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Pregnancy Intention, Perinatal Depression, Birth Weight, and Premature Delivery Among Black Women

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This is to certify that the doctoral study by

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Walden University
2024

Abstract

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MA/MS, Campbell University, 2001

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Perinatal depression among Black women results in significant public health burdens, interacting with systemic disparities to create disproportionate risks of adverse birth outcomes. The present study explored the moderating effect of pregnancy intention on the relationship between perinatal depression and adverse birth outcomes such as low birth weight and preterm delivery among Black women living in the southern United States. Using secondary data from the 2016-2020 Pregnancy Risk Assessment Monitoring System (PRAMS), data were analysed from 9825 black women across eight southern states including Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia. The statistical approach included chi-square tests and multiple logistic regression analyses to investigate how the intentionality of pregnancy influences the relationship between depressive symptoms and birth outcomes. The findings showed that perinatal depression and intentionality of the pregnancy were significantly associated with adverse birth outcomes. The study revealed that unintended pregnancies significantly increase the risks associated with perinatal depression, such as low birth weight and preterm birth. Ultimately, by quantifying heightened odds concentrated among Black mothers with unintended pregnancies and perinatal depression, this study informs a redesigned, equity-based paradigm seeking to dismantle disproportionate risks propagating across generations. These findings support the role of pregnancy intention as an influential moderator in determining whether depression has a benign or malignant correlation for mother and child.

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Dedication

I dedicate my dissertation work to my family. A special feeling of gratitude to my loving parents, Richard McNeil, Pamela McBride, Jacqueline Monroe, and Curtis Monroe whose words of encouragement and prayers propelled me beyond the many adversities that I faced along this long and often arduous journey.

To my two heart beats Rhianna Rigby and Yemayah McNeil, thank you for motivating me to exemplify the type of dedication warranted to reach the highest education, moral, and spiritual efficiency. To my amazing big girl Rhianna, thank you for always having a kind and encouraging word, when you saw your mom on the verge of a meltdown. Your faith in me reignited the faith I had in myself. To my baby girl, Yemayah, who fought and beat two childhood cancers along this journey. Thank you for conditioning my heart to open and love like I never knew was possible. I cherish the many days and nights we spent together at one hospital or another fighting for your life. Your fight against brain cancer, blood cancer, and three stem cell transplants renewed my faith in God and reminded me that all things are possible with God on our side. Your bravery taught me to push through the hard days and to set my sights on my dreams despite the endurance of many trials and tribulations.

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Lastly, I would like to thank Walden University for providing the foundation for my doctoral work and pushing me to new heights in applying knowledge to positively impact social change. It has been a privilege to learn among such an inspiring community of changemakers.

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Section 1: Foundation of the Study and Literature Review

Introduction

Pregnancy carries a significant risk to women's mental health (Patabendige et al., 2020). Perinatal depression is one of the most common medical conditions experienced by pregnant women regardless of age, race, income, culture, or education. The condition is a hypothesized psychosocial risk factor for adverse birth outcomes (Accortt et al., 2015). According to the World Health Organization (WHO), 1 in 5 women will experience a mental health disturbance during pregnancy or within a year following birth. Although perinatal depression is common, it often goes undiagnosed and untreated due to symptoms like those experienced during pregnancy. In addition, women who experience depressive episodes during pregnancy may be reluctant to discuss their mood changes due to the stigma associated with depression (Sanmartin et al., 2019).

Untreated depression presents a distinct set of pregnancy complications risks, such as preterm birth and low birth weight. These adverse birth outcomes are commonly linked with perinatal depression and are the leading causes of infant morbidity and mortality (Accortt et al., 2015). Although *baby blues* is often used to describe perinatal depression, the conditions are not equivalent. Whereas baby blues is considered a normal intermittent period of mood swings that a new mother may experience in the first couple of weeks following delivery, perinatal depression is a more severe mental health disorder that may include experiencing significant signs of depression anytime during the gestation period and up to 1 year following delivery (Van Niel & Payne, 2020). Symptoms such as changes in sleep patterns, changes in appetite, exhaustion, ongoing feelings of anxiety, sadness, irritability, or feeling overwhelmed are detrimental to the health and well-being of the mother and the unborn child.

In recent years, healthcare practitioners have begun investigating the relationship between pregnancy intentions and pregnancy outcomes. While it may seem intuitive that unintended pregnancies are associated with adverse birth outcomes, the evidence base for the relationship between pregnancy intention and maternal and neonatal outcomes is mixed and warrants further investigation as scant attention has been paid to investigating the relationship between pregnancy intention, health behaviors, and maternal and child health outcomes (Hall et al., 2017).

In 2021, Declercq et al. published a study that found that non-Latina Black women experience higher rates of prenatal depressive symptoms and significantly lower use of postpartum counseling services and medication than non-Latina White women. Furthermore, concerning adverse birth outcomes, Black women are significantly more likely than White women to give birth preterm (18.3% vs. 11.5%, respectively), have low birth weight infants (13.8% vs. 7.2%, respectively), or have their child die the first year of life (1.3% vs. 0.6%, respectively; Larrabee Sonderlund et al., 2021).

To increase the breadth of knowledge about the association between pregnancy intentions and adverse birth outcomes and to mitigate the detrimental impact of mistimed pregnancies, healthcare practitioners, policymakers, and stakeholders must continue to investigate the phenomenon and make family planning the cornerstone of U.S. reproductive health policies (VandeVusse et al., 2022).

In the following sections of this chapter, I will discuss the background rationale for the study, the problem statement, and the purpose of the study. Additionally, I will provide a comprehensive literature review and conclude with the significance of the study.

Background

Over the last few decades, the relationships between perinatal depression and adverse birth outcomes have been evaluated by numerous researchers. While researchers generally agree that perinatal depression contributes to adverse birth outcomes, the etiology of the disease and its long-term impact on both the mother and the infant are still not clearly understood. What is known is that several risk factors influence the prevalence of perinatal depression. An increase of somatic symptoms, insufficient social support, unintended pregnancy, and exposure to intimate partner violence are risk factors that contribute to the high rates of relapse of depression during the perinatal period (Bedaso et al., 2021). Despite the increased knowledge about the symptoms of perinatal depression, its association with adverse birth outcomes, and the availability of treatment options, treatment engagement remains low.

In 2020, Dowse et al. used the Edinburgh Postnatal Depression Scale scores, self-reported anxiety, and neonatal birth outcomes to conduct a retrospective data analysis to measure the association between self-reported depression adverse birth outcomes. Using regression modeling, the researchers measured the effects of self-reported depression and self-reported pregnancy-related anxiety on 53,646 singleton births. The study concluded that perinatal anxiety and depression contributed to poor birth outcomes. The study conclusions identified that infants born to mothers with self-reported anxiety had a higher probability of having birth complications and lower Apgar scores when compared to women who did not report having perinatal anxiety. Moreover, the study also concluded that infants born to women with self-reported depression had a higher probability of giving birth to infants with lower birth weights, shorter gestational age, and lower Apgar scores. Furthermore, infants born to women who self-reported depression were more likely to experience extended stays in the neonatal nursery (Dowse et al., 2020).

The conclusion of the Dowse et al. study was further supported by a study published in 2022 by Dadi et al., who conducted a meta-analysis on the effect of depression during the perinatal period and the adverse experiences of both mothers and infants. Per this study, researchers evaluated the impact of antenatal depression on birth outcomes and perinatal depression on adverse infant health outcomes. The researchers found that pregnant women who experienced depression during pregnancy were 2.26 times more likely to experience adverse birth outcomes when compared to women who did not experience depression during pregnancy. Additionally, researchers found that the risk of preterm birth was 1.77 times more likely and low birth weight was 2.98 more likely for women who experienced depression during pregnancy when compared to women who did not experience depression. Thus, the researchers concluded there is a significant association between perinatal depression, adverse birth outcomes, low birth weight, and preterm birth.

Perinatal depression and adverse birth outcomes are even more dire in Black women compared to White women. In a study published by Hill (2023), stark racial disparities in maternal and infant health were identified in the United States that have persisted for decades despite continued advancements in medical care. These research findings support the notion that maternal and infant health disparities are symptoms of broader underlying social and economic inequities rooted in racism and discrimination.

Problem Statement

Perinatal depression and adverse birth outcomes are public health problems both nationally and internationally. Perinatal depression is common, affecting approximately 7%–13% of women (Muskens et al., 2022). Depression during pregnancy and postpartum negatively affects maternal and fetal health (Dadi et al., 2022). This public health problem is further exacerbated by mistimed pregnancies. Studies suggest that the emotional weight of learning of an unplanned pregnancy often correlates with an overactive response in women’s stress mechanisms, which then triggers a flood of excessive amounts of hormones that regulate mood and emotional well-being (Sira Health Center, n.d.). Black women shoulder a preponderance of perinatal depression, adverse birth outcomes, and mistimed pregnancies. Black women who give birth are at a higher risk for perinatal depression and postpartum mood and anxiety disorders (PMADs; Cezair, 2022). Whereas PMADs occur during and after about 15% to 20% of all pregnancies in the United States, this number is often doubled for Black women (Cezair, 2022). Black women have continue to face challenges communicating about mental health issues, as this has historically been a taboo issue in the Black community. Additionally, barriers to mental healthcare and less access to treatment continue to be problematic. Understanding the racial disparities concerning perinatal depression and adverse outcomes in Black women versus those of White women requires an appreciation for not only the multiple roles that Black women play in society but also the racial and social injustices they have historically faced.

Purpose of the Study

The purpose of this quantitative study was to investigate the association between perinatal depression and adverse birth outcomes among Black women while evaluating pregnancy intention as a possible moderator. In addition to evaluating if there is an association between the independent variable (perinatal depression), the dependent variables (preterm birth and low birth weight), and the moderating variable (pregnancy intention), other variables suspected to be contributing factors were also evaluated in this study. The variables include maternal age, maternal education level, body mass index (BMI), major and minor health problems during pregnancy, marital status, abuse during pregnancy, health insurance, and state of residence.

Despite the healthcare disparities experience by Black mothers and the detrimental impact these disparities have on birth outcomes, there have been limited studies conducted on this population of women to better understand what social determinants contribute to the prevalence of perinatal depression. Over the last few decades, healthcare practitioners have implemented several preventive interventions for perinatal depression. However, the acceptability and appropriateness of these interventions have yet to be evaluated for Black women. The current study will contribute to the limited body of knowledge by providing a better understanding of the lived experiences of Black women and by identifying the social and structural barriers that prevent Black women from seeking treatment when warranted.

Research Questions and Hypotheses

RQ1: Does pregnancy intention moderate the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy?

> $H_0$1: Pregnancy intention does not moderate the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

> H_A1: Pregnancy intention significantly moderates the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy.

RQ2: Does pregnancy intention moderate the association between perinatal depression and preterm delivery among Black women living in the southern United States

(Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy?

$H_0 2$: Pregnancy intention does not moderate the association between perinatal depression and preterm delivery among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

$H_A 2$: Pregnancy intention significantly moderates the association between perinatal depression and preterm birth among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

Theoretical Framework

The behavioral model and theoretical foundation that grounds this study was the social ecological model (SEM). The model was introduced in 1970 and later formulated as a theory in the 1980s by Urie Bronfenbrenner. Bronfenbrenner postulated that to understand human development, the entire ecological system in which this development occurs must be considered (Crawford, 2020). The model is favored in health promotion because it considers the environmental factors from a micro and macro perspective regarding how they affect health and health behaviors. More precisely, the model starts at the individual level (i.e., proximal) and expands to the public policy level (i.e., distal). Overall, the SEM is a valuable model and theoretical framework for understanding the diverse environmental factors influencing health outcomes.

The SEM is a suitable behavioral model for this study because it accounts for factors at several levels that may influence health and health behaviors. At the individual level, the model can explain how proximal factors like attitudes, beliefs, and behaviors can impact health and health behaviors. The study may illustrate this level by attitudes toward mental health (e.g., perinatal depression) and pregnancy intention. Perinatal depression is a type of mental illness, and as with other forms of mental illness, it is a taboo subject in the Black community (McLean Hospital, 2023). Therefore, many Black women choose not to seek mental health services but instead suffer in silence, thus leading to feelings of isolation. These feelings of isolation and imbalance can adversely impact a Black woman's ability to socialize or maintain healthy relationships (Brandt et al., 2022). Subsequently, at this level, the SME model also considers a mother's age and overall physical well-being at conception. Common complications such as obesity, high blood pressure, diabetes, and any other major or minor health problems during pregnancy can have a detrimental impact on adverse birth outcomes (Centers for Disease Control and Prevention [CDC], 2023). Prevention strategies at this first level may, for example, promote attitudes, beliefs, and behaviors to prevent perinatal depression and its possible side effects.

At the next level, the model considers the influence of relationships on health and health behaviors and may help speak to the role of social determinants like marital status and abuse during pregnancy. On the relationship level, the model examines close relationships that may increase the risk of experiencing perinatal depression and adverse birth outcomes, which is essential to this study. For example, intimate partner violence during pregnancy can increase adverse pregnancy outcomes (Gashaw et al., 2018). Moreover, a women's partner, peers, and family members may influence their behaviors and contribute to their experience.

Following the relationship level is the community level, which accommodates education and health insurance in this study. The third level explores the influence of the community in which social relationships occur and seeks to identify the characteristics of these settings associated with perinatal depression and adverse outcomes. At this level, prevention strategies focus on improving the physical and social environment. For example, creating a safe place where women live, learn, work, and socialize and addressing other conditions that can potentially increase the likelihood of developing perinatal depression (e.g., neighborhood poverty, residential segregation, and instability).

Additionally, access to health insurance is a contributing factor. Lack of quality preventive care has been associated with poorer outcomes for pregnant women with low incomes (Taylor et al., 2020). Moreover, it has been found that well visits, late prenatal care, adequacy of prenatal care, postpartum follow-up, and emergency department visits are contributing factors. Moreover, outcomes (preterm birth, low birth weight, preeclampsia, and gestational diabetes) were found to be more frequent when adjusted logistic regression and zero-inflated negative binomial models examined the association between insurance status at delivery and healthcare utilization (Taylor et al., 2020).

Finally, the societal level of the SEM considers distal influences such as inequalities based on gender or race on health. This is relevant for this study because research indicates that exposure to racism, sexism, and systematic oppression increases the likelihood that Black women will experience psychological disturbances such as perinatal depression (Chinn et al., 2021). Similarly, the final level of the model looks at the broad societal factors that help create a climate in which perinatal depression is exacerbated, including the social and cultural norms that may promote the onset of perinatal depression.

Nature of the Study

The research design I selected for this quantitative study is a cross-sectional design. I chose this design because it allows me to examine the relationship between specific variables of interest, such as perinatal depression, adverse birth outcomes (preterm birth and low birth weight), and pregnancy intention among Black women in the southern United States. Furthermore, this design provides a snapshot of the characteristics of these variables within the population group being studied (Gaille, 2018).

Key Study Variables

In my study, the independent variable is perinatal depression, which can be self-reported by the participants or diagnosed by a medical professional. The dependent variables are preterm birth (delivery before 36 weeks' gestation) and low birth weight (birth weight less than 2,500 grams). The moderating variable is pregnancy intention, categorized as either intended, unintended, or unsure. I will also consider several control variables, including maternal age, BMI, maternal years of education, major and minor health problems during pregnancy, marital status, and health insurance.

Methodology

I used the 2016–2020 Pregnancy Risk Assessment Monitoring System (PRAMS) data set for this study. PRAMS collects data through a survey conducted via mailed questionnaires and telephone interviews. The data set includes variables such as race, perinatal depression, premature birth rates, birth weight, and pregnancy intention. The data set also provides information on education level, income, marital status, state of residency, and other relevant variables.

To analyze the data, I performed several steps. First, I cleaned and prepared the data set, specifically selecting Black women residing in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia). Descriptive statistics were calculated to provide an overview of the data set and variable distributions. I conducted bivariate analyses to explore the unadjusted relationships between the variables of interest and the covariates. Next, I fit logistic regression models to assess the moderating effects of pregnancy intention on the relationships between perinatal depression and preterm birth/low birth weight. I controlled for the following variables: maternal age, BMI, education, major and minor health problems during pregnancy, and marital status.

I chose a cross-sectional research design for my study, utilizing the PRAMS data set to investigate the relationship between perinatal depression, adverse birth outcomes, and pregnancy intention among Black women in the southern United States. Data were collected through mailed questionnaires and telephone interviews. The analysis involved descriptive statistics, bivariate analyses, and logistic regression models. I considered control variables, including maternal age, BMI, education, major and minor health problems during pregnancy, and marital status, to account for their potential influence on the relationships under investigation.

Literature Search Strategy

Accessing the Walden University library allowed me to obtain the necessary information needed to support this research study. Peer-reviewed journal articles were identified by using various keywords and phrases (e.g., *perinatal depression, adverse birth outcomes, Black women,* and *pregnancy intention*). I searched for articles published between 2018 and 2023. The search included ProQuest Central, MEDLINE with full text, Google Scholar, SAGE Journal, published dissertations, evidence-based, seminal, and trusted government website information from multiple search databases.

To use the most current and relevant data for this study, only peer-reviewed articles published during or after 2018 were selected. After eliminating duplicated references, the final literature review comprised only the articles specific to the inclusion criteria, which were determined to be: (a) relevant to perinatal depression and Black women, (b) relevant to perinatal depression and adverse birth outcomes, (c) relevant to pregnancy intention and adverse birth outcomes, and (d) relevant to mental health treatment for Black women during pregnancy.

Literature Review

Perinatal depression affects maternal quality of life and is a significant cause of disease burden in developed and developing countries (Dadi et al., 2020). In 2019, estimates indicated that the total maternal morbidity expenditures for all births, from conception through the child's 5th birthday, cost the United States $32.3 billion (Commonwealth Fund, 2021). Although it is not inherently clear which health behavior precipitates the others, what is clear is that the combination of the health behaviors results in unacceptably high maternal mortality and morbidity rates, preterm birth, low birth weight, and an increased prevalence of infant mortality (Mark & Cowan, 2022). Moreover, empirical data from multiple research studies have identified a correlation between perinatal depression, adverse birth outcomes, and pregnancy intention among Black women (Nelson et al., 2022; Omani-Samani et al., 2018). Even though research has suggested a connection between those variables, the existing body of research in this area, especially among Black women, remains limited.

Black Women and Perinatal Depression

Albeit limited, researchers have identified a correlation between Black women, perinatal depression, and poor birth outcomes. In 2018, Grobman et al. published the results of a prospective observational study evaluating the relationship between self-reported psychosocial stress and preterm birth, hypertensive disease of pregnancy, and small-for-gestational-age birth. The study included 9,470 women from eight clinical sites across the United States between October 2010 and May 2014. Of these 9,470 women included in the study, 60.4% were non-Hispanic White, 13.8% were non-Hispanic Black, 16.7% Hispanic, 4.0% Asian, and 5.0% other. The data from the participants were collected by trained research personnel at three scheduled visits. Visit 1 occurred between 6 weeks 0 days and 13 weeks 6 days gestation. Visit 2 occurred between 16 weeks 0 days and 21 weeks 6 days gestation, and Visit 3 occurred between 22 weeks 0 days and 29 weeks 6 days gestation. At each of the three visits an assessment of the psychosocial factors was done using Cohen's 10-item perceived stress scale and the Spielberger state-trait anxiety inventory (Visit 1), the Connor-Davidson resilience scale at Visit 2, and the Edinburgh postnatal depression scale at Visit 3.

The researchers of the study performed the analysis using a series of multiple regression equations. The study found that when compared to non-Hispanic White women, non-Hispanic Black women were significantly more likely to experience preterm birth (12.3 vs. 8.1%), hypertensive disease of pregnancy (16.7% vs. 13.4%), and small-for-gestational-age birth (17.2% vs. 8.6%; $p < .05$). The strength of this study is that it followed a cohort of woman over the perinatal gestational period to evaluate the relationship between self-reported measures of psychosocial burden and adverse pregnancy outcome. The limitation of the study is that the cohorts were small and therefore may have been unable to detect a significant difference with respect to the observed psychosocial factors. The association between perinatal depression and adverse birth outcomes among Black women is further supported by a study conducted by Lara-Cinisomo et al. (2018) that also found that perinatal depression is more prevalent among

U.S.-born Latinas and Black women. For Black women, some of the contributing social factors to perinatal depression include having other children, unplanned pregnancy, and challenges accessing prenatal care (Benatar et al., 2020). These factors are significant in determining the mental well-being of a pregnant woman due to their impacts on birth outcomes.

The high prevalence of perinatal depression among Black women is also attributed to several factors that affect the minority community. First, socioeconomic factors significantly lead to perinatal depression in the group (Burris et al., 2017). Studies indicate that socioeconomic factors that contribute to perinatal depression include low income, poverty, access and use of healthcare services, cost of healthcare, drug abuse, and the prevalence of diseases (Wang & Geng, 2019). Second, psychosocial factors include emotional support, social integration, a sense of coherence and trust, self-esteem, and perceived control (Thomas et al., 2020). Together, socioeconomic and psychosocial factors influence an individual's health and contribute to the high prevalence of perinatal depression among Black women. Health is correlated to the socioeconomic and lifestyles of individuals (Wang & Geng, 2019). Therefore, the prevalence of perinatal depression among Black women coincides with the prevailing socioeconomic and sociological challenges experienced by Black women in the country.

Black Women and Unintended Pregnancies

An unintended pregnancy is any unplanned, mistimed, or unwanted pregnancy at conception (Troutman et al., 2020). In 2011, approximately 45% of the 6.1 million pregnancies in the United States were unintended and found to be increasingly concentrated among low-income women ages 18–24, cohabitating women, and women of color (Unintended Pregnancy in the United States, 2022). In addition to being a public health emergency and an economic burden that costs the United States an estimated $5.5 billion annually, unintended pregnancies have also been associated with poor maternal health (Nelson et al., 2022). This has been found particularly true among Black women who experience substantial hardships and often do not have adequate access to reliable and affordable contraception (Troutman et al., 2020). Moreover, women who experience unintended pregnancies have a significant risk of morbidity and mortality due to health behaviors such as alcohol and substance abuse and late entry to natal care (Nelson et al., 2022; Troutman et al., 2020).

In 2022, Muskens et al. published a study that investigated the association of unplanned pregnancy and the level of depressive symptoms. This longitudinal cohort study followed 1,928 women from the first trimester until 12 months postpartum. The study found that when compared to women with planned pregnancies, women with unplanned pregnancies initially reported persistently higher levels of depressive symptoms during the entire perinatal period. However, the course of the depressive symptoms scores over time were similar to that of women with planned pregnancies. The major strength of this study was its large sample size and the study design. Unlike most research studies that are cross sectional and only evaluate a single point in time, this prospective longitudinal study evaluated a cohort of women over the course of all three trimesters and 12 months postpartum. One of the major limitations of this study was that a diagnostic interview was not conducted, but instead depressive symptoms were self-reported, which could potentially contribute to response bias due to the stigma of an unwanted pregnancy.

The consequences of unintended pregnancies stretch beyond the realms of adverse maternal outcomes. Research studies have shown that child outcomes are equally as poor as maternal outcomes concerning unintended pregnancies. For example, children born of unintended pregnancies are less likely to breastfeed and less likely to secure attachment formation with the mother due to the lack of sufficient interactions (Unwanted Pregnancies, n.d.). In addition, children born from unintended pregnancies are cited as more likely to suffer from domestic violence, witness parental intimate partner violence, and experience conduct and attention problems at ages 7–12 than those whose mothers reported a planned pregnancy (Unwanted Pregnancies, n.d.). These cognitive abnormalities have also been linked to an increased risk of adolescent behavioral and psychological issues (Unwanted Pregnancies, n.d.).

Despite the United States' initiative to increase the accessibility to family planning services, 64% of births to Black mothers are characterized as unintended, compared to 38% of White mothers (Barber et al., 2021). Although education, income, age, race, ethnicity, marital status, employment, demographics, and accessibility to family planning have all been attributed to the disproportionate rate at which Black women are impacted, the correlation between perinatal depression, pregnancy intention, and adverse birth outcomes warrants further investigation. In the next section, the focus turns to adverse birth outcomes.

Black Women and Adverse Birth Outcomes

In addition to pregnancy intention, research has indicated that mental health issues, such as perinatal depression, correlate with adverse birth outcomes. As previously mentioned, adverse birth outcomes include low birth weight and preterm birth. Studies indicate that psychiatric disorders, specifically perinatal depression, contribute to adverse outcomes for pregnant women when the prevalence is high (Atkinson et al., 2021). For instance, Atkinson et al. (2021) reported that any psychiatric disorder correlates with an increased risk of preterm birth. The increased risk is not affected by maternal ethnicity or race. Research shows that the risk of preterm births is 35%, while that of low birth weight is 86%, with the prevalence of depression (Ghimire et al., 2021). However, the prevalence of depression and other psychiatric disorders leads to adverse outcomes for mothers (Atkinson et al., 2021). For instance, the literature suggests that race-related factors can contribute to the high incidence of preterm births among pregnant women (Gray et al., 2023). Although psychiatric disorders, such as perinatal depression, correlate with an increased risk of preterm birth regardless of race or ethnicity, Black women experience higher adverse birth outcomes than other racial demographics due to the multiplicity of challenges they experience. Moreover, psychiatric disorders are more prevalent among Black women than women of other races (Robinson et al., 2022), as mentioned earlier. Therefore, Black women are more likely to suffer mental health issues and more likely to experience adverse birth outcomes than women of other racial or ethnic demographics.

The experiences of women during pregnancy also influence the outcomes after pregnancy. For Black women, preterm births are higher than among White women (Larrabee Sonderlund et al., 2021), and the same demographic results are evident for low-birth-weight infants and early infant deaths (Larrabee Sonderlund et al., 2021). Additionally, preterm births are more likely to occur among Black women than White women, similar to small-for-gestational-age birth (Chinn et al., 2021). Thus, racial implications can be identified both during and after pregnancy, and these implications are particularly noteworthy among Black women.

Furthermore, studies indicate a correlation between the use of healthcare services and pregnancy outcomes, including adverse birth outcomes. Maternity services, a healthcare service, have been shown to determine pregnancy outcomes and quality of care (Eick et al., 2022). Additionally, research indicates that depression strongly correlates with social and environmental factors, including unwanted pregnancies, having other children, and access to prenatal care (Benatar et al., 2020). Moreover, the lack of a spouse or partner and experiences of domestic violence from partners correlates with a higher risk of perinatal depression and birth outcomes (Benatar et al., 2020). Therefore, access to and use of healthcare services is essential in determining pregnancy outcomes for women, including adverse birth outcomes. Although this issue impacts women across racial and ethnic groups, it is paramount among Black women, where psychiatric disorders have been shown to be more prevalent than among women of other races (Benatar et al., 2020). Benatar et al. (2020) noted that depression also strongly correlates with being Black. Therefore, the connection between adverse birth outcomes and perinatal depression among Black women merits further examination to address the issue.

Overall, the existing literature suggests that a high prevalence of depression, specifically perinatal depression, negatively affects the outcomes of pregnancy and warrants interventions to improve the outcomes. Although the issue is worthy of further investigation regardless of race or ethnicity, the figures reported among Black women are particularly alarming concerning perinatal depression and its correlations with adverse birth outcomes.

Secondary Data Types and Sources of Information

Although researchers have investigated the issue of perinatal depression and adverse birth outcomes and have concluded that there is an association between the variables, there is a gap in the research and literature. More precisely, it is unknown if pregnancy intention moderates perinatal depression and adverse birth outcomes in Black women who live in the Southern regions of the United States, where the prevalence of unintended pregnancies is disproportionately higher among Black women when compared to White women (Ingram et al., 2020).

Definitions

Adverse birth outcomes: Include preterm births (medically defined as less than 37 weeks of gestation) and low birth weight (less than 5.5 pounds). These can lead to higher rates of illness and infection for newborns, as well as long-term neurological and health problems (Osypuk et al., 2016).

Black women: A general and worldwide reference with various local meanings generally used to describe all women who ancestors are African and from the African diaspora (Hughes, 2021)

Low birth weight: An infant born weighing less than or equal to 2,500 grams or 5.5 pounds as set by the World Health Organization. (Osypuk et al., 2016).

Perinatal depression: Major depressive disorder with perinatal onset, is depression that begins in the period from conception to after pregnancy (Benatar et al., 2020).

Pregnancy intention: Measure of a women's intention to become pregnant. There are four categories of this measure: (a) wanted at that time or sooner, (b) mistimed by less than 2 years, (c) mistimed by 2 or more years, and (d) unwanted at any time (Kost & Lindberg, 2015).

Preterm birth: Delivery that occurs at less than 36 weeks of gestation (Nutor et al., 2018).

Assumptions

The first assumption is that the participants in the original study were honest and objective in discussing topics such as their proclivity to mental illness, their pregnancy intention, and the outcomes of their unintended pregnancies concerning both maternal and child outcomes. The second assumption is that the participants understood the survey questions and the concepts discussed in them during the primary data collection. To minimize any potential for hesitation or falsification of responses, I assume that the survey participants were assured of the confidentiality and anonymity of their feedback.

Further, regarding the original analysis of the primary PRAMS data, it is assumed that the researchers had a working knowledge of the specific language of the research topic, including the ability to understand the words and meanings. Therefore, the researchers responsible for collecting, interpreting, coding, analyzing, weighting, and reporting the primary data were competent, as these are all critical aspects of the research process (Polit & Beck, 2006).

Limitations

Regarding the potential limitations of the study, the data set is secondary. As such, the quality of the data collection procedures (e.g., ethical considerations, objectivity, etc.) cannot be guaranteed when compared to primary data collection. However, I accept that the primary researchers operated according to best research practices, leading to the data set I will use. Another limitation of the secondary data set is that the original participants self-reported whether they had perinatal depression. With self-reported data, it is not typically possible to confirm with absolute objectivity and certainty that the responses are free of personal bias (Tempelaar et al., 2020). This is particularly relevant to my study, because previous studies have indicated that the self-reported threshold for depression among Black women differs from that of other racial and gender demographics (Nutor et al., 2018). For example, Nutor et al. (2018) noted that Black women may not distinguish depression from normal emotions, perceiving depression as a typical emotion rather than an issue of mental health. Therefore, it is possible that in the secondary data set for this study, there are underreported cases of depression which may lead to some unavoidable bias in the results. Finally, it is possible that my personal experiences or positionality and identity may influence the analysis. I am Black woman who was diagnosed with perinatal depression and preeclampsia, which resulted in the preterm birth of three children, two of whom succumbed to death within hours after delivery. I am aware of my positionality and will employ self-reflection and a reflexive approach so that I can identify, construct, critique, and articulate my positionality (Darwin Holmes, 2020).

Significance

This study is significant because it can fill this gap related to the intersectionality of the socioecological factors that influence perinatal depression and adverse birth outcomes among Black women. By focusing on perinatal depression, preterm delivery, and birth weights, as well as the moderating role played by pregnancy intention, healthcare practitioners may gain valuable insight into the association between these variables. Moreover, this study may shed light on how the association appears among Black women who may approach mental health differently than their White counterparts. Through this study, researchers and medical practitioners may be better suited to develop and implement prenatal depression screening tools, treatment plans, and support services for Black women during this state of vulnerability.

The lack of investment in maternal health and wellness hurts women in general. However, due to numerous other health and social challenges, Black women and their families nationwide are particularly vulnerable. Pregnancy and delivery complications cost the United States billions in healthcare expenses. Preventable health and the cost burden of adverse birth outcomes associated with perinatal depression can be reduced by addressing pregnancy and childbirth outcomes. Identifying at-risk patients early in pregnancy and implementing a care plan with appropriate mental health resources such as counseling or therapy have decreased clinical depression by more than 40% (Ellington, 2021). There is a consensus among the public health stakeholders that improving Black women's maternal health will require a multi-faceted approach that addresses Black women's health across the lifespan, improves access to quality care, addresses social determinants of health and provides greater economic security (Gray et al., 2023).

Summary

The prevalence of depression among Black individuals is a significant problem affecting the wellbeing of the community members. The public health issue adversely impacts the population, leading to adverse outcomes for Black women. In particular, unintended pregnancies are highly frequent among Black women. Moreover, Black women record higher infant mortality, lower infant weights at birth, and more preterm births than White women or other races in America (Larrabee Sonderlund et al., 2021). Several factors are attributed to the prevalence of the problem, with cognitive issues being significant contributors. Perinatal depression significantly contributes to the prevailing premature delivery, low birth weight infants, and infant mortality, forming the basis of this research. Determining the relationship between perinatal depression on premature births, low birth weight, and infant mortality among Black women will be essential in expanding research on the topic and developing possible interventions.

Section 2: Research Design and Data Collection

Introduction

As discussed in Section 1, this quantitative study was conducted to evaluate if pregnancy intention moderates the association between perinatal depression, preterm birth, and birth weight among Black women living in the southern United States. In the following sections, I will discuss the research design and rationale for the study, the research methodology, the sampling procedures used by the original creators of the data set, the instrumentation and operationalization of constructs, and the data analysis plan. Lastly, I will address the threats to validity and ethical procedures.

Research Design and Rationale

I used a retrospective quantitative analysis design based on a secondary analysis of an existing database. This study design was selected because the secondary analysis would allow me to explore new research questions and verify previous research findings (Secondary analysis of qualitative data, n.d.). Secondary analysis of existing data also enables new researchers to analyze, present, and extrapolate large quantities of data while eliminating the time and cost necessary to execute a primary study (Cheng & Phillips, 2014). Moreover, this research design was selected because the methodology would allow me to examine the relationship of specific target points, such as perinatal depression, adverse birth outcomes, and other variables of interest within a specific population group. Furthermore, the research design is helpful because it provides a snapshot of the characteristics of the target data points, at any given time, within the population group being studied (Gaille, 2018).

Description of Secondary Data Set

This study was conducted to analyze the 2016–2020 PRAMS data set. PRAMS is a joint surveillance initiative initiated by the CDC and state health departments in 1987. This system gathers jurisdiction-specific data on maternal attitudes and experiences prepregnancy, during pregnancy, and postpregnancy. The breadth of PRAMS covers 81% of all live births across 50 jurisdictions in the United States.

PRAMS is distinctive for its ability to provide exclusive, indispensable data unattainable elsewhere. This data set has been a cornerstone for exploring emerging reproductive health issues and informing the planning and evaluation of state, territorial, and local health programs and policies. The primary objective of PRAMS is to illuminate the factors behind varying infant health outcomes by surveying new mothers. This process enables the identification of high-risk groups among women and infants and tracks health status changes.

The PRAMS data collection methodology involves a mixed-mode approach, utilizing mailed questionnaires and telephone interviews. The questionnaire includes core questions shared across all sites, along with select questions specific to each site, covering a variety of topics such as attitudes towards recent pregnancy, prenatal care, breastfeeding, substance use, health insurance coverage, physical abuse, infant healthcare, and contraceptive use.

Two types of questionnaires cater to the mixed-mode methodology of PRAMS. While mailed packets contain a self-administered questionnaire, the telephone phase utilizes an interviewer-administered questionnaire. The PRAMS questionnaire is available in English and Spanish, accommodating a significant Hispanic population. Periodic revisions and new phases result in some changes in the questions. To collect data, PRAMS researchers evaluate a stratified sample of women who had recently given birth. States stratify their samples by maternal characteristics of public health interest, such as maternal age, race/ethnicity, geographic area of residence, and infant birth weight. Stratification by maternal characteristics allows for examinations of disparities over a wide range of health indicators (Shulman et al., 2018).

Two to 6 months after delivery, each sampled mother is mailed an introductory letter followed by a 14-page survey. To increase the participant response rate, a reminder letter and second and third mailing of the survey are sent to those who do not respond to earlier surveys. Participants who fail to respond to the mailed surveys are contacted via telephone, and the interviewer administers the survey by telephone. This sampling design allows each state to sample between 100 to 300 women per month, equating to approximately 1,000 to 3,000 women annually. PRAMS data statistics are based on weighted data. CDC developed the weights to adjust for sample design, nonresponse patterns, and omissions from the sampling frame. The final sampling weight used in the analysis of the survey data is the product of these three elements (Shulman et al., 2018).

Methodology

Population

The target population for this study was Black women ages 18–40 years residing in the southern United States—specifically, in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia. The study excluded individuals outside these states or the stated age range or of a different racial demographic.

To gain access to the PRAMS data set, I completed a proposal to the CDC by completing the PRAMS proposal application form. Per the application process, I submitted an abstract of 350 words or less describing the research project and a rationale for using PRAMS as the data source. I indicated the requested years of data and the targeted states. Additionally, I completed the CDC PRAMS agreement for sharing multistate data with external researchers. Upon completing the proposal application form, the abstract, and the data-sharing agreement, I submitted a single PDF document to PRAMSProposals@cdc.gov. The PRAMS application process indicated I would receive an email regarding the approval/disapproval status of the proposal 2–3 weeks after the first of the month, and data sets for the approved proposal would be sent out approximately 6 weeks after the initial review date.

PRAMS' integrated survey and birth certificate data from the analytic research file offers the participants a wealth of demographic and medical factors. This study primarily focused on the following constructs from the PRAMS data: demographics (state of residence, race, ethnicity, employment, marital status, pregnancy intention, adverse birth outcomes, and perinatal depression). This study utilized PRAMS Phase 8 data, which includes data from 2016 to the present. I focused solely on the data from 2020 and the states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia. These specific southern states were selected to represent the southern region of the United States. Each of these respective states met the PRAMS

55% response rate threshold. Southern states North Carolina, South Carolina, and Texas did not and were excluded from this study. The population size, not filtered by race, totaled 6,917 respondents across Alabama ($N = 647$), Arkansas ($N = 925$), Florida ($N = 1{,}101$), Georgia ($N = 692$), Louisiana ($N = 698$), Mississippi ($N = 1{,}012$), Tennessee ($N = 628$), and Virginia ($N = 944$).

The data set contained all the variables needed to conduct the study, which included race, perinatal depression, premature birth rates, birth weight, and pregnancy intention. Moreover, the data set contained essential demographic, health, and environmental information that would be controlled for the analysis. These variables signify the specific data points allowing me to answer the research questions.

Power Analysis

This study aimed to utilize two logistic regression models to evaluate the moderating influence of pregnancy intention on the relationships between perinatal depression and two separate outcomes: (a) preterm birth and (b) low birth weight. The selected covariates that would be controlled within these regression models include maternal age, BMI, maternal years of education, major health problems during pregnancy, minor health problems during pregnancy, marital status, and abuse during pregnancy.

For this moderation analysis, the independent variable, perinatal depression, and the moderator variable, pregnancy intention, were represented as 1 for *yes* or 0 for *no* (see subsequent section for more detailed variable coding), capturing the presence or absence of perinatal depression and pregnancy intention, respectively. By multiplying the binary values of prenatal depression and pregnancy intention for each case in the data set, I would derive an interaction term (prenatal depression * pregnancy intention). This interaction term would result in four distinct categories: (a) cases where both prenatal depression and pregnancy intention are present (prenatal depression = 1, pregnancy intention = 1); (b) cases with prenatal depression but without pregnancy intention (prenatal depression = 1, pregnancy intention = 0); (c) cases with pregnancy intention but without prenatal depression (prenatal depression = 0, pregnancy intention = 1); and (d) cases with neither prenatal depression nor pregnancy intention (prenatal depression = 0, pregnancy intention = 0). These categories would allow the exploration of how the joint occurrence or absence of perinatal depression and pregnancy intention influence preterm delivery and low birth weight and whether the effect of perinatal depression is contingent on the presence or absence of pregnancy intention. Consequently, the resulting interaction term (prenatal depression * pregnancy intention) would introduce three variables into the model after dummy coding. The category where perinatal depression is absent but pregnancy was intended (prenatal depression = 0, pregnancy intention = 1) would serve as the reference category to facilitate the interpretation of the interaction effects by providing a baseline for comparison with the other categories.

The minimum sample size for this study was determined based on the guidelines provided by Bujang et al. (2018), which propose sample size guidelines for logistic regression in observational studies with large populations. For this study, the model would include 14 predictor variables made up of perinatal depression (independent variable), pregnancy intention (moderator), the moderation effect (which would result in the inclusion of three variables after dummy coding), and eight covariates (which would result in nine variables after dummy coding as health insurance has three categories, whereas all other categorical variables are binary). According to Bujang et al. (2018), the formula for sample size estimation in logistic regression can be expressed as $\eta = 100 + 50i$, where η represents the minimum sample size and *i* denotes the number of predictor variables. Applying this formula to a model with 14 predictor variables yields a minimum sample size of 800. Furthermore, Bujang et al. emphasized that a minimum sample size of 500 is necessary to ensure that differences between sample estimates and population parameters, such as regression coefficients and Nagelkerke r-squared, are sufficiently small.

Operationalization of Variables

The initial phase of the data analysis involved cleaning and preparing the data set for further analysis. The first step was to trim the data set to only include those who met the study's inclusion criteria—specifically, Black women residing in southern states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia. Once this initial selection was made, further data cleaning was conducted. The independent variable was perinatal depression, which I have classified as a categorical variable that can be answered either as *yes* or *no* based on the PRAMS pregnancy-related depression screening tool.

The two dependent, categorical variables investigated for this study were preterm delivery and low birth weight. According to the CDC, premature (also known as *preterm*) birth is when a baby is born before 37 weeks of pregnancy have been completed.

Therefore, women who have delivered less than 36 weeks' gestation were classified as *yes* indicating the presence of preterm delivery. In contrast, women whose pregnancies progressed to or beyond 37 weeks' gestation were classified as *no* indicating the absence of preterm delivery. According to the CDC, low birth weight has been defined as the first weight recorded within hours of birth of < 2,500 grams. Therefore, infants born weighing less than 2,500 grams were classified as *yes*, indicating the presence of low birth weight, whereas those born weighing more than 2,500 grams were classified as *no*, indicating no low birth weight.

The moderating variable for this study was pregnancy intention. This variable was also a categorical variable that was used to place the women in one of two categories: intended pregnancy or unintended pregnancy. For pregnancy intention, this variable was measured by PRAMS via polling the respondents about how they felt about becoming pregnant. The respondents had the option of selecting one of five possible responses: "I wanted to be pregnant later," "I wanted to be pregnant sooner," "I wanted to be pregnant then," "I didn't want to be pregnant then or at any time in the future," and "I wasn't sure what I wanted." Based on the results of the pregnancy intention questions, I grouped the respondents into two groups for this study. Those who responded in the PRAMS study that they wanted to be pregnant sooner or then would be assigned to the first group, the *intended pregnancy group*. In contrast, those who responded "I wanted to get pregnant later" or "I did not want to be pregnant" were assigned to the second group, the *unintended pregnancy group*. Respondents who selected the option "I was not sure what I wanted" were excluded from this study due to the uncertainty of their pregnancy intentions.

Additionally, in this study, perinatal depression was operationalized as "major or minor episodes of depression that occur during pregnancy or within the first 12 months after delivery," which is the definition set out by the American College of Obstetricians and Gynecologists. In this study, perinatal depression was coded as *yes* or *no* where the former indicated that the respondent self-reported that they had perinatal depression and the latter that the respondent did not have perinatal depression.

Descriptions of the operationalization of the potential control variables are provided in Table 1.

Table 1

Potential Control Variables

Variables	Operational definition	Data type
Demographic controls		
Maternal age	Age of the mother at the time of survey completion recorded as a continuous variable in years	Continuous
Body mass index (BMI)	BMI of the mother at the time of survey completion recorded as a continuous variable; BMI is calculated as weight in kilograms divided by the square of height in meters.	Continuous
Maternal years of education	The total number of years of formal education received by the mother recorded as a continuous variable.	Continuous
Health controls		
Major health problems during pregnancy	The count of major health problems experienced by each participant during pregnancy from the list provided (diabetes, high blood pressure, heart disease, polycystic ovary syndrome, kidney/bladder infection, sickle cell disease, thyroid conditions, epilepsy). Each health problem coded as a binary variable (0 = absence of health problem, 1 = presence of health problem). A new variable was created, adding together these binary variables to give a total count of major health problems during pregnancy for each participant.	Count
Minor health problems during pregnancy	The count of minor health problems experienced by each participant during pregnancy from the list provided (asthma, anxiety, anemia, nausea/vomiting/dehydration, gum disease, Lyme disease, labor pains, allergies). Each health problem coded as a binary variable (0 = absence of health problem, 1 = presence of health problem). A new variable was created, adding together these binary variables to give a total count of minor health problems during pregnancy for each participant.	Count
Environmental controls		
Marital status	Binary variable indicating whether the participant is in a partnership. Those in a partnership coded as 1; those who are single or other coded as 0.	Binary
Abuse during pregnancy	Binary variable, reflecting whether the participant experienced abuse during pregnancy. If a participant reported any kind of abuse during pregnancy (husband/partner, ex-husband/partner, another family member, someone else), they coded as 1; those who did not report abuse coded as 0.	Binary
Health insurance	Recoded into three categories: (a) health insurance (those who indicated they had health insurance through a job, parent, healthcare exchange, TRICARE or military, IHS/Tribal, or other), (b) Medicaid (those who indicated Medicaid coverage), and (c) no insurance (those who indicated they had no insurance).	Nominal

Data Analysis Plan

Data Cleaning and Preparation

The data were analyzed using IBM SPSS statistical software. The data cleaning phase started with examining the data for potential errors, inconsistencies, or outliers. To facilitate this, I reviewed frequency distributions for all variables to detect any potential inaccuracies in data entry or any values that appear to be extreme. This process also helped me to identify any instances of missing data.

The handling of missing data is a critical component of data preparation. Missing data can introduce bias, compromise the power of a study, and complicate the analysis of data (Bennett, 2001). In this study, listwise deletion, also known as complete-case analysis, was employed. Listwise deletion involves excluding cases with missing data on any variables included in the analysis, thereby considering only complete cases for statistical examination. Using listwise deletion for handling missing data offers several advantages. First, it is a simple method devoid of additional assumptions or complex procedures required by imputation techniques. Second, it maintains the original data structure, preserving complex variable relationships during analysis. Lastly, when the missing data are missing completely at random (MCAR), listwise deletion can produce unbiased estimates, ensuring the results are reliable in such cases.

However, there are some drawbacks to using listwise deletion, such as a reduced sample size as cases with missing data are excluded, potentially compromising the statistical power and precision of the findings. Additionally, omitting cases with missing data may result in a loss of valuable information, especially if the missing data are somewhat random. This can lead to less accurate and less efficient estimates in the analysis.

Descriptive Statistics

The first step in the analysis process was to conduct a descriptive statistical analysis of the data. Descriptive statistics were calculated to provide an overview of the data set and variable distributions for categorical variables, such as preterm birth, low birth weight, perinatal depression, pregnancy intention, delivery method, marital status, and abuse during pregnancy; frequencies and percentages will be computed. The distribution of continuous variables, such as maternal age, BMI, health problems before pregnancy, and health problems during pregnancy, were analyzed via the calculation of means, standard deviations, range, inter-quartile range, skewness, and kurtosis.

Inferential Statistics

After performing the descriptive statistical analyses, I performed a series of hypotheses testing through inferential statistics. This enabled me to answer the following research questions in this study:

RQ1: Does pregnancy intention moderate the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy?

> $H_0 1$: Pregnancy intention does not moderate the association between perinatal depression and birth weight among Black women living in the southern United

States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

H_A1: Pregnancy intention significantly moderates the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy.

RQ2: Does pregnancy intention moderate the association between perinatal depression and preterm birth among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy?

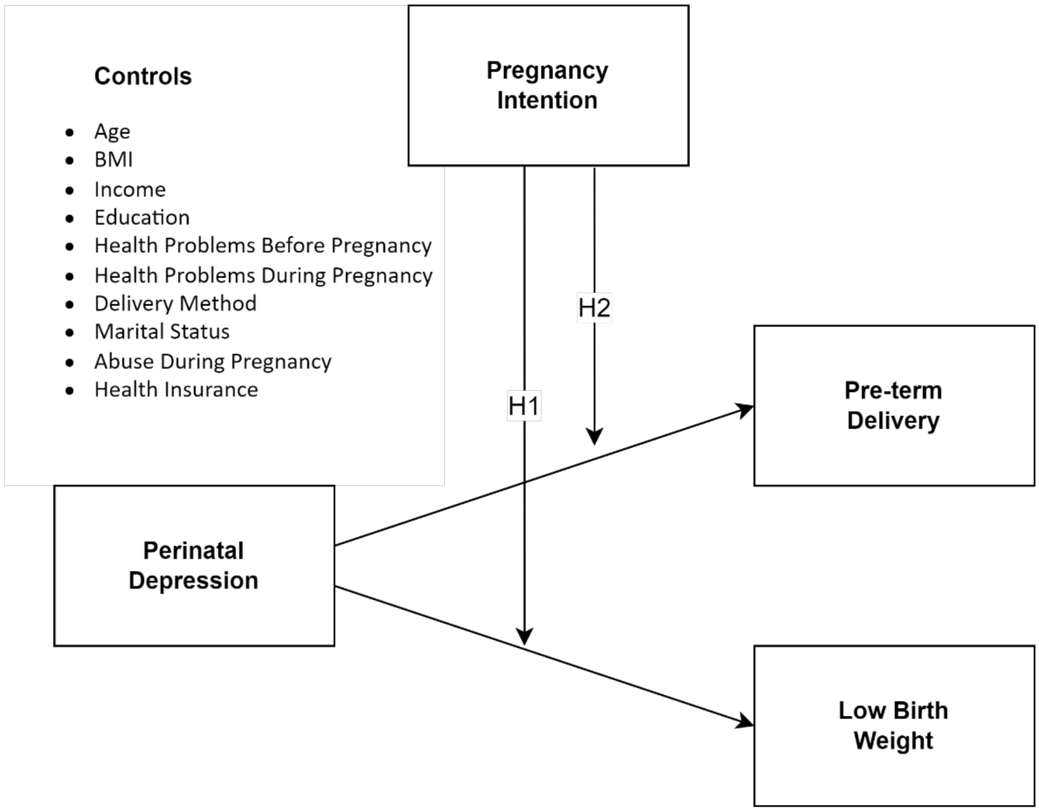
H_02: Pregnancy intention does not moderate the association between perinatal depression and preterm delivery among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

H_A2: Pregnancy intention significantly moderates the association between perinatal depression and preterm delivery among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

First, I investigated the relationships between the potential covariates and the primary variables of interest using bivariate analyses. After identifying these preliminary relationships, moderation analyses using logistic regressions was performed. Figure 2 provides a graphical illustration of the study hypotheses.

Figure 1

Hypothesized Model



Preliminary Bivariate Analysis

During the bivariate analysis phase, statistical methods was employed to explore the unadjusted relationships between the main variables of interest and the covariates. Chi-square tests were performed to investigate the unadjusted associations between the independent variable (pregnancy intention) and the outcome variables (perinatal depression, preterm delivery, and low birth weight). Additionally, the relationships between potential covariates and the main variables of interest were evaluated. Various statistical methods were utilized as the nature of the covariates and main variables of interest can be either categorical or continuous.

For the association between two categorical variables, chi-square tests were used. If one variable were continuous and the other was binary, t-tests or one-way ANOVAs would be employed. The covariates to be tested include maternal age, BMI, education, count of minor and major health problems during pregnancy, marital status, abuse during pregnancy, and health insurance. All the presented covariates are either known or hypothesized to be relevant to the outcomes, based on previous literature and theoretical considerations and were considered for inclusion in the multivariable models, even if they did not reach statistical significance in the bivariate analyses. This helps control for potential confounding and adjust for variables that affect the relationship between the main independent and dependent variables. The final decision on the inclusion or exclusion of covariates was made while building the regression models, considering the model's goodness-of-fit, potential multicollinearity issues, and interpretability of the model.

Moderation Analysis

Two logistic regression models were fitted to assess the moderating effects of pregnancy intention on the associations between perinatal depression and (a) preterm birth and (b) low birth weight. This was tested by adding an interaction term to the logistic regression models, which was the product of perinatal depression and pregnancy intention. Selected covariates (maternal age, maternal BMI, income, maternal education, health problems before and during pregnancy, delivery method, marital status, abuse during pregnancy, and health insurance) were controlled in the regression models.

Logistic regression has several key assumptions, which were checked as follows:

1. *Binary logistic regression requires the dependent variable to be binary.* This assumption is satisfied as both dependent variables—preterm delivery and low birth weight—are binary.
2. *There should be no high correlations (multicollinearity) among the predictors.* This was assessed by checking variance inflation factors (VIFs). If the VIF of a predictor was above a traditional cutoff of 10, steps were taken to address multicollinearity.
3. *A linear relationship is assumed between the logit of the response variable and the predictor variables.* This is checked using the Box-Tidwell procedure.
4. *Large sample size.* Logistic regression requires a large sample size. As a rule of thumb, it is often recommended to have at least 15 cases for each independent variable in the analysis.
5. *There should be no significant outliers*. This was assessed via inspection of the standardized residuals.

The results of the logistic regression included the regression coefficients, standard errors, Wald chi-square statistics, degrees of freedom, p-values, and odds ratios. The Wald test was used to determine the significance of each predictor. Odds ratios were calculated to measure the strength of the association between each predictor and the outcome variables. Confidence intervals for the odds ratios were generated to provide an estimate of the uncertainty.

Decisions about the study's hypotheses were based on these results. If the interaction term (between perinatal depression and pregnancy intention) is significant, it would suggest that pregnancy intention moderates the effect of perinatal depression on birth weight/preterm delivery. Interaction plots were used to display the moderating effect if presented graphically. Furthermore, the pseudo-R-square value (such as Cox & Snell R Square and Nagelkerke R Square) were reported to evaluate the goodness of fit of the logistic regression model. Lastly, a Hosmer-Lemeshow test were performed to test further the goodness of fit for the logistic regression model. A non-significant result ($p > 0.05$) would demonstrate there is no evidence of a lack of fit. If the model did not fit well, further steps might have been needed to improve the model, such as removing or transforming variables or considering interaction effects or non-linearity.

Threats to Validity

Data for this study originated from secondary data that were collected from study participants who volunteered to participate in the PRAMS study. To produce unbiased survey questionnaire results, the data were cleaned and analyzed by PRAMS. Therefore, I relied on the accuracy and integrity of the PRAMS data collection and storage method.

Ethical Considerations

The data collected in the 2016-2020 PRAMS are a public use secondary data set that is respondent deidentified. As such, there were no risk of breaching the confidentiality or anonymity of the research participants. After receiving PRAMS approval to use the data set, it was downloaded from the public use site and stored on a personal computer that was only accessible to the researcher. At the conclusion of the study the data were deleted to maintain the integrity of the data. Additionally, Walden University Institutional Review Board will review the secondary data source and provide an approval number once the data source has been evaluated and determined to be ethically compliant with the school's procedures.

Summary

In Section 2, I discussed the research design and rationale for the study, the research methodology, the sampling procedures used by the original creators of the data set, the instrumentation and operationalization of constructs, and the data analysis plan. In addition, I discussed the threats to the validity of the study as well as the ethical considerations. In Section 3, the results and findings will be presented and discussed.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this study was to evaluate if there is an association between perinatal depression, birth weight, and premature delivery among Black women, moderated by unintended pregnancy. The goal of the study was to address the following research questions and hypotheses:

RQ1: Does pregnancy intention moderate the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy?

$H_0$1: Pregnancy intention does not moderate the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

H_A1: Pregnancy intention significantly moderates the association between perinatal depression and birth weight among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy.

RQ2: Does pregnancy intention moderate the association between perinatal depression and preterm delivery among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status abuse during pregnancy, maternal age, BMI, and major and minor health problems during pregnancy?

$H_0$2: Pregnancy intention does not moderate the association between perinatal depression and preterm delivery among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

H_A2: Pregnancy intention significantly moderates the association between perinatal depression and preterm birth among Black women living in the southern United States (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Tennessee, and Virginia) while controlling for education, health insurance, marital status, abuse during pregnancy, maternal age, BMI, and major or minor health problems during pregnancy.

In Section 3, the sample characteristic and the bivariant analysis of the study will be evaluated. The data were collected from 2016 to 2020 per the PRAMS, which is a public use secondary data set. There were no discrepancies in the use of the data set from the plan presented in Section 2. PRAMS provides representative data not available from other sources about pregnancy and the first few months after birth. The PRAMS sample is chosen from a list of all women who had a live birth recently, so findings can be applied to the site's entire population of women who have recently delivered a live-born infant. Therefore, the data are generalizable to the general public.

Results

Sample Characteristics

In preparing the demographic and clinical profile of the study sample, frequencies and percentages were calculated for each category within the key variables (Table 2). The most common category for birth weight in the sample was *normal weight*, observed in 6,519 participants, accounting for 68.42% of the sample. The prevalence of *perinatal depression* was predominantly in the *no* category, with 7,753 individuals (81.37%). Regarding pregnancy intention, the *unintended* category was the most frequent, noted in 3,919 participants (41.13%). In the context of abuse, the majority of the sample, 8,876 individuals (93.16%), reported no abuse. The status of being in a relationship was observed as the most frequent with 7,281 participants having partners (76.42%). For BMI, the *obese* category was the most common, comprising 4,129 individuals (43.34% of the sample). For age, the most frequently observed category was 25–29 years, encompassing 2,987 individuals (31.35% of the sample). Finally, the majority of participants did not report major health problems, with this category including 6,639 individuals (69.68%). These frequency and percentage distributions provide an overview of the sample characteristics, offering context for the subsequent analyses.

Table 2

Frequency Table for Nominal Variables

Variable	*n*	%
Birth weight		
Normal weight	6,519	68.42
Low birth weight	3,008	31.57
Missing	1	0.01
Perinatal depression		
No	7,753	81.37
Yes	1,556	16.33
Missing	219	2.30
Pregnancy intention		
Intended	3,166	33.23
Unintended	3,919	41.13
Unsure	2,303	24.17
Missing	140	1.47
Abuse		
No	8,876	93.16
Yes	436	4.58
Missing	216	2.27
Relationship status		
No partner	2,245	23.56
Partner	7,281	76.42
Missing	2	0.02
BMI		
Underweight	285	2.99
Normal	2,653	27.84
Overweight	2,215	23.25
Obese	4,129	43.34
Missing	246	2.58
Age		
18–19	576	6.05
20–24	2,707	28.41
25–29	2,987	31.35
30–34	2,142	22.48
35–39	1,116	11.71
Major health problems		
None	6,639	69.68
1 or more	2,728	28.63
Missing	161	1.69

Note. Due to rounding errors, percentages may not equal 100%.

Bivariate Analysis

Prior to the logistic regression analyses, preliminary bivariate analyses were conducted to examine the associations between various potential covariates and the outcome variables, preterm delivery and birth weight. Chi-square tests of independence were performed to assess the strength and significance of these associations.

Birth Weight

The results of these unadjusted bivariate analyses are summarized in Table 3. Significant associations were observed in several variables. Perinatal depression showed a substantial relationship with preterm delivery, $\chi 2(1) = 34.66$, $p < .001$, with a higher percentage of low birth weights reported among those with perinatal depression (37.72%) compared to those without (30.10%). Relationship status also exhibited a significant association, $\chi 2(1) = 22.10$, $p < .001$, where individuals without a partner had a lower percentage of low birth weights (27.53%) compared to those with a partner (32.80%). Additionally, BMI categories were significantly related to birth weight outcomes, $\chi 2(3) = 63.29$, $p < .001$, particularly noting a higher percentage of low birth weights among underweight individuals (49.50%). Furthermore, a strong association was found for major health problems, $\chi 2(1) = 262.66$, $p < .001$, with a substantial increase in low birth weights (43.55%) among those reporting one or more major health problems compared to those reporting none (26.40%). Conversely, variables such as pregnancy intention, $\chi 2(2) = 4.14$, $p = .126$; abuse, $\chi 2(1) = 1.71$, $p = .191$; and maternal age, $\chi 2(4) = 3.17$, $p = .531$, did not show statistically significant relationships with birth weight in the bivariate analysis.

These bivariate results provided an initial understanding of the factors associated with birth weight.

Table 3

Unadjusted Bivariate Analyses, Birth Weight

Variable	Normal weight	Low birth weight	χ2	*df*	*p*
Perinatal depression			34.66	1	<.001
No	5,416 (69.90%)	2,336 (30.10%)			
Yes	969 (62.28%)	587 (37.72%)			
Pregnancy intention			4.14	2	.126
Intended	2,201 (69.50%)	964 (30.50%)			
Unintended	2,639 (67.34%)	1,280 (32.66%)			
Unsure	1,585 (68.82%)	718 (31.18%)			
Abuse			1.71	1	.191
No	6,086 (68.60%)	2,789 (31.40%)			
Yes	286 (65.60%)	150 (34.40%)			
Relationship status			22.10	1	<.001
No partner	1,627 (72.47%)	618 (27.53%)			
Partner	4,892 (67.20%)	2,388 (32.80%)			
BMI			63.29	3	<.001
Underweight	144 (50.50%)	141 (49.50%			
Normal	1,753 (66.10%)	900 (33.90%)			
Overweight	1,575 (71.10%)	640 (28.90%)			
Obese	2,903 (70.30%)	1,225 (28.70%)			
Age			3.17	4	.531
17–19	382 (66.32%)	194 (33.68%)			
20–24	1,834 (67.75%)	873 (32.25%)			
25–29	2,054 (68.80%)	932 (31.20%)			
30–34	1,489 (69.51%)	653 (30.49%)			
35–39	760 (68.10%)	356 (31.90%)			
Major health problems			262.66	1	<.001
None	4,883 (73.60%)	1,755 (26.40%)			
1 or more	1,540 (56.45%)	1,188 (43.55%)			

Note. Due to rounding error, percentages may not sum to 100%.

Preterm Delivery

The results of the unadjusted bivariate analyses are presented in Table 4. Significant associations were found for several variables. Perinatal depression was significantly associated with preterm delivery, $\chi2(1) = 34.70$, $p < .001$, indicating a higher proportion of preterm deliveries in individuals with perinatal depression (33.90%) compared to those without (26.50%). An association was also observed with BMI, $\chi2(3) = 20.77$, $p < .001$, where underweight individuals exhibited a higher percentage of preterm deliveries (37.30%) compared to other BMI categories. The presence of major health problems showed an association with preterm delivery, $\chi2(1) = 351.33$, $p < .001$, demonstrating a significant increase in preterm deliveries (41.30%) for those reporting one or more major health problems versus those with none (22.20%). Similarly, age also showed a statistically significant relationship with preterm delivery, $\chi2(4) = 16.77$, $p = .002$. In contrast, pregnancy intention, $\chi2(2) = 1.94$, $p = .379$; abuse, $\chi2(1) = 0.665$, $p = .415$; and relationship status, $\chi2(1) = .827$, $p = .363$, did not demonstrate statistically significant relationships with preterm delivery in this unadjusted analysis.

Perinatal depression, BMI and major health problems emerged as significant factors for both outcomes, preterm deliveries and low birth weights. Abuse did not demonstrate statistically significant relationships with either preterm delivery or low birth weight in the unadjusted analyses. Relationship status was not significant for preterm delivery, and age was not significant for low birth weight; however, both were included as covariates in the subsequent logistic regression models. Including these covariates across multiple models allows for consistent comparison of the independent variable effects, accounting for potential confounding factors. Given the importance of maintaining a consistent covariate structure for model comparison, as noted by Kundu et al. (2019), the decision to include relationship status, BMI, age, and the presence of one or more major health problems as covariates in the logistic regression models was made. This approach ensures that comparisons drawn from the models are valid, reflecting the influence of the independent variables across different outcomes.

Table 4

Unadjusted Bivariate Analyses, Preterm Delivery

Variable	Term	Preterm	$\chi 2$	*df*	*p*
Perinatal depression			34.70	1	<.001
No	5,692 (73.50%)	2,056 (26.50%)			
Yes	1,027 (66.10%)	526 (33.90%)			
Pregnancy intention			1.94	2	.379
Intended	2,258 (71.30%)	907 (28.70%)			
Unintended	2,833 (72.40%)	1,082 (27.60%)			
Unsure	1,679 (73.00%)	621 (2700%)			
Abuse			0.665	1	.415
No	6,399 (72.10%)	2,471 (27.90%)			
Yes	306 (70.30%)	129 (29.70%)			
Relationship status			.827	1	.363
No partner	1,635 (72.90%)	609 (27.10%)			
Partner	5,229 (71.90%)	2,046 (28.10%)			
BMI			20.77	3	<.001
Underweight	178 (62.70%)	106 (37.30%)			
Normal	1,935 (72.90%)	718 (27.10%)			
Overweight	1,653 (74.60%)	562 (25.40%)			
Obese	2,952 (71.60%)	1,173 (28.40%)			
Age			16.77	4	.002
17-19	431 (74.80%)	145 (25.20%)			
20-24	1,995 (73.80%)	709 (26.20%)			
25-29	2,163 (72.50%)	820 (27.50%)			
30-34	1,515 (70.70%)	627 (29.30%)			
35-39	760 (68.20%)	355 (31.80%)			
Major health problems			351.33	1	<.001
None	5,158 (77.80%)	1,475 (22.20%)			
At least one	1,599 (58.70%)	1,127 (41.30%)			

Note. Due to rounding error, percentages may not sum to 100%.

Research Question 1

RQ1: Does pregnancy intention moderate the association between perinatal depression and birth weight among Black women living in the southern United States?

Main Effects Model

A binary logistic regression was conducted to examine whether the main effects of perinatal depression and pregnancy intention had a significant effect on the odds of low birth weight, while controlling for the selected covariates. The reference category for birth weight was normal weight.

Assumptions

The assumption of absence of multicollinearity was examined.

Variance Inflation Factors

Variance Inflation Factors (VIFs) were calculated to detect the presence of multicollinearity between predictors. High VIFs indicate increased effects of multicollinearity in the model. VIFs greater than 5 are cause for concern, whereas VIFs of 10 should be considered the maximum upper limit (Menard, 2009). All predictors in the regression model have VIFs less than 10. Table 5 presents the VIF for each predictor in the model.

Table 5

Variance Inflation Factors

Variable	VIF
Perinatal depression	1.03
Pregnancy intention	1.07
Relationship status	1.16
Underweight	1.08
Overweight	1.38
Obese	1.47
17-19 years	1.15
20-24 years	1.40
30-34 years	1.35
35-39 years	1.26
Major health problems	1.07

The logistic regression model examining factors associated with low birth weight was found to be statistically significant, $\chi2(12) = 368.16$, $p < .001$. This model included perinatal depression, pregnancy intention, relationship status, BMI categories, age groups, and major health problems as predictors. However, McFadden's R-squared for the model was 0.03, which does not meet the threshold for excellent model fit as suggested by Louviere et al. (2000) where values greater than 0.2 are indicative of such fit. Specifically, the presence of perinatal depression significantly increased the likelihood of low birth weight (B = 0.19, OR = 1.21, p = .002), equating to an approximate 20.88% increase in odds compared to the absence of perinatal depression. Unintended pregnancy intention as well as unsure pregnancy intention as main effects did not significantly increase the likelihood of low birth weight (B = 0.002, OR = 1.00, p = .965; B = -0.07, OR = 0.93, p = .289). Relationship status had a significant effect with those who had partners revealing 24.45% higher odds of low birth weight (B = 0.22, OR

= 1.24, $p < .001$) compared to those with no partners. BMI categories showed distinct effects. Being underweight pre-pregnancy significantly heightened the risk of having a low birth weight infant ($B = 0.72$, $OR = 2.06$, $p < .001$), indicating more than double the odds compared to normal weight. Conversely, being overweight or obese was associated with a significant decrease in the odds of low birth weight ($B = -0.27$, $OR = 0.77$, $p < .001$; $B = -0.34$, $OR = 0.71$, $p < .001$, respectively). Age categories did not yield significant effects on low birth weight, with p-values exceeding the conventional level of significance for 17-19 years ($B = -0.02$, $p = .869$), 20-24 years ($B = 0.01$, $p = .815$), 30-34 years ($B = -0.06$, $p = .387$), and 35-39 years ($B = 0.03$, $p = .685$). A significant effect was observed for major health problems, with individuals having one or more major health problems showing an increased likelihood of low birth weight ($B = 0.83$, $OR = 2.29$, $p < .001$), which is an approximate 128.60% increase in odds relative to having no major health problems.

In summary, while the model's fit was not optimal, it highlighted significant associations of perinatal depression, relationship status, BMI, and major health problems with the risk of low birth weight. These findings contribute to the understanding of risk factors for low birth weight and can inform targeted interventions for at-risk populations. Table 6 summarizes the results of the regression model.

Table 6

Main Effects Logistic Predicting Birth Weight

Variable	*B*	*SE*	*χ2*	*p*	*OR*	95.00% CI
(Intercept)	–1.05	0.08	187.22	< .001	—	—
No perinatal depression	Ref.					
Perinatal depression	0.19	0.06	9.42	.002	1.21	[1.07, 1.36]
Pregnancy intended	Ref.					
Pregnancy unintended	0.002	0.06	0.00	.965	1.00	[0.90, 1.12]
Pregnancy intention unsure	–0.07	0.06	1.12	.289	0.93	[0.83, 1.06]
No partner	Ref.					
Partnered	0.22	0.06	13.11	< .001	1.24	[1.11, 1.40]
Normal	Ref.					
Underweight	0.72	0.13	31.29	< .001	2.06	[1.60, 2.66]
Overweight	–0.27	0.07	16.69	< .001	0.77	[0.68, 0.87]
Obese	–0.34	0.06	35.31	< .001	0.71	[0.64, 0.80]
25-29 years old	Ref.					
17-19 years	–0.02	0.11	0.03	.869	0.98	[0.80, 1.21]
20-24 years	0.01	0.06	0.06	.815	1.01	[0.90, 1.14]
30-34 years	–0.06	0.07	0.75	.387	0.94	[0.83, 1.07]
35-39 years	0.03	0.08	0.16	.685	1.03	[0.88, 1.21]
No major health problems	Ref.					
At least one major health problem	0.83	0.05	261.90	< .001	2.29	[2.07, 2.53]

Note. $\chi 2(12) = 368.16$, $p < .001$, McFadden $R^2 = 0.03$.

Moderation Effects Model

Following the analysis of the main effects model, a subsequent logistic regression model was conducted to include interaction terms. This approach enables the examination of whether the effect of one predictor on the outcome variable changes across the levels of another predictor. A binary logistic regression was conducted to examine whether pregnancy intention moderates the relationship between perinatal depression and birth weight.

Assumptions

The assumption of absence of multicollinearity was examined.

Variance Inflation Factor

All predictors in the regression model have VIFs less than 10. Table 7 presents the VIF for each predictor in the model.

Table 7

Variance Inflation Factors

Variable	VIF
Perinatal depression	4.42
Pregnancy intention	1.58
Relationship status	1.16
Underweight	1.09
Overweight	1.38
Obese	1.47
18-19 years	1.15
20-24 years	1.40
30-34 years	1.35
35-39 years	1.26
Major health problems	1.07
Perinatal depression:Pregnancy intention	6.02

The model was evaluated based on an alpha of .05. The overall model was significant, $\chi^2(14) = 374.90$, $p < .001$. McFadden's R-squared was calculated to examine the model fit, where values greater than .2 are indicative of models with excellent fit (Louviere et al., 2000). The McFadden R-squared value calculated for this model was 0.03. The moderation effects in the logistic regression model predicting low birth weight were examined through interaction terms between perinatal depression and pregnancy intention. Specifically, the interaction between perinatal depression (categorized as "Yes") and unintended pregnancy intention is significant (B = 0.40, SE = 0.16, $\chi 2 = 6.66$, p = .010, OR = 1.49). This indicates that the odds of low birth weight are 49% higher for those with perinatal depression and an unintended pregnancy compared to those without perinatal depression and/or an intended pregnancy. The interaction between perinatal depression and unsure pregnancy intention, though positive, was not statistically significant ($B = 0.26$, $SE = 0.17$, $\chi 2 = 2.32$, $p = .127$, $OR = 1.30$).

These results suggest that perinatal depression interacts differently with categories of pregnancy intention in relation to birth weight outcomes. The presence of perinatal depression has a statistically significant exacerbating effect when the pregnancy is unintended, but not when the pregnancy intention is unsure. This finding can have implications for targeting interventions and support services for pregnant individuals experiencing depression, especially when the pregnancy is unintended. Table 8 summarizes the results of the regression model.

Table 8

Moderation Effects Logistic Regression Results Predicting Birth Weight

Variable	*B*	*SE*	*χ2*	*p*	*OR*	95.00% CI
(Intercept)	–1.02	0.08	173.35	< .001	—	—
No perinatal depression	Ref.					
Perinatal depression	–0.08	0.13	0.37	.546	0.93	[0.72, 1.19]
Pregnancy intended	Ref.					
Pregnancy unintended	–0.06	0.06	0.91	.340	0.94	[0.84, 1.06]
Pregnancy intention unsure	–0.10	0.07	1.98	.159	0.91	[0.79, 1.04]
No partner	Ref.					
Partnered	0.22	0.06	13.47	< .001	1.25	[1.11, 1.41]
Normal						
Underweight	0.73	0.13	31.64	< .001	2.07	[1.61, 2.67]
Overweight	–0.26	0.07	16.60	< .001	0.77	[0.68, 0.87]
Obese	–0.34	0.06	35.56	< .001	0.71	[0.64, 0.80]
25-29 years old	Ref.					
17-19 years	–0.02	0.11	0.03	.873	0.98	[0.80, 1.21]
20-24 years	0.02	0.06	0.07	.790	1.02	[0.90, 1.15]
30-34 years	–0.06	0.07	0.79	.375	0.94	[0.83, 1.07]
35-39 years	0.03	0.08	0.13	.718	1.03	[0.88, 1.21]
No major health problems	Ref.					
At least one major health problem	0.83	0.05	262.68	< .001	2.29	[2.07, 2.53]
Perinatal depression: Pregnancy unintended	0.40	0.16	6.66	.010	1.49	[1.10, 2.02]
Perinatal depression: Pregnancy intention unsure	0.26	0.17	2.32	.127	1.30	[0.93, 1.82]

Note. $\chi 2(14) = 374.90$, $p < .001$, McFadden $R^2 = 0.03$.

To further examine the conditional effects, a probing analysis was conducted to explore the effect of perinatal depression at different categories of pregnancy intention. The results are presented in Table 9.

Table 9

Conditional Effects of Perinatal Depression at Values of Pregnancy Intention

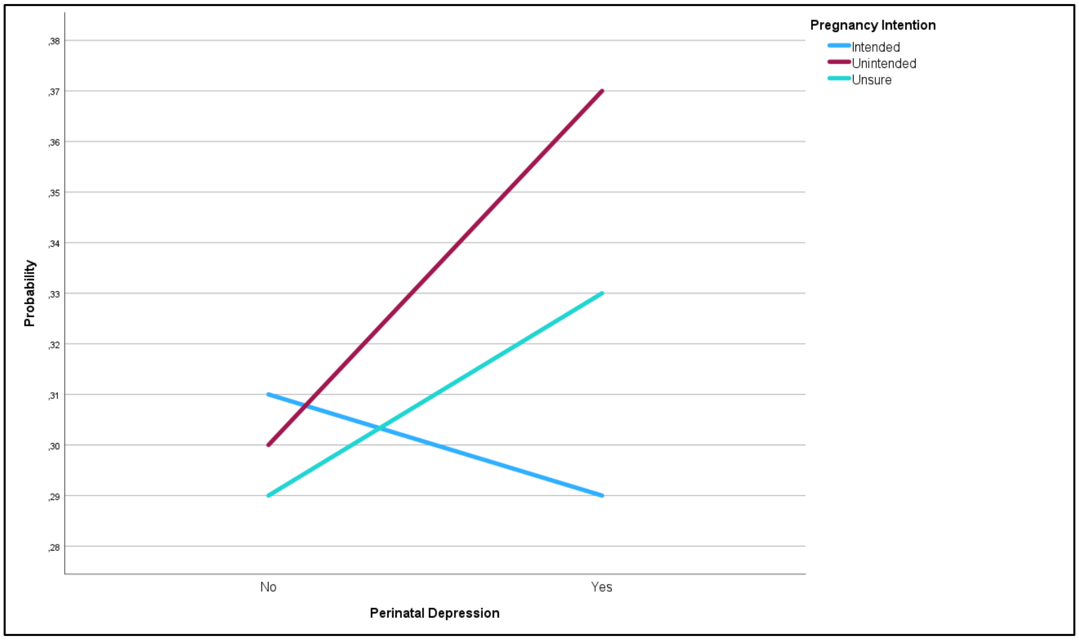
Pregnancy intention	Effect	*SE*	*Z*	*p*	LLCI	ULCI
Intended	–.08	.13	–.60	.55	–.33	.17
Unintended	.32	.09	3.66	<.001	.15	.50
Unsure	.19	.12	1.60	.11	–.04	.41

Note. LLCI = Lower limit of the 95% confidence interval; ULCI = Upper limit of the 95% confidence interval.

For intended pregnancies the effect of perinatal depression was not statistically significant (Effect = -0.08, SE = 0.13, Z = -0.60, p = .55, 95% CI [-0.33, 0.17]). However, for unintended pregnancies, the perinatal depression had a significant positive effect (Effect = 0.32, SE = 0.09, Z = 3.66, p < .001, 95% CI [0.15, 0.50]). This indicates an increased likelihood of low birth weight associated with the perinatal depression when the pregnancy was unintended. For pregnancies where intention was unsure, the effect was positive but did not reach conventional levels of statistical significance (Effect = 0.19, SE = 0.12, Z = 1.60, p = .11, 95% CI [-0.04, 0.41]). These findings suggest that the relationship between the perinatal depression and low birth weight is contingent upon the pregnancy intention, with an effect when the pregnancy is unintended. To visualize the interactions, an interaction plot was generated. This graphical representation provides an illustration of how the effect of perinatal depression on the probability of low birth weight varies across different levels of pregnancy intention.

Figure 2

Interaction Effects of Perinatal Depression and Pregnancy Intention on the Probability of Low Birth Weight



Research Question 2

RQ2: Does pregnancy intention moderate the association between perinatal depression and preterm delivery among Black women living in the southern United States?

Main Effects Model

A binary logistic regression was conducted to examine whether the main effects of perinatal depression and pregnancy intention had a significant effect on the odds of observing the preterm delivery, while controlling for the selected covariates. The reference category for was full term delivery.

Assumptions

The assumption of absence of multicollinearity was examined.

Variance Inflation Factors

All predictors in the regression model have VIFs less than 10. Table 10 presents the VIF for each predictor in the model.

Table 10

Variance Inflation Factors

Variable	VIF
Perinatal depression	1.03
Pregnancy intention	1.07
Relationship status	1.16
Underweight	1.09
Overweight	1.41
Obese	1.50
17-19 years	1.14
20-24 years	1.39
30-34 years	1.36
35-39 years	1.27
Major health problems	1.06

The overall model was significant, $\chi^2(12) = 367.03$, $p < .001$, suggesting that whether perinatal depression, pregnancy intention, relationship status, BMI, age, and major health problems had a significant effect on the odds of observing the preterm delivery. The McFadden R-squared value calculated for this model was 0.03. The main effect of perinatal depression was found to be statistically significant (B = 0.20, OR = 1.22, p = .002), suggesting that perinatal depression is associated with a 22.41% increase in the odds of preterm delivery compared to mothers without perinatal depression. However, the main effects of pregnancy intention on preterm delivery were not statistically significant for those reporting unintended pregnancies (B = -0.11, OR = 0.90, p = .065). Contrarily, uncertainty regarding pregnancy intention was associated with a significant reduction in the odds of preterm delivery (B = -0.16, OR = 0.85, p = .016), indicating a 14.66% decrease compared to those with intentional pregnancies.

The remaining covariates in the model were assessed for their impact on the probability of preterm delivery. Relationship status when specified as having a partner did not significantly alter the odds of preterm delivery (B = 0.11, OR = 1.12, p = .073). Maternal BMI categories indicated that underweight status significantly increased the odds of preterm delivery (B = 0.56, OR = 1.74, p < .001), while being overweight or obese was associated with a significant reduction in preterm delivery odds (B = -0.17, OR = 0.85, p = .016; B = -0.12, OR = 0.88, p = .040, respectively). Age categories of 17-19, 20-24, 30-34, and 35-39 years did not significantly predict the odds of preterm delivery (p-values ranged from .073 to .665). The presence of one or more major health problems was associated with a substantial increase in the odds of preterm delivery (B = 0.89, OR = 2.45, p < .001), suggesting a more than twofold increase compared to having no major health problems. These results are summarized in Table 11 of the regression model analysis.

Table 11

Main Effects Logistic Regression Results Predicting Preterm Delivery

Variable	*B*	*SE*	*χ2*	*p*	*OR*	95.00% CI
(Intercept)	–1.22	0.08	237.32	< .001	—	—
No perinatal depression	Ref.					
Perinatal depression	0.20	0.06	10.05	.002	1.22	[1.08, 1.39]
Pregnancy intended	Ref.					
Pregnancy unintended	–0.11	0.06	3.41	.065	0.90	[0.80, 1.01]
Pregnancy intention unsure	–0.16	0.07	5.78	.016	0.85	[0.75, 0.97]
No partner	Ref.					
Partnered	0.11	0.06	3.21	.073	1.12	[0.99, 1.26]
Normal	Ref.					
Underweight	0.56	0.13	17.04	< .001	1.74	[1.34, 2.27]
Overweight	–0.17	0.07	5.84	.016	0.85	[0.74, 0.97]
Obese	–0.12	0.06	4.20	.040	0.88	[0.79, 0.99]
25-29 years old	Ref.					
17-19 years	–0.21	0.11	3.21	.073	0.81	[0.65, 1.02]
20-24 years	–0.08	0.06	1.41	.235	0.93	[0.82, 1.05]
30-34 years	0.03	0.07	0.19	.665	1.03	[0.90, 1.17]
35-39 years	0.13	0.08	2.64	.104	1.14	[0.97, 1.34]
No major health problems	Ref.					
At least one major health problem	0.89	0.05	295.36	< .001	2.45	[2.21, 2.71]

Note. $\chi2(12) = 367.03$, $p < .001$, McFadden $R^2 = 0.03$.

Moderation Effects Model

Following the analysis of the main effects model, a subsequent logistic regression model was conducted to include interaction terms. This approach enables the examination of whether the effect of one predictor on the outcome variable changes across the levels of another predictor. A binary logistic regression was conducted to examine whether pregnancy intention moderates the relationship between perinatal depression and birth weight.

Assumptions

The assumption of absence of multicollinearity was examined.

Variance Inflation Factors

All predictors in the regression model have VIFs less than 10. Table 12 presents the VIF for each predictor in the model.

Table 12

Variance Inflation Factors

Variable	VIF
Perinatal depression	4.29
Pregnancy intention	1.60
Relationship status	1.16
Underweight	1.09
Overweight	1.41
Obese	1.50
17-19 years	1.14
20-24 years	1.39
30-34 years	1.36
35-39 years	1.27
Major health problems	1.06
Perinatal depression:Pregnancy intention	5.92

The overall model was statistically significant ($\chi2(14) = 372.90$, $p < .001$), suggesting various predictors influence the likelihood of preterm birth. The model's McFadden R-squared value was 0.04. The interaction between the those with perinatal depression and an unintended pregnancy was significant, $B = 0.38$, OR = 1.46, $p = .016$, indicating that observing the experience of perinatal depression changes the effect of the unintended pregnancy on the odds of preterm delivery. This suggests that unintended pregnancy further increases the risk of preterm delivery in individuals with perinatal depression. However, for those who were unsure of their pregnancy intention, the interaction between those with perinatal depression and the unsure pregnancy intention was not significant, *B* = 0.28, OR = 1.32, $p = .118$. These results, as summarized in Table 13, underscore the differential impact of perinatal depression on preterm birth risk in the context of varied pregnancy intentions. The significant interaction with unintended pregnancy suggests a compounded risk factor for preterm delivery in the presence of perinatal depression.

Table 13

Moderation Effects Logistic Regression Results Predicting Preterm Delivery

Variable	*B*	*SE*	*χ2*	*p*	*OR*	95.00% CI
(Intercept)	–1.19	0.08	222.01	< .001	—	—
No perinatal depression	Ref.					
Perinatal depression	–0.06	0.13	0.19	.666	0.95	[0.73, 1.22]
Pregnancy intended	Ref.					
Pregnancy unintended	–0.16	0.06	6.89	.009	0.85	[0.75, 0.96]
Pregnancy intention unsure	–0.19	0.07	7.14	.008	0.82	[0.71, 0.95]
No partner	Ref.					
Partnered	0.11	0.06	3.40	.065	1.12	[0.99, 1.26]
Normal	Ref.					
Underweight	0.56	0.13	17.29	< .001	1.75	[1.34, 2.28]
Overweight	–0.17	0.07	5.79	.016	0.85	[0.74, 0.97]
Obese	–0.12	0.06	4.26	.039	0.88	[0.79, 0.99]
25-29 years old	Ref.					
17-19 years	–0.21	0.11	3.21	.073	0.81	[0.65, 1.02]
20-24 years	–0.07	0.06	1.35	.246	0.93	[0.82, 1.05]
30-34 years	0.03	0.07	0.17	.680	1.03	[0.90, 1.17]
35-39 years	0.13	0.08	2.50	.114	1.14	[0.97, 1.34]
No major health problems	Ref.					
At least one major health problem	0.90	0.05	295.99	< .001	2.45	[2.21, 2.71]
Perinatal depression: Pregnancy unintended	0.38	0.16	5.76	.016	1.46	[1.07, 2.00]
Perinatal depression: Pregnancy intention unsure	0.28	0.18	2.45	.118	1.32	[0.93, 1.86]

Note. $\chi 2(14) = 372.90$, $p < .001$, McFadden $R^2 = 0.04$.

To further examine the conditional effects, a probing analysis was conducted to explore the effect of perinatal depression at different categories of pregnancy intention. The results are presented in Table 14.

Table 14

Conditional Effects of Perinatal Depression at Values of Pregnancy Intention

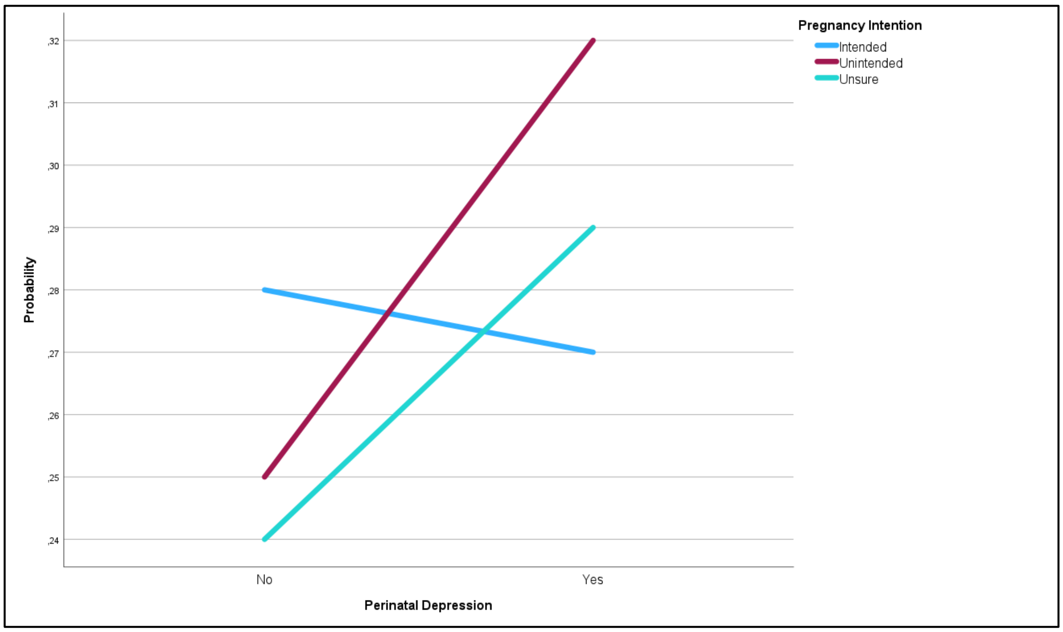
Pregnancy intention	Effect	*SE*	*Z*	*p*	LLCI	ULCI
Intended	–0.06	0.13	–0.43	.67	–0.31	0.20
Unintended	0.32	0.09	3.54	< .001	0.15	0.50
Unsure	0.22	0.12	1.83	.07	–0.02	0.46

Note. LLCI = Lower limit of the 95% confidence interval; ULCI = Upper limit of the 95% confidence interval.

Perinatal depression does not have a statistically significant effect on the preterm delivery variable when the pregnancy is intended (Effect = -0.06, SE = 0.13, Z = -0.43, p = .67, 95% CI [-0.31, 0.20]). This suggests that whether or not an individual experiences perinatal depression, it does not significantly predict preterm delivery for those with an intended pregnancy. Perinatal depression significantly amplifies the odds of preterm delivery for those with an unintended pregnancy (Effect = 0.32, SE = 0.09, Z = 3.54, p < .001, 95% CI [0.15, 0.50]), suggesting which a greater risk or probability of the preterm delivery occurring when the pregnancy is not intended. The effect of perinatal depression on the preterm delivery is positive but not statistically significant for those who are unsure about their pregnancy (Effect = 0.22, SE = 0.12, Z = 1.83, p = .07, 95% CI [-0.02, 0.46]). While there is an indication of an increased risk of preterm delivery with perinatal depression in this group, the effect does not reach conventional levels of statistical significance. To visualize the interactions, an interaction plot was generated. This graphical representation provides an illustration of how the effect of perinatal depression on the probability of preterm delivery varies across different levels of pregnancy intention.

Figure 3

Interaction Effects of Perinatal Depression and Pregnancy Intention on the Probability of Preterm Delivery



For those with perinatal depression, the probability of preterm delivery for those with unintended pregnancies significantly increases compared to those without perinatal depression, indicating a positive interaction effect between perinatal depression and unintended pregnancy. The probability for those with intended pregnancies remains relatively stable regardless of perinatal depression status. For those who are unsure of their pregnancy intention, the probability of preterm delivery appears to increase in the presence of perinatal depression, although the interaction was not statistically significant.

The most notable interaction is seen in the increase in the probability of preterm delivery for those with unintended pregnancies when perinatal depression is also present.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this quantitative study was to investigate whether pregnancy intention moderates the association between perinatal depression and adverse birth outcomes, specifically low birth weight and preterm delivery, among Black women living in the southern United States. This important research question was examined because prior studies have established connections between perinatal depression and poor birth outcomes, but limited research exists exploring if pregnancy intention impacts this relationship (Dowse et al., 2020). The key findings of this study highlight pregnancy intention as a significant moderator that can exacerbate or weaken the effect of perinatal depression on birth outcomes. Most notably, the combination of unintended pregnancy and perinatal depression substantially compound the risk of low birth weight and preterm delivery compared to intended pregnancy. For women with intended pregnancies, perinatal depression did not significantly increase the likelihood of adverse outcomes. However, when paired with unintended pregnancy, perinatal depression increases the odds of both low birth weight and preterm delivery. These results have implications for tailoring support, resources, and clinical care approaches for pregnant women experiencing depression, with additional focus warranted for those with unintended pregnancies due to their heightened risk status.

Findings

Bivariate Analysis

Significant associations were found between maternal characteristics and birth outcomes. Perinatal depression, relationship status, BMI, and major health problems were significantly associated with low birth weight. Perinatal depression, BMI, and major health problems also showed significant associations with preterm delivery. Other variables like pregnancy intention, abuse, and age showed no significant relationship in the unadjusted analyses.

Main Effects Model for Low Birth Weight

The data of logistic regression model indicate that several variables are the indicators of low birth weight. Perinatal depression proved to be a powerful determinant of low birth weight ($B = 0.19$, $OR = 1.21$, and $p = .002$), implying that the women with perinatal depression had an approximate 20.88% higher chance of birth to a low birth weight baby as compared to those without the perinatal depression. Women's relationship status exhibited a strong effect as well. The ones with partners had a 24.45% probability of low birth weight ($B = 0.22$, $OR = 1.24$, $p < .001$) when compared to those without partners. The presence of BMI categories was associated with low birth weight, but there were differences. Prior to pregnancy, a low body weight was the most important risk factor for low birth weight ($B = 0.72$, $OR = 2.06$, $p < .001$), showing 2 times more chances of having such child compared to normal weight women. However, having underweight or normal weight were related to a significant increase in the likelihood of low birth weight ($B = 0.27$, $OR = 1.33$, $p < .001$; $B = 0.34$, $OR = 1.39$, $p < .001$, respectively). The higher presence of one or more major health problems was associated with a staggering 58.60% increase in the chances of low birth weight relative to having no major health problems (*B* = 0.58, *OR* = 1.19, $p < .001$). These results suggest that the direction of link between perinatal depression, relationship status, BMI categories, and the main health problems with low birth weight, which are significant are interrelated and may be the risk factors to adverse birth outcomes.

Moderation Effects Model for Low Birth Weight

The interaction between perinatal depression and unintended pregnancy was significant, indicating a higher risk of low birth weight in this group. The interaction of perinatal depression with unsure pregnancy intention was not statistically significant, suggesting that perinatal depression's effect on low birth weight was not distinctly different for those unsure about their pregnancy intention compared to those who intended their pregnancy.

Main Effects Model for Preterm Delivery

This model found perinatal depression, BMI, and major health problems to significantly predict preterm delivery, but not pregnancy intention or relationship status.

Moderation Effects Model for Preterm Delivery

Similar to low birth weight, the interaction between perinatal depression and unintended pregnancy was significant for preterm delivery. This suggests that unintended pregnancy further increases the risk of preterm delivery in individuals with perinatal depression. Unsure Pregnancy Intention: The interaction between perinatal depression and unsure pregnancy intention was not significant, and while the trend was positive, it did not reach conventional levels of statistical significance.

Interpretation of the Findings

The findings from this study confirm and extend previous research which has demonstrated connections between perinatal depression and adverse birth outcomes. As discussed in Section 1, Dowse et al. (2020) used regression modeling and found that self-reported depression was associated with poor Apgar scores and neonatal complications. The current study aligns with and verifies this observation of the increased likelihood of low birth weight infants and extended nursery stays for mothers with perinatal depression. Furthermore, the meta-analysis conducted by Dadi et al. (2022) concluded that pregnant women with depression have 2.26 times higher risk of adverse birth outcomes and 2.98 times greater odds of delivering low birth weight infants compared to the non-depressed group. The logistic regression results from the current study are consistent with these findings, with significant increases in the odds of low birth weight and preterm delivery associated with perinatal depression. By confirming the negative impacts of antenatal depression across multiple studies and methodologies, the validity and generalizability of this phenomenon are strengthened.

While previous literature has noted higher rates of unintended pregnancies and poorer outcomes among Black women, few studies have assessed if pregnancy intention specifically alters or interacts with perinatal depression’s effects on birth results. By incorporating pregnancy intention and examining its moderating effects, this study breaks new ground and extends current knowledge. The finding regarding the exacerbating influence of unintended pregnancy represents a novel contribution, revealing this factor can worsen the risk conferred by depression. Grobman et al. (2018) found higher rates of preterm birth, hypertensive complications, and small-for-age infants among Black versus White women. Through confirmation of prior estimates and the probing of a new moderator, pregnancy intention in relation to perinatal depression, the current investigation substantiates and meaningfully supplements existing research. The results validate previous observations regarding increased risk while offering enhanced insight into a factor potentiating the likelihood of low birth weight and prematurity among Black mothers with antenatal depression.

Theoretical and Conceptual Bearing of Findings

This study was grounded in the SEM as an appropriate framework for understanding multifaceted influences across individual, interpersonal, community, and societal levels affecting health outcomes. The key results can be interpreted through the SEM lens as exemplifying the interconnected, multitiered factors that shape adverse birth results among Black women with perinatal depression (Benatar et al.,2020). At the individual level, attitudes and stress processes related to unintended pregnancy may present biologically to accentuate depressive symptoms. The noted interactions between pregnancy intention and depression producing a greater likelihood of low birth weight and early delivery reflect possible amplifying behavioral and physiologic pathways. Mental health stigma and attitudes discouraging help-seeking also operate at this level.

Interpersonally, the absence of a supportive partnership was significantly linked to low birth weight, confirming relational influences. Partners can affect behaviors like nutrition, rest, and access to care, while conflict or abuse have documented consequences. The impact of intimate and family relationships underscores SEM principles (Benatar et al., 2020). Community contexts likewise apply, as social disadvantage and structural barriers facing many Black women mediate access and quality of antenatal care. Financial limitations, provider availability, and discrimination contribute to disparities. Residential environments also interplay with health across race and class lines. Such socioeconomic forces align with SEM considerations.

Societally, the long shadow of racism and racial trauma provides the backdrop for interpreting the findings. Chronic stress linked to bigotry and race-based exclusion can potentiate depression and reproductive outcomes (Milam et al., 2022). The double burden of racial and gender inequality permeates cultural messages and institutional policies. This systemic stratification offers a macro-context for the results. Fundamentally, no single level in isolation drives outcomes; rather, the enmeshment of stigma, stress physiology, poverty, prejudice, support networks, neighborhoods, propaganda, and public policy contributes to the evidenced relationships between pregnancy intention, perinatal depression, and birth results among minority women.

The SEM's attention to interactive dynamics between layers of ecology enables insightful framing of why unintended pregnancy compounds risk among Black mothers experiencing perinatal depression. Both proximal emotions and distal sociocultural forces are implicated (Benatar et al., 2020). This framework offer explanatory value for understanding mediators and designing multi-level interventions to alleviate disparities.

In sum, the SEM provides a fitting paradigm for interpreting how pernicious health inequities emerge at this complex biopsychosocial interface.

Limitations of the Study

As this study involved retrospective analysis of cross-sectional survey data, restrictions exist regarding the generalizability, validity, and reliability of the results. The use of self-reported measures and a sample from one geographical region and demographic group limits extending inferences more broadly. Specifically, the reliance on self-reported depression measures raises questions of recall bias or reporting inaccuracies that threaten construct validity. The sampled low-income Black women across eight southern states also limit the generalization of findings to a larger population. In addition, the exploratory predictive models accounted for a limited proportion of variance in outcomes, suggesting that other factors with significant impact were not measured, thus reducing validity.

Similarly, the impact of confounders not accounted for cannot be ruled out. The cross-sectional survey design does not allow causality determination between pregnancy intention, depression, and birth outcomes. All these limitations, when considered in conjunction with each other demonstrate the tentative nature of outcomes and cautious interpretation within the confines of this study. The results provide initial evidence that needs validation through qualitative, longitudinal, and experimental approaches before being translated into policy or practice changes. Finally, the secondary analysis approach had built-in limitations in terms of the generalizability and stability of the estimates derived.

Recommendations

Longitudinal Studies

To better understand the causal relationships between perinatal depression, pregnancy intention, and birth outcomes, longitudinal studies are recommended. Such studies would help in tracking changes over time and provide more robust evidence regarding the directionality of these associations.

Diverse Populations

While this study focused on Black women in the southern United States, future research should include diverse populations to enhance the generalizability of findings. Comparative studies across different racial, ethnic, and socioeconomic groups can provide more comprehensive insights.

Qualitative Approaches

Qualitative studies could be employed to gain deeper insights into the personal experiences and perceptions of women regarding perinatal depression and pregnancy intention. This approach would complement the quantitative findings and provide a more holistic understanding of the issues at hand.

Intervention Studies

Research on the development and evaluation of targeted interventions for women experiencing perinatal depression, particularly in the context of unintended pregnancies, is necessary. Such studies could test the effectiveness of tailored support and treatment strategies.

Implications

Professional Practice

Screening and Counseling

Healthcare providers should integrate regular screening for perinatal depression and discussions about pregnancy intention into prenatal care. Tailored counselling and support services should be offered to those at higher risk.

Integrated Care Models

Adoption of integrated care models that combine mental health support with prenatal care can be beneficial. This approach ensures holistic care addressing both physical and mental health needs.

Training and Awareness

Training programs for healthcare professionals focusing on the nuances of perinatal depression and its impact on birth outcomes are recommended. Increased awareness can lead to better identification and management of these issues.

Positive Social Change

Individual and Family Level

Enhanced understanding and management of perinatal depression can lead to improved maternal and neonatal health outcomes. This improvement can have profound effects on the wellbeing of individuals and families.

Organizational Level

Healthcare organizations can implement policies and practices that prioritize maternal mental health, leading to a more supportive and effective healthcare system.

Societal/Policy Level

Findings can inform public health policies and interventions aimed at reducing the incidence of adverse birth outcomes associated with perinatal depression. This can contribute to the overall health and wellbeing of communities and populations.

Conclusion

This quantitative study reveals a significant finding that pregnancy intention has an important moderating effect on the relationship between perinatal depression and adverse birth outcomes among Black women. In particular, accidental pregnancy significantly increases the risk of low birth weight and preterm delivery associated with antenatal depression. This synergistic aggravating interaction between unintended pregnancy and depression becomes the central “take home” message requiring special attention in research, clinical, and policy spheres. The findings further highlight the importance of screening Black mothers for depression during the perinatal period and ensuring easy access to culturally appropriate mental health support. They reveal an alarming magnification of already existing threats at this junction for that marginalized group. The range of public health implications stretches from individual counseling to systemic reforms.

Basically, the differential risks by pregnancy intention category show that despite population-wide interventions to address depression broadly may still miss some groups. The results drive targeted prenatal care models that take into consideration moderators such as pregnancy intention, tailoring social services, and community health worker outreach to reach high-risk groups. The comorbid depression interaction could be partially offset by providing security for unintended pregnancies. This requires addressing injustices that make unintended pregnancy common among minority women first. In clinical levels, it becomes sensible to disaggregate the risk variance and target screening accordingly. The findings show that all perinatal depression does not equally affect birth outcomes – stratification by pregnancy intention is of value. Early connection of patients to appropriate psychological, material, and doula support provides a way that may help improve outcomes. First, however, is to identify those at greatest risk.

The conclusions are significant in emphasizing that negative maternal-fetal health among oppressed groups is a result of interdependent and connected biosocial processes across relationships, neighborhoods, and cultural dynamics. Such complex phenomena cannot be shifted by singular solutions. The only medicalization of depression denies context. In addition to care access and quality, targeted structural interventions targeting exposure to racism, unstable relationships, poverty, and mistimed pregnancy should equally be prioritized in order to reduce the disproportionate burden. Through highlighting the moderating effects of pregnancy intention, this study contributes to conceptual knowledge regarding variables enhancing perinatal depression's impact and should motivate strategic targeting resources where need and risk focus in this community. It acts as a warning podium against generalized approaches and interventions that are not socio-culturally sensitive. The core of this is that it reveals risk as never static nor standard, but dependent on a complex ecology of intersecting identities and experiences calling for customized solutions.

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