized.

In the third manuscript, I reported the findings of a secondary analysis of the data from the same sample of 599 Black pregnant women to examine the situational domains in which women experience racial discrimination, and differences in psychological wellbeing between women who experience racial discrimination in certain situations and women who do not experience discrimination in these situations. I found that 53.4% of women in this sample reported ever (lifetime) experiencing discrimination in at least one situation (e.g., in school) and 53.8% had a Psychological General Wellbeing Index score 72 or lower indicating psychological distress. The most frequently reported experiences of racial discrimination were *getting service in a store or restaurant* (32.7%) and *on the street or in a public setting* (30.4%). The least frequently reported experiences of discrimination were *while getting medical care* (8.7%). Women who reported racial discrimination in any situational domain except *getting credit, bank loan, or a mortgage* were more likely to report lower levels of psychological wellbeing compared with women who did not report experiencing racial discrimination ($p < .05$).

**Implications of the Findings**

The dissertation research was based on the social-ecological theory which includes three main domains that are pertinent to this study: individual, interpersonal, and community domains (Bronfenbrenner, 1986; see Figure 1). The social-ecological theory suggests that interpersonal
and community level (e.g., social support and racial discrimination) factors may permeate at the individual level (e.g., psychological distress) in a negative manner (Bronfenbrenner, 1986). Bronfenbrenner’s model further suggests that changes at one level can influence changes at every level of the model and that this interaction between the levels is a dynamic interplay that may impact the individual. In this dissertation research, I found that racial discrimination and social support were associated with psychological distress. The results of this dissertation research supported the social-ecological theory that community- and interpersonal-level factors influence individual-level factors.

Findings from this dissertation research contribute to evidence that experiences of racial discrimination and low levels of social support relate to psychological distress among Black pregnant women. Further, this dissertation research reported different situational domains in which Black pregnant participants experienced racial discrimination. Experiences of racial discrimination and psychological distress have been related to adverse maternal (e.g., mortality, morbidity) and infant (e.g., preterm birth, low birthweight) health outcomes among Black people (Earnshaw et al., 2013; Taylor, 2020; Wynn, 2019). In contrast, social support may have protective effects on these outcomes (Hawkins et al., 2021). Nurses should screen for racial discrimination and psychological distress at various time points throughout the perinatal period. Health care providers should make referrals for women who report high levels of psychological distress. Interventions focused on providing social support and decreasing the levels of psychological distress may improve the health of both Black pregnant women and their infants.

This dissertation work has a few limitations. This dissertation research is a secondary analysis of data collected from a sample of 599 Black women. Women completed questionnaires
about racial discrimination, social support, and psychological wellbeing. Limitations to this dissertation research included inherent risks for bias associated with using self-report data. This study used a cross-sectional design of data collected between 8 – 29 weeks’ gestation. Future research may utilize a longitudinal design to allow for more rigorous analysis of the moderating effect of social support on the association of racial discrimination with psychological distress across the pregnancy. Future studies should also consider the implications of situational domains in which women experience racial discrimination and assess their impact on the psychological wellbeing of Black pregnant women. Although this study did not find a moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women, future research should consider racism-specific support for Black pregnant women to reduce the insidious effects that racial discrimination can have on psychological distress among these women.

In conclusion, this dissertation research found that:

Specific Aim 1: Examine the associations among experiences of racial discrimination, social support, and psychological wellbeing among Black pregnant women.

H.1.1. Women who report more experiences of racial discrimination will have lower levels of social support and lower levels of psychological wellbeing.

H.1.2 Women who report lower levels of social support will have lower levels of psychological wellbeing.

The dissertation research supported H.1.1. and H1.2. Women who reported more experiences of racial discrimination also reported lower levels of social support and lower levels of
psychological wellbeing. Women who reported lower levels of social support also reported lower levels of psychological wellbeing.

Specific Aim 2: *Examine the moderating effect of social support on the association of racial discrimination with psychological distress among Black pregnant women.*

H.2.1. Social support will moderate the association of racial discrimination with psychological distress.

The dissertation research did not support H.2.1. Social support did not moderate the association of racial discrimination with psychological distress among women participating in this study.

The findings of this dissertation serve as potentially foundational research for future studies that aim to reduce racial disparities in the perinatal period. Studies suggest that a paradigm shift towards equity is needed in healthcare. What once was thought to be a linear movement towards freedom and equality in maternal health has now become a dynamic intertwining of individual and environmental spheres that may offer a greater awareness on how to combat the maternal health crisis and racial disparities among Black pregnant women. This dissertation research makes a significant contribution to nursing science by addressing a gap in knowledge regarding the relationship between racial discrimination and psychological wellbeing among Black pregnant women. This is the first study to examine the moderating effect of social support on the association of racial discrimination with psychological distress among a larger sample of Black pregnant women. Although, this dissertation research did not find a moderating effect of social support on the association of racial discrimination with psychological distress, this study adds to the knowledge on whether social support moderates this relationship. This knowledge may guide future research focused on these associations among Black pregnant
women. Lastly, research is needed to focus on community, interpersonal and individual factors that negatively influence maternal and infant health outcomes among Black women. This research may advance nursing science by increasing the knowledge related to risk factors for adverse maternal and infant health outcomes among Black women and may provide a foundation for developing interventions that have the potential to reduce the Black-White disparities in maternal and infant health.
References

https://doi.org/10.1111/j.1523-536X.2010.00388.x

https://doi.org/10.1007/s00737-022-01232-w


https://doi.org/10.1016/j.sleep.2022.07.015


APPENDIX A: EXPERIENCES OF DISCRIMINATION INSTRUMENT
Experiences of Discrimination

For each item, please answer by checking the box(es) with your answer. For each question you answer yes, please answer how many times this happened.

F. Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?

1. At school?
   - Yes
   - No

1b. If yes, how many times did this happen (at school)?
   - Once
   - 2 or 3 times
   - 4 or more times

Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color...

2. Getting hired or getting a job?
   - Yes
   - No
2b. If yes, how many times did this happen (getting hired or getting a job)?

- Once
- 2 or 3 times
- 4 or more times

Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color...

3. At work?

- Yes
- No

3b. If yes, how many times did this happen (at work)?

- Once
- 2 or 3 times
- 4 or more times

Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color...

4. Getting housing?

- Yes
- No

4b. If yes, how many times did this happen (getting housing)?

- Once
- 2 or 3 times
- 4 or more times
Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color...

5. Getting medical care?
   ○ Yes
   ○ No

5b. If yes, how many times did this happen (getting medical care)?
   ○ Once
   ○ 2 or 3 times
   ○ 4 or more times

Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color...

6. Getting service in a store or restaurant?
   ○ Yes
   ○ No

6b. If yes, how many times did this happen (getting service in a store or restaurant)?
   ○ Once
   ○ 2 or 3 times
   ○ 4 or more times

Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?

7. Getting credit, bank loans, or a mortgage?
   ○ Yes
   ○ No
7b. If yes, how many times did this happen (getting credit, bank loans, or a mortgage)?

- Once
- 2 or 3 times
- 4 or more times

Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?

8. On the street or in a public setting?

- Yes
- No

8b. If yes, how many times did this happen (on the street or in a public setting)?

- Once
- 2 or 3 times
- 4 or more times

Have you ever experienced discrimination, been prevented from doing something, been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?

9. From police or in the courts?

- Yes
- No

9b. If yes, how many times did this happen (from police or in the courts)?

- Once
- 2 or 3 times
- 4 or more times
APPENDIX B: MEDICAL OUTCOMES STUDY SOCIAL SUPPORT SURVEY
MOS Social Support Survey

Next are some questions about the support that is available to you.

B1. About how many close friends and close relatives do you have (people you feel at ease with and can talk to about what is in your mind)? (Please enter a number)

B. People sometimes look to others for companionship, assistance, or other types of support.

*How often is each of the following kinds of support available to you if you need it?*

<table>
<thead>
<tr>
<th>None of the time</th>
<th>A little of the time</th>
<th>Some of the time</th>
<th>Most of the time</th>
<th>All of the time</th>
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</thead>
<tbody>
<tr>
<td>2. Someone to help you if you were confined to bed</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>3. Someone you can count on to listen to you when you need to talk</td>
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<td>○</td>
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<td>4. Someone to give you good advice about a crisis</td>
<td>○</td>
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<td>5. Someone to take you to the doctor if you needed it</td>
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<td>6. Someone who shows you love and affection</td>
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</table>
7. Someone to have a good time with

8. Someone to give you information to help you understand a situation

9. Someone to confide in or talk to about yourself or your problems

10. Someone who hugs you.

(Continued) People sometimes look to others for companionship, assistance, or other types of support. **How often is each of the following kinds of support available to you if you need it?**

11. Someone to get together with for relaxation

12. Someone to prepare your meals if you were unable to do it yourself

13. Someone whose advice you really want

14. Someone to do things with to help you get your mind off things

15. Someone to help you with daily chores if you were sick
<table>
<thead>
<tr>
<th>Question</th>
<th>None of the time</th>
<th>A little of the time</th>
<th>Some of the time</th>
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<tr>
<td>16. Someone to share your most private worries and fears with</td>
<td>○</td>
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<td>17. Someone to turn to for suggestions about how to deal with a</td>
<td>○</td>
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<td>personal problem</td>
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<td>18. Someone to do something enjoyable with</td>
<td>○</td>
<td>○</td>
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<tr>
<td>19. Someone to understand your problems</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>20. Someone to love and make you feel wanted</td>
<td>○</td>
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APPENDIX C: PSYCHOLOGICAL GENERAL WELLBEING INDEX
Psychological General Well-Being

The following questions ask how you feel and how things have been going with you during the past month, including today.

1. How have you been feeling in general? (during the past month, including today)
   - In excellent spirits
   - In very good spirits
   - In good spirits mostly
   - I have been up and down in spirits a lot
   - In low spirits mostly
   - In very low spirits

2. How often were you bothered by any illness, bodily disorder, aches or pains? (during the past month, including today)
   - Every day
   - Almost every day
   - About half of the time
   - Now and then, but less than half the time
   - Rarely
   - None of the time

3. Did you feel depressed? (during the past month, including today).
   - Yes-- to the point that I felt like I wanted to die
   - Yes-- for the most part
   - Yes-- very depressed almost everyday
   - Yes-- quite depressed several times
1. Yes-- a little depressed now and then
2. No-- never felt depressed at all

4. Have you been in firm control of your behavior, thoughts, emotions, and feelings? (during the past month, including today)
   - Yes, definitely so
   - Yes, for the most part
   - Generally so
   - Not too well
   - No, and I am somewhat disturbed
   - No, and I am very disturbed

5. Have you been bothered by nervousness or your “nerves”? (during the past month, including today)
   - Extremely so, to the point where I could not work or take care of things
   - Very much so
   - Quite a bit
   - Some-- enough to bother me
   - A little
   - Not at all

6. How much energy, pep, or vitality did you have or feel? (during the past month, including today)
   - Very full of energy – lots of pep
   - Fairly energetic most of the time
   - My energy varied quite a bit
   - Generally low in energy, pep
   - Very low in energy pep most of the time
   - No energy or pep at all – I felt drained, sapped
7. How often have you felt downhearted and blue? *(during the past month, including today)*

- None of the time
- A little of the time
- Some of the time
- A good bit of the time
- Most of the time
- All of the time

8. Were you generally tense or did you feel any tension? *(during the past month, including today)*

- Yes – extremely tense, most or all of the time
- Yes, very tense most of the time
- Not generally tense, but did feel fairly tense several times
- I felt a little tense a few times
- My general tension level was quite low
- I never felt tense or any tension at all

9. How happy, satisfied, or pleased have you been with your personal life? *(during the past month, including today)*

- Extremely happy – could not have been more satisfied or pleased
- Very happy most of the time
- Generally satisfied – pleased
- Sometimes fairly happy, sometimes fairly unhappy
- Generally dissatisfied, unhappy
- Very dissatisfied or unhappy most or all of the time
10. Did you feel healthy enough to carry out the things that you like to do or had to do? (during the past month, including today)
   ○ Yes – definitely so
   ○ For the most part
   ○ Health problems limited me in some important ways
   ○ I was only healthy enough to take care of myself
   ○ I needed some help in taking care of myself
   ○ I needed someone to help me with most or all of the things I had to do

11. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile? (during the past month, including today)
   ○ Extremely so – to the point that I have just about given up
   ○ Very much so
   ○ Quite a bit
   ○ Some – enough to bother me
   ○ A little bit
   ○ Not at all

12. How often have you awakened feeling fresh and rested? (during the past month, including today)
   ○ None of the time
   ○ A little of the time
   ○ Some of the time
   ○ A good bit of the time
   ○ Most of the time
   ○ All of the time
13. Have you been concerned, worried, or had any fears about your health? *(during the past month, including today)*

- Extremely so
- Very much so
- Quite a bit
- Some, but not a lot
- Practically never
- Not at all

14. Have you had any reasons to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel, or of your memory? *(during the past month, including today)*

- Not at all
- Only a little
- Some-- but not enough to be concerned or worried about
- Some and I have been a little concerned
- Some and I am quite concerned
- Yes, very much so and I am very concerned

15. To what extent was your daily life full of things that were interesting? *(during the past month, including today)*

- None of the time
- A little of the time
- Some of the time
- A good bit of the time
- Most of the time
- All of the time
16. To what extent did you feel active, vigorous or dull, sluggish? *(during the past month, including today)*

- Very active, vigorous every day
- Mostly active, vigorous-- never really dull, sluggish
- Fairly active, vigorous-- seldom dull, sluggish
- Fairly dull, sluggish-- seldom active, vigorous
- Mostly dull, sluggish-- never active, vigorous
- Very dull, sluggish everyday

17. Have you been anxious, worried, or upset? *(during the past month, including today)*

- Extremely so – to the point of being sick or almost sick
- Very much so
- Quite a bit
- Some – enough to bother me
- A little bit
- Not at all

18. To what extent were you emotionally stable and sure of yourself? *(during the past month, including today)*

- None of the time
- A little of the time
- Some of the time
- A good bit of the time
- Most of the time
- All of the time
19. Did you feel relaxed, at ease or high strung, tight, or keyed-up? (during the past month, including today)

- Felt relaxed and at ease the whole month
- Felt relaxed and at ease most of the time
- Generally felt relaxed, but at times I felt fairly high strung
- Generally felt high strung, but at times felt fairly relaxed
- Felt high strung, tight, or keyed-up most of the time
- Felt high strung, tight, or keyed-up the whole month

20. To what extent did you feel cheerful, lighthearted? (during the past month, including today)

- None of the time
- A little of the time
- Some of the time
- A good bit of the time
- Most of the time
- All of the time

21. To what extent did you feel tired, worn out, used, or exhausted (during the past month, including today)

- None of the time
- A little of the time
- Some of the time
- A good bit of the time
- Most of the time
- All of the time
22. Have you been under or felt you were under any strain, stress, or pressure? (during the past month, including today)

- Yes – almost more than I could bear or stand
- Yes – quite a bit of pressure
- Yes – some, more than usual
- Yes – some, but about usual
- Yes – a little
- Not at all
APPENDIX D: INSTITUTIONAL REVIEW BOARD EXEMPTION
EXEMPTION DETERMINATION

October 19, 2022

Dear Camilla Carey:

On 10/19/2022, the IRB determined the following submission to be human subjects research that is exempt from regulation:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Initial Study, Exempt category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Racial discrimination, social support, and psychological distress among Black pregnant women.</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Camilla Carey</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>STUDY00004828</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
</tr>
<tr>
<td>Grant ID:</td>
<td>None</td>
</tr>
<tr>
<td>Documents Reviewed:</td>
<td></td>
</tr>
</tbody>
</table>
  - Request for Exemption for Secondary Research, Category: IRB Protocol;  
  - Study Variables and Instruments, Category: Other; |

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

[Signature]

Harry Wingfield  
Designated Reviewer
APPENDIX E: INSTITUTIONAL REVIEW BOARD CLOSURE
CLOSURE

January 30, 2023

Dear Camilla Carey:

On 1/30/2023, the IRB reviewed the following protocol:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Continuing Review</th>
</tr>
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<tbody>
<tr>
<td>Title:</td>
<td>Racial discrimination, social support, and psychological distress among Black pregnant women.</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Camilla Carey</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>CR00002125</td>
</tr>
<tr>
<td>Funding:</td>
<td>None</td>
</tr>
<tr>
<td>Grant ID:</td>
<td>None</td>
</tr>
<tr>
<td>IND, IDE, or HDE:</td>
<td>None</td>
</tr>
</tbody>
</table>

The IRB acknowledges your request for closure of the protocol effective as of 1/30/2023. As part of this action:

- The protocol is permanently closed to enrollment.
- All subjects have completed all protocol-related interventions.
- Collection of private identifiable information is completed.
- Analysis of private identifiable information is completed.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Yariela Thompson
UCF IRB