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Walden University

College of Health Sciences and Public Policy

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LyTeasha Bass

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Walden University
2026

Abstract

Quality of Prenatal Care, Provider Preference, and Preeclampsia Among African American Women in Georgia

by

LyTeasha Bass

MS, North Carolina Central University, 2014

BS, East Carolina University, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

May 2026

Abstract

African American women experience disproportionately high rates of preeclampsia in the United States; however, the contributions of prenatal care provider type, health care access, and quality of care to this disparity were insufficiently defined. Guided by the quality health outcomes model, this quantitative case-control study used primary data to examine associations between these factors and the occurrence of preeclampsia among African American women age 18–40 who had given birth within the previous 5 years in Georgia. Descriptive statistics and binary and multinomial logistic regression analyses were conducted. Prenatal care quality was measured using the Quality of Prenatal Care Questionnaire (QPCQ), and demographic information was collected using an anonymous online survey. Health insurance status significantly predicted provider selection, with uninsured women having higher odds of choosing doulas over obstetricians (OR = 2.43, 95% CI [1.18, 5.02], $p < 0.01$). Rural residence was associated with higher odds of midwife use, though this association was not statistically significant. Provider type was not significantly associated with preeclampsia risk. Higher QPCQ scores were associated with a statistically significant reduction in the odds of preeclampsia (OR = 0.94, 95% CI [0.90, 0.98], $p < 0.01$). These findings are important for social change because they suggest that the quality of prenatal care is a key protective factor against preeclampsia, whereas provider type alone does not independently influence risk. Improving prenatal care quality and expanding access to culturally responsive, patient-centered care may help reduce maternal health disparities among African American women.

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Dedication

I want to dedicate this to my mother, Tracey Bass-Caine, the strongest and most caring person I have ever known. My mother has always been a source of support and encouragement, especially during the most challenging times. This work is also dedicated to my beautiful children, Logan, Addison, Brayden, and Jaxon, who have shown me unconditional love and helped me to find the strength to overcome any obstacle. I love you all more than words could ever express.

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Thank you to my committee members for your guidance, expertise, and unwavering support throughout this dissertation journey. Your thoughtful feedback, high standards, and encouragement challenged me to grow as a scholar and strengthened this work in meaningful ways. I am truly grateful for the time and care you invested in my development and in this research. It has been an honor to learn from each of you, and I deeply appreciate your role in helping me reach this milestone.

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Chapter 1: Introduction to the Study

Prenatal care is an essential preventive care service in the United States and is vital to ensure a healthy pregnancy. Prenatal care is provided to pregnant women to ensure the best health conditions for the women and the fetuses during pregnancy (Kassaw et al., 2020). Moreover, prenatal care provides risk assessment and treatment for some conditions, monitoring of the health of the mother and baby, and vital health information and education for the pregnant woman (Backes & Scrimshaw, 2020). According to Dailey et al. (2022), inadequate prenatal care, which begins after the fourth month of pregnancy and includes much less than 50% of the recommended visits, is associated with an increased risk of adverse pregnancy outcomes.

Despite having the highest prenatal care spending per capita in the world, the United States has poorer maternal health outcomes than those of other high-resource nations and are significantly worse for women who are African American and Native American (Backes & Scrimshaw, 2020). Inequities in access, quality, and high costs have contributed to the inadequacy of the maternal care system in the United States. Further, Julian et al. (2023) noted that initiatives aiming to improve prenatal quality have disregarded the experiences of African American women, thereby failing to reduce maternal health gaps.

Moreover, there is a disconnect between the care and support expectations African American women deserve and the care they receive. The quality of prenatal care is vital in preventing, monitoring, and treating maternal health problems. Quality prenatal care can help prevent pregnancy complications and inform women about necessary steps

to protect their unborn babies, thereby improving maternal health outcomes. Previous studies measuring the quality of prenatal care relied on evaluating the start of prenatal care and the total number of visits (Dailey et al., 2022). There has been minimal emphasis on the quality of prenatal care from the viewpoint of African American women receiving care. Moreover, limited research has investigated the variations in care quality among different provider types or the health care delivery systems associated with obstetrical care as a contributing factor to the maternal health disparities affecting African American women. In this chapter, I provide an overview of the associations among demographic variables, provider choice, prenatal care quality, and preeclampsia among African American women residing in rural and urban areas of Georgia, United States. The following sections include the study's background, problem statement, purpose, research questions, theoretical framework, definitions, assumptions, scope and delimitations, limitations, significance, and social change implications, concluding with a summary.

Background

In Georgia, there is a disparity in maternal health outcomes between African American women and other racial and ethnic groups, and not enough is known about the quality of prenatal care these women receive. Previous studies showed that the quality of prenatal care that women experience during pregnancy can contribute to preventable complications such as preeclampsia (Dimitriadis et al., 2023). Preeclampsia is a complex multisystem condition characterized by the abrupt onset of hypertension (after 20 weeks of gestation) and at least one associated consequence, such as proteinuria, maternal organ dysfunction, or uteroplacental dysfunction (Dimitriadis et al., 2023). Preeclampsia is a

serious pregnancy condition linked to a heightened risk of eclampsia, stroke, and multiple organ failure. Further, preeclampsia is one of the most preventable pregnancy complications. Reports have shown that the prevalence of preeclampsia is 2% to 8% (Johnson & Louis, 2022). Preeclampsia disproportionately affects African American women in the United States. According to the National Inpatient Sample, the largest publicly accessible all-payer hospital inpatient care database in the United States, African American women experience preeclampsia or eclampsia in 69.8 of every 1,000 deliveries, compared to 43.3 per 1,000 deliveries for White women, 46.8 per 1,000 deliveries for Hispanic women, 28.8 per 1,000 deliveries for Asian or Pacific Islander women, and 46.6 per 1,000 deliveries for all women (Johnson & Louis, 2022). African American women exhibit a heightened incidence and severity of preeclampsia (Zhang et al., 2020), likely attributable to multiple factors including a prior history of preeclampsia, systemic lupus erythematosus, sickle cell anemia, gestational diabetes mellitus, and a background of chronic hypertension.

African American women have a variety of prenatal care providers from which to choose. More research is required to determine whether this option affects the quality of care. Most women in the United States give birth in hospitals; however, the geographic accessibility of maternity facilities and in-hospital capabilities, the types of maternity care providers available, and the availability of minimally invasive birth options vary substantially (Backes & Scrimshaw, 2020). Although roughly 98.4% of U.S. women have childbirth in hospitals (Backes & Scrimshaw, 2020), a small but growing percentage give birth in birth centers or at home. Not all women have access to these options, nor do all

women have access to care models that reduce interventions and facilitate social support and informed decision making inside hospitals. Due to the unbalanced distribution of prenatal care providers across the United States, many women lack access to adequate prenatal care and have limited options near their homes.

Moreover, the providers' education, training, licensing, and credentials vary, and there is a gap in the literature on whether this may affect the quality of care. Social determinants of health can affect both the location and the nature of health care delivery. Furthermore, social determinants encompass a woman's geographic location and socioeconomic level; these elements can significantly influence her decisions, access to health care, and consequences of the birthing experience (Backes & Scrimshaw, 2020). The time and distance necessary for prenatal care visits may hinder rural women from obtaining appropriate care, particularly when specialty services are located in distant urban areas (Leighton et al., 2019). In metropolitan areas, transportation obstacles such as traffic congestion, public transit accessibility, and the convenience of using public transit while pregnant or with small children may also impede access to prenatal care (Heaman et al., 2014; Institute of Medicine, 1988, as cited in Backes & Scrimshaw, 2020). The inability of women to obtain prenatal care due to locational restrictions may reduce the frequency of their prenatal visits. Reducing prenatal visits, particularly in the first trimester, may increase the clinical risk of pregnancy complications.

Due in part to a shortage of maternity and prenatal care in their local communities, women in rural communities and underserved metropolitan regions are more likely to experience poor maternal health outcomes. In 2016, more than 5 million

women resided in rural or urban areas without access to a nurse, midwife, obstetrician, or hospital with a maternity unit (Backes & Scrimshaw, 2020). These “maternity care deserts” in rural and urban areas impede the advancement of maternal care in the United States. Backes and Scrimshaw (2020) proposed that research is needed to develop scalable, dependable, efficient, and adequately resourced maternity care models in disadvantaged communities to overcome geographic-location-based inequalities in outcomes. Consequently, it is essential to comprehend the impact of demographic factors such as age, location, income, education, and health coverage on a woman’s choice of prenatal care providers (obstetrician, midwife, or doula). In addition, the varying levels of training of prenatal care providers, the quality of prenatal care, and the relationship between these parameters and preeclampsia among African American women in Georgia had not been investigated at the time of the current study.

The predominant model of birth in the United States is physician-attended, and hospital-based. However, the United States has the highest perinatal morbidity and mortality (M&M) rates among high-resource nations. Compared to non-Hispanic White women, non-Hispanic Black women have a threefold higher risk of perinatal M&M. Complex and multifaceted factors contribute to the high M&M rates and racial inequities in the United States. Commonly reported causes of perinatal M&M include lack of universal health care access, insufficient perinatal care providers, and cesarean delivery rates.

A growing body of evidence demonstrated that birth settings influence maternal health outcomes for women and birthing individuals with minimal obstetric risk (George

et al., 2022). Although there is no conventional definition of low obstetric risk, frequent medical or obstetric issues that generally require management in a hospital setting include pregestational diabetes, placenta previa, and the existence of fetal abnormalities or multiple gestations, among other diseases (Backes & Scrimshaw, 2020). Additionally, birth settings influence satisfaction with care and health care costs. Low-intervention delivery settings, such as birth centers and home births, are underutilized due to a lack of choice and access to balanced information on the risks and benefits of different birthing locales (George et al., 2022). This emphasizes the significance of informed choice and decision making about birth-setting alternatives. Despite the fact that no birth setting is risk free, as demonstrated in part by the elevated rates of maternal and neonatal mortality in the United States, it is evident that expectant mothers prioritize safety, respectful care, freedom of choice, and affirming relationships with their care providers and will seek out birth settings that are philosophically aligned with these priorities (Backes & Scrimshaw, 2020). In an effort to have more control over their birthing experience, more women are turning away from the standard prenatal care provided by obstetricians and toward alternative birthing providers such as midwives and doulas in recent years.

Obstetricians and gynecologists are medical professionals who focus on women's reproductive health. Obstetrician-gynecologists attend most births in hospitals in the United States, accounting for over 98% of all births (George et al., 2022). They provide preventive care for women, counsel them on reproductive options, prescribe contraceptives, attend births, administer prenatal and postpartum care, and perform surgery, including cesarean sections (Backes & Scrimshaw, 2020). Physicians caring for

expectant mothers and newborns assess, diagnose, manage, and treat patients; they also order and interpret diagnostic tests, prescribe medications, and attend deliveries (Backes & Scrimshaw, 2020).

Midwives are experts in managing pregnancies, deliveries, and infant care. Combellick et al. (2023) stated that midwifery care entails prevention efforts, the promotion of normal birth, the detection of difficulties in mother and child, the obtaining of medical care or other necessary support, and the implementation of emergency procedures. In addition, midwives may work in any location, including the home, community, hospitals, clinics, and health units. Backes and Scrimshaw (2020) reported that midwives assisted in 14.4% of vaginal deliveries in the United States in 2019. Aside from U.S. midwifery educational programs, midwives may also receive education and certification in ultrasonography, vacuum-assisted deliveries, circumcisions, first assisting during cesarean deliveries, and abortion care (Combellick et al., 2023). Educational preparation and licensure for midwives in the United States are varied.

In the United States, there are three categories of midwives with widely recognized certifications: certified nurse-midwives (CNMs), certified midwives (CMs), and certified professional midwives (CPMs). CMs are licensed in 10 states and the District of Columbia, while CPMs are licensed in 35 states and the District of Columbia (Combellick et al., 2023). Most CNMs and CMs practice in hospitals and birthing centers, with a smaller percentage in private homes.

Preconception care is one of the many health and gynecologic services offered by CNMs, including family planning and care for expectant mothers, new mothers, and

postpartum women (Backes & Scrimshaw, 2020). CNMs can perform examinations, order diagnostic tests, diagnose illnesses, and prescribe medications. Although they provide the same services, CMs differ from CNMs because they are not nurses. In most areas, CPMs do not have hospital privileges; therefore, they provide care only in birth centers and at home births. Only 1.99% of the 3.61 million births annually occur in birth centers or private homes (George et al., 2022). There is growing interest in birth centers and at-home deliveries. Researchers report that the COVID-19 pandemic exacerbated this trend (Turner et al., 2022). According to comparisons of groups with comparable low obstetric risk, freestanding birth centers and homes run by midwives have much lower intervention rates than hospitals, such as reduced rates of cesarean birth, operative vaginal delivery, medical inductions, and postpartum hemorrhage (George et al., 2022). In other words, the rates of complications requiring intervention are lower for women with low perinatal risk, and cesarean birth rates are much lower in birth centers and at home compared to hospitals.

Doulas are educated, nonmedical professionals who offer ongoing support (physical, emotional, and informational) to women throughout pregnancy, childbirth, and the postpartum period. Doulas build a trusting relationship with their patients to promote emotional well-being and to understand their goals and concerns. By advocating for their clients' interests, doulas help to ensure a positive birthing experience (Ramey-Collier et al., 2023). Formal training or certification is not required to work as a doula. Doulas seeking certification must complete a multiday training course and demonstrate their skills through a predetermined number of deliveries (Backes & Scrimshaw, 2020). Doula

support during hospital birth is associated with better maternal-child health outcomes, including better birthing experiences, a decreased risk of induction or augmentation with synthetic oxytocin, shorter labors, a higher percentage of vaginal births, a lower percentage of cesarean deliveries, a reduction in the use of painkillers, higher Apgar scores, a lower risk of postpartum depression, and a higher percentage of breastfeeding (Turner et al., 2022).

According to Turner et al. (2022), doulas can “neutralize” the cycle of increased risk that occurs as a result of social determinants of health that put low-income women and women of color at risk for adverse pregnancy outcomes by providing health education at the appropriate literacy level, providing social support and connections to resources, respecting the client, upholding their autonomy and agency, and enhancing communication between patients and medical professionals, thereby reducing their clients’ risks for complications. Wint et al. (2019) found that doulas mitigate the adverse effects of social determinants of health, or risk factors that influence health outcomes, such as socioeconomic status. Moreover, participants in the study described how doula support and advocacy contributed to increased feelings of maternal agency, personal security, knowledge, respect, connectedness, comfort, and self-efficacy during birth, thereby facilitating a “good birth” experience. Maternal agency is a concept that incorporates a sense of women’s autonomy (Declercq et al., 2020).

Prior research has not examined the associations between preeclampsia among African American women in Georgia and the quality of prenatal care received and whether this varies by prenatal care provider (obstetrician, midwife, or doula),

demographics (age, income, and education), location, and health insurance. The objective of this quantitative study was to examine the associations between sociodemographic factors (age, income, and education), health care accessibility, residence location (rural versus urban), prenatal care provider preference (obstetrician, midwife, or doula), quality of prenatal care, and preeclampsia among African American women in Georgia.

Problem Statement

The research problem addressed in this study was an examination of what factors influence a pregnant African American woman's choice of prenatal care provider and whether the choice of provider type is related to the quality of care she receives and her risk of developing preeclampsia in the state of Georgia. Prior research demonstrated that the quality of prenatal care received by African American women during pregnancy can decrease preventable problems such as preeclampsia (Dimitriadis et al., 2023). Preeclampsia is a debilitating pregnancy disorder associated with a higher risk of fetal and maternal problems. Due to the uneven distribution of prenatal care providers around the United States, many women lack access to adequate prenatal care and local options. In addition, these providers' education, training, licensing, and credentials vary, which may affect the quality of care. Few studies had examined whether the quality of prenatal treatment varies depending on the prenatal care provider chosen by African American women, which was the aim of the current study.

Purpose of the Study

This quantitative case-control study aimed to examine the associations between demographic variables (age, income, and education), health care access, geographical

location of residence (rural vs. urban setting), choice of prenatal care provider (obstetrician, midwife, or doula), quality of care, and preeclampsia among African American women in the state of Georgia. This research included primary data. Participants were recruited via hospitals, social media (Facebook, Instagram, and Twitter), and preeclampsia support groups. Participants were self-selected into the study; anonymous online surveys were completed at the participants' discretion.

Research Questions and Hypotheses

RQ1: Is there an association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education)?

H_o1: There is no r- association health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education).

H_a1: There is -an association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education).

RQ2: Is there an association between the choice of prenatal care provider (obstetrician, midwife, or doula) during the first two trimesters and preeclampsia in the

third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education)?

H_o2: There is no association between the choice of prenatal care provider (obstetrician, midwife, or doula) during the first two trimesters and preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education).

H_a2: There is an association between the choice of prenatal care provider (obstetrician, midwife, doula) during the first two trimesters and the occurrence of preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education).

RQ3: Is there an association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and the occurrence of preeclampsia in African American women after controlling for age and income in Georgia?

H_o3: There is no association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and the occurrence of preeclampsia in African American women after controlling for age and income in Georgia.

H_a3: There is an association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and preeclampsia in African American women after controlling for age and income in Georgia.

Conceptual Framework for Study

The quality health outcomes model (QHOM) is a conceptual framework that relates the impact of the social determinants of health on care access and quality of care to health outcomes (Mitchell et al., 1998). The social determinants of health define the connection between public health and the QHOM. The QHOM demonstrates the significant impact social determinants have on the health outcomes of individuals to whom health interventions are directed. This relates to my current study, which examined the associations between demographic variables (age, income, and education), health care access, geographical location of residence (rural vs. urban setting), choice of prenatal care provider (obstetrician, midwife, or doula), the quality of care, and the occurrence of preeclampsia among African American women in Georgia.

Public health professionals utilize an understanding of the negative health consequences associated with social determinants of health to translate research findings into practical public policies or interventions, and to evaluate the efficacy of such efforts (Centers for Disease Control and Prevention, 2022). Improving population health requires identifying the social and behavioral processes that can help develop effective interventions. Furthermore, the QHOM emphasizes the importance of addressing social determinants to enhance the quality of care and promote health equity among vulnerable populations (Daniel, Bornstein, & Kane, 2018). People are more likely to achieve better health outcomes if they have access to resources such as a good education, stable housing, safe environments, and healthcare coverage (Daniel, Bornstein, & Kane, 2018).

Nature of the Study

This quantitative case-control study used primary data based on responses to the quality of prenatal care questionnaire (QPCQ) from African American women in rural and urban Georgia who chose different prenatal care providers (obstetrician, midwife, or doula). The aim was to examine the association of the quality of prenatal care that African American women in Georgia receive and whether geographical location, age, income, education level, and healthcare access play a role in the care they receive and their choice of prenatal care provider. The dependent variable was preeclampsia, and the independent variables were the types of prenatal care providers (obstetrician, midwife, or doula). The demographic variables included age, income, education, geographical location, and access to healthcare. The criteria for eligibility included being an African American woman between the ages of 18 and 40, having given birth within the previous five years, residing in rural or urban Georgia, having varying income levels, having chosen an obstetrician, midwife, or doula, and having either experienced preeclampsia or not. Participants who experienced eclampsia were excluded from the study due to the complication's severity and would likely have received prenatal care from an obstetrician. Each participant completed an anonymous online survey.

Statistical analysis consisted of multivariate logistic regression to determine the association between sociodemographic factors, choice of provider, quality of prenatal care, and preeclampsia in African American women in Georgia. Only the control group (women who have not developed preeclampsia) and a random sample of preeclampsia cases proportionate to the general population rate would be evaluated when investigating

the influence of sociodemographic characteristics on the choice of provider. This is because the case-control research would result in a skewed analysis due to a higher percentage of women with preeclampsia in the study than in the general population.

Definitions

Doula: Doulas are qualified professionals who work independently of the patient's medical team and the personnel of the healthcare institution to provide person-centered, ongoing support for expectant mothers during childbirth, as well as intermittent assistance during pregnancy and postpartum (Backes & Scrimshaw).

Failure to rescue (FTR): A failure or delay in recognizing and responding to a hospitalized patient experiencing complications from a disease process or medical intervention (Hall et al., 2022).

Inadequate prenatal care: Prenatal care that comprises less than fifty percent of the necessary number of visits or prenatal care that commences after the fourth month of pregnancy (Dailey et al., 2022).

Maternal agency: A concept that incorporates a sense of women's authority and independence (Declercq et al., 2020).

Maternal health disparity: Birthing people from certain racial and ethnic groups and those living in poverty or rural areas that experience higher rates of adverse pregnancy outcomes (Howell & Ahmed, 2019).

Midwife: Experts who support the experience of the childbearing person and their family, both physically and psychologically, recognized as specialists in the typical processes of labor, birth, and the postpartum period (Backes & Scrimshaw, 2020).

Obstetrician: Medical professionals who provide primary and preventative care for women and focus on the medical and surgical treatment of women concerning pregnancy and conditions of the female reproductive system (Backes & Scrimshaw, 2020).

Organizational factors: Factors that include leadership and communication between health providers, and the existence of audit and feedback procedures (Mitchell et al., 1998).

Outcome measures: These represent the influence on the patient and illustrate the end outcome of improvement and whether it has eventually attained the goal established (Mitchell et al., 1998).

Preeclampsia: A severe multisystem illness that is identified by abrupt onset of hypertension (>20 weeks of gestation) and, at the very least, one other linked consequence such as proteinuria, maternal organ dysfunction, or uteroplacental dysfunction (Dimitriadis et al., 2022).

Prenatal care: Preventative care that is essential for promoting the mother's long-term health and may even improve prenatal, labor, delivery, and postpartum results (Backes & Scrimshaw, 2020).

Process variables: Depict how systems and processes work to get the desired result (Mitchell et al., 1998).

Quality health outcomes model: A theoretical framework that connects the effects of social determinants of health on healthcare access and quality to health outcomes (Mitchell et al., 1998).

Quality of care: The extent to which health services for individuals and populations increase the possibility of desired health outcomes and care in accordance with professional knowledge (Slyngstad, 2021).

Social determinants of Health: The conditions in which people are born, grow, live, work, and age (Crear-Perry et al., 2021).

Structural variables: These reflect the characteristics of the service/provider, including staff-to-patient ratios and operational hours (Mitchell et al., 1998).

Undisturbed birth: The physiological processes of labor, birth, and the early postpartum period that proceed normally with minimum intervention or with intervention only when medically needed (Combellick et al., 2023).

Assumptions

The following assumptions were made for this study:

1. The Quality of Prenatal Care Questionnaire (QPCQ) is a valid and reliable instrument to evaluate the quality of prenatal care and compare the quality of prenatal care between different types of health care providers.
2. Participants were competent to understand and accurately complete the questionnaire.
3. Participants in this study provided truthful and accurate variables (occurrence of preeclampsia and type of prenatal care provider) and demographic information (age, income, education, health care access, and geographical location of residence).

4. The dataset had enough cases and controls for an unbiased study of the variables of interest.
5. Missing data occurred in a completely random manner; thus, there were no systematic differences that existed between participants with missing data and those with complete data. Further, the absence of the data would not introduce bias to the study (Mack et al., 2018).

Scope and Delimitations

Primary data for this study were collected using the Quality of Prenatal Care Questionnaire, completed by African American women residing in rural and urban Georgia areas who met the specified requirements for the study (QPCQ). I evaluated the associations between demographic variables (age, income, and education), health care access, geographical location of residence (rural vs. urban setting), choice of prenatal care provider (obstetrician, midwife, or doula), the quality of care, and preeclampsia in African American women in the state of Georgia. The delimitations of this study included the following:

1. This study was delimited to a quantitative case-control study. There was a control group for comparison of African American women that did not develop preeclampsia.
2. This study was a primary data analysis. Primary data collection provided the opportunity to select the variables of interest to analyze.
3. This study was delimited by the number of questions in the QPCQ and the sample size in the cases and controls.

4. This study was delimited to the information obtained from the responses to the QPCQ provided by the participants.
5. The study was delimited to the time of data collection and by the results obtained from the data analysis.

Limitations

A potential challenge in the study was recruiting enough participants who had experienced pre-eclampsia, as well as identifying those individuals. Participants were recruited from multiple birthing centers and hospitals to address this issue. The sample size was calculated to ensure the study had enough participants. In addition, obtaining hospital permission to view patient health histories was a potential barrier to data collection. To comply with ethical requirements, the organization's and the participants' identities were masked.

Recall bias was a potential constraint of this case-control design due to the reliance on participant self-reports for data collection. Recall bias occurs when people who obtained the desired outcome are more likely to recall and report exposures than those who did not obtain the outcome in case-control research (Tenny et al., 2023). Put simply, if both groups were exposed to identical stimuli, those in the cases group might disclose the exposure more frequently than those in the control group. Recall bias can lead to erroneous associations between exposure and disease when participants have imprecise recollections of prior experiences (Tenny et al., 2023). Self-assessed behaviors may be biased for several reasons, such as social desirability bias or misunderstanding of appropriate measurement of behavior. In conclusion, mothers of young children may find

the length of the Quality of Prenatal Care Questionnaire onerous. To address this constraint, participants may complete the online survey at their discretion.

Significance

The significance of this research lies in the insights it provides regarding the standard of prenatal care received by African American women. This study highlighted the impact of sociodemographic factors on the selection of prenatal care providers and whether the quality of prenatal care differs among providers. Furthermore, the association between the quality of prenatal care and the occurrence of pregnancy complications such as preeclampsia was examined in this study.

Furthermore, the results of this study provided valuable insights to public health organizations, practitioners, responders, and the general public regarding the importance of high-quality prenatal care and the potential for avoidable complications during pregnancy. This will ultimately lead to positive social change. Additionally, policymakers will be educated about disparities in maternal health care, provider-level bias, and variations in treatment approaches. By addressing a gap in the literature, this study's findings will enhance patient care providers' capacity to deliver high-quality, culturally competent prenatal care. In addition to providing crucial data for planning and decision-making on quality prenatal care for African American women, the results justify allocating resources and attention to postpartum self-care and access to prenatal and postnatal care. This research is of the utmost importance in minimizing pregnancy difficulties, enhancing the general well-being of African American women, and

alleviating the emotional strain that the maternal health discrepancy can place on their families.

Summary

In order to promote a safe pregnancy, prenatal care is an indispensable preventive care service in the United States. Maternal health results in the United States are inferior to those of other high-resource nations, with considerable disparities for African American and Native American women (Backes & Scrimshaw, 2020). Efforts to enhance prenatal quality have neglected the experiences of African American women, according to Julian et al. (2023), which has failed to close maternal health disparities. In this chapter, I presented the background, problem statement, purpose, research questions and hypotheses, conceptual framework, and nature of the study. This section also includes definitions, assumptions, scope, delimitations, limitations, significance, and implications for social change of the study. In Chapter 2, I reviewed the current literature on preeclampsia, social determinants of health, prenatal care, quality of prenatal care, birth settings, and prenatal care providers. In addition, the dissertation research was grounded in a conceptual framework related to the impact of sociodemographic factors on the prenatal care decisions and outcomes of African American women.

Chapter 2: Literature Review

This quantitative case-control study examined the associations between demographic variables (age, income, and education), health care access, geographical location of residence (rural versus urban), choice of prenatal care provider (obstetrician, midwife, or doula), quality of care, and preeclampsia among African American women in Georgia. In this chapter, I review the existing literature and connect the conceptual framework to the quality of prenatal care experienced by African American women in Georgia.

Literature Search Strategy

The literature review identified articles that addressed the topics of preeclampsia, social determinants of health, access to prenatal care, quality of prenatal care, birth settings, prenatal care initiation, and type of provider. A literature search was conducted using the following Walden University Library databases: PubMed, NCBI, NIH, MEDLINE, PLOS ONE, ProQuest Central, ScienceDirect, and Google Scholar. Additionally, Google search engines and the Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) websites were utilized. The following key terms were used for the literature search: *maternal health disparity, prenatal care experience*, *income*, *education*, *geographical location*, *African American women*, *alternative birthing options*, *preeclampsia*, *reproductive health*, *healthcare experience*, *implicit bias*, *prenatal care initiation*, *maternal health outcomes* and *Georgia*, *doula care* and *support*, *midwife care* and *support*, *obstetricians*, and *quality prenatal care.*

Conceptual Framework

The QHOM posits connections between the system or setting, health care interventions, client attributes, and patient outcomes. The model transforms the traditional structure-process-outcome framework of Donabedian, which proposes that interventions or treatments directly produce expected outcomes, into a dynamic model that acknowledges feedback among clients, the context in which care is provided, and interventions (Daniel et al., 2018). The social determinants of health define the connection between public health and the QHOM. The QHOM demonstrates the significant impact social determinants have on the health outcomes of individuals to whom health interventions are directed. Furthermore, the QHOM emphasizes the importance of addressing social determinants to enhance the quality of care and promote health equity among vulnerable populations (Daniel et al., 2018). Social determinants of health can limit the choice of setting and provider when prompt access to medical expertise or knowledge of the condition and its management, along with appropriate interventions, may be necessary.

Literature Review

Preeclampsia

Between 2010 and 2021, hypertensive disorders of pregnancy, including preeclampsia, increased from 4.4% to 9.4% (Ayyash et al., 2024). Preeclampsia is more prevalent among African American women than White women in the United States, and evidence suggests that this disparity is expanding. Further, the prevalence of preeclampsia is rising, affecting 5% of all pregnancies in the United States, with

significant racial, ethnic, and cardiometabolic risk factor variations. The discrepancy in preeclampsia risk between African American women and women of other races is a robust finding. African American women are disproportionately affected by preeclampsia risk factors (e.g., hypertension, diabetes mellitus, obesity), socioeconomic status (SES), and unequal access to sufficient prenatal care, which are likely to contribute to the elevated incidence in this population. Preeclampsia increases the risk of cardiovascular-related death by 1.7-fold (Fasanya et al., 2021). Preeclampsia increases a woman's risk of developing hypertension, coronary heart disease, stroke, and heart failure over the long term. Acute cardiovascular effects may contribute to these chronic disorders with a protracted course. Fasanya et al. (2021) analyzed the occurrence of various cardiovascular issues associated with the existence of pregnancy-induced hypertensive (PIH) disorders (categorized as none, gestational hypertension, and preeclampsia/eclampsia). They assessed their interaction with race/ethnicity. African American women also had the most significant incidence of acute cardiovascular problems at birth, indicating substantial maternal morbidity. In this way, the scope of their study differed from that of previously published research. In addition, this study analyzed a more relevant sample (2016–2018) across the spectrum of hypertensive diseases (absence, gestational hypertension, and preeclampsia/eclampsia). The study's outcomes revealed severe differences in maternal health, especially among African American women, suggesting that addressing the social determinants of health and medical comorbidities may offset the elevated cardiovascular risks African American women face.

The origins and effects of preeclampsia are influenced by race and ethnicity, which contribute to unequal outcomes (Johnson & Louis, 2022). African American pregnant women have a much higher prevalence of preeclampsia, which causes significantly more maternal and fetal problems than women of other races. Researchers hypothesize that multiple factors contribute to the preeclampsia difference among African American women. Gyamfi-Bannerman et al. (2020) expanded on this aspect by assessing the association between race and adverse maternal outcomes in the setting of preeclampsia. They found that the delivery hospitalizations for women with preeclampsia and the risk for a range of adverse outcomes were highest for non-Hispanic Black women. The study's findings underscored the importance of effective prenatal care in preventing pregnancy complications. Additionally, Johnson and Louis (2022) and Zhang et al (2020) examined the existing literature on the influence of race and ethnicity on the origin, pathophysiology, and outcomes of preeclampsia. The researchers stated that the current understanding of race as a social construct shows that it is a risk factor for preeclampsia as opposed to a biological or genetic factor. To improve the clinical management of preeclampsia, research should investigate underlying risk factors and etiologies and find biomarkers for early detection and intervention.

Social Determinants of Health

Social determinants of health play a significant role in maternal health outcomes. Ross et al. (2019) examined whether race (Black vs. White) and socioeconomic status (SES) independently and interactively predict risk for preeclampsia without pre-existing hypertension. They found that Black women were at a higher risk for preeclampsia, and

SES did not attenuate risk. Armstrong-Mensah et al. (2021) also conducted an ecological study on the relationship between social determinants of health, including the geographical location of obstetric services, access to healthcare providers, socioeconomic status, racism, and discrimination, and the maternal mortality rate in Georgia. They identified five crucial social determinants of Georgia's high maternal mortality rates: the geographic location of obstetric services, access to health care professionals, socioeconomic status, racism, and discrimination. My study expands on these findings by evaluating these relationships with the incidence of preeclampsia at the individual level among African American women in Georgia. Similarly, Backes and Scrimshaw (2020) investigated birth circumstances and the role of socioeconomic determinants as complex factors influencing maternal health outcomes. These findings highlight the significance of geographic location and individual characteristics in determining access to prenatal care. This multidisciplinary partnership provides an evidence-based review of the complex research findings on birth settings, concentrating on the health outcomes experienced by subpopulations of women. Through this study, a conceptual model was developed that highlights significant opportunities to improve policy and practice across birth settings (Backes & Scrimshaw, 2020). In that they highlight the critical need for economic and geographic access to maternity care in all locations, the importance of high-quality and respectful care, informed choice, and integrated and coordinated care between prenatal care providers and birth settings, the study's findings provide valuable insight into the significant impact of social determinants on maternal health.

Nativity

Nativity may be associated with an increased risk of pregnancy complications. The prevalence of preeclampsia and other cardiovascular risk factors among non-Hispanic Black women residing in the United States is not well understood to be correlated with maternal place of birth and length of residence. Boakye et al. (2021) explored the prevalence of preeclampsia by nativity (United States-born versus foreign-born) and duration of U.S. residence among Non-Hispanic Black women. They found that the prevalence of preeclampsia is lower in foreign-born than United States-born non-Hispanic Black women. The findings of this study provide vital information regarding the risk factors for preeclampsia in African American women and how residence may play a role. This study supports the foreign-born advantage among non-Hispanic Black women and the waning of this advantage with a longer residence in the United States. I plan on assessing these risk factors among African American women in Georgia.

Prenatal Care Access and Geographical Location

Access to prenatal care is essential for successful intervention and the promotion of favorable maternal health outcomes. Holcomb et al. (2021) evaluated perinatal outcomes among women with and without prenatal care and examined the geographical barriers to receiving prenatal care. They found that women without prenatal care had a significantly increased risk of adverse pregnancy outcomes. In a large inner city, women without prenatal care resided in areas with significantly higher demands for public transportation. This study demonstrated the significant role that geographical location plays in access to prenatal care and offered alternative resources, such as telemedicine

and ridesharing, to reduce barriers to access. Similarly, Kroelinger et al. (2021) examined geographic access, defined as residence within 50 miles of a facility capable of providing risk-appropriate critical care obstetrics services for women of reproductive age, by the distribution of race and ethnicity. Their findings indicated that most women of reproductive age have geographic access to critical care obstetrics (CCO), although differences in physical access exist by race in rural and frontier areas of the United States. Both studies emphasize the significance of the health system in determining the quality of care and the association between quality of care, prenatal care access, and geographic location.

Quality Prenatal Care

Quality prenatal care can help prevent pregnancy complications and inform women about necessary steps to protect their unborn babies, thus improving maternal health outcomes. Mitchell, Ferketich, and Jennings (1998) presented the quality health outcomes model, which builds on Donabedian’s contributions to guide quality of care evaluation and research. This model is more helpful in delineating the relationship between structural and process variables that are occasionally demonstrated to be crucial to patient outcomes. The researchers concluded that the quality health outcomes model was sufficiently broad (a) to guide the development of databases for quality improvement and outcomes management, (b) to suggest key variables in clinical intervention research, and (c) to provide a framework for outcomes research and outcomes management that compares not only treatment options but organizational or system-level interventions. Brizuela et al. (2019) examined the current tools used to measure the quality of maternal

and newborn health as defined in the WHO framework. The researchers identified significant gaps in measuring the quality of prenatal care. This study also highlighted the discrepancy between what prenatal care quality standards require and what available tools currently measure. They concluded that to lessen the cost of measurement and maximize the use of data for quality improvement, more guidance on critical measurements and improved tool harmonization are required. In contrast, Dailey et al. (2022) examined the validity and reliability of the Quality of Prenatal Care Questionnaire and perceptions of the quality of prenatal care among pregnant African American women. They found that the questionnaire was a reliable and valid measure for assessing patients' perceptions of the quality of prenatal care. Instead of focusing on prenatal care utilization or satisfaction, the QPCQ is a practical, valid, and reliable instrument that can be used to measure the quality of prenatal care. This approach may help identify the aspects of prenatal care that are particularly protective for African American women, who are the population most at risk for poor outcomes for the health of both mothers and babies, such as preterm births, morbidity, and mortality. The researchers operationalized the quality of prenatal care and developed a questionnaire to measure the quality of prenatal care among the participants in my study.

Birth Settings

Women in the United States give birth at home, in birth centers, and in hospitals. Even within these categories, the available resources and services vary greatly. Currently, maternal care levels in the United States are unevenly distributed, leaving some women without access to acceptable services and providers. In the same way that women who

give birth at home or in birth centers may need to be transferred to a hospital for more intensive care, women who give birth at lower-level hospitals may need to be transferred to a higher-level hospital with the necessary resources.Deichen-Hansen et al. (2021) investigated how African American women in Florida utilize personal strengths, community resources, and decision-making techniques throughout pregnancy and childbirth. This study examines African American women's prenatal treatment and delivery decisions in Florida and their health outcomes. They discovered that culture and relationships were the most critical influences on pregnancy and delivery decisions. Through my study, I aim to examine similar relationships among African American women in the state of Georgia.

Prenatal Care Initiation and Provider Care

The beginning of prenatal care should occur in the first trimester because it stratifies pregnancy risk, achieves the appropriate number of consultations, and ensures the performance of the recommended procedures and adequacy definers, thereby avoiding unfavorable obstetric and neonatal outcomes and contributing to the reduction of maternal morbidity and mortality Aiquoc et al.,(2022) and Martin et al. (2019) evaluated the distribution of prenatal care timing among African American women. Compared to non-Hispanic white women, African American women were less likely to initiate prenatal care in the first trimester (up to 13 weeks gestation) of pregnancy (67.1 percent vs. 82.5 percent) and more likely to initiate prenatal care in the second (23.1 percent vs. 13.1 percent) and third (6.8 percent vs. 3.3 percent) trimesters. The current study expands on these findings by examining the association between provider selection

during the first two trimesters and the occurrence of preeclampsia in the third trimester among African American women in Georgia.

Obstetric Care and Support

Obstetricians provide maternal and newborn care evaluate, diagnose, manage, and treat patients; order and evaluate diagnostic tests; prescribe medications; and attend births (Backes & Scrimshaw, 2020). An advantage of obstetric care is their specialized training to manage complications such as preeclampsia or placenta previa. Obstetricians are best qualified to manage multiple births (twins, triplets), breech presentation, women with prior Cesarean sections, women with prior stillbirths or other pregnancy-related complications, and women with other comorbid medical conditions such as high blood pressure and diabetes. Obstetrician-attended births in hospitals can make pregnancy and childbirth safer in a number of ways including genetic testing, induction of labor, and IV antibiotics. Utilizing an obstetrician may be a disadvantage if a patient prefers a natural, medication-free birthing experience. Studies have shown that women under obstetric care have an increased risk of episiotomy and cesarean birth.

Midwife Care and Support

Midwives are considered experts in labor, birth, and postpartum, focusing on providing physical and emotional support to the expecting mother and her family. A hallmark of midwifery care is limiting interventions and obtrusive labor management unless medically necessary. Midwives differ from physicians who provide further expertise in managing complications and surgery when necessary (Combellick et al., 2023). To develop patient empowerment and autonomy, the midwifery model of care is

relationship-based and promotes trust, good communication, and tailored care. Midwifery tackles the socioeconomic determinants of health and acknowledges the transformative potential of childbirth.

A disadvantage of midwifery care is that high-risk pregnancies as well as any urgent issues or complications that could arise during childbirth are not something that midwives are trained to handle. As a result, the patient will be forced to seek emergency care from an unfamiliar doctor or healthcare professional that they are unaccumtomed to is issues arise during labor and delivery. The risk of missing warning indications of problems increases when a midwife is the only one present during delivery. The length of time it takes a midwife to recognize that a mother or baby is in distress and make arrangements for transport to the hospital can have an impact on whether or not the mother or child suffers birth injuries, as well as the severity of those injuries. Additionally, midwives are unable to perform emergency procedures, induce labor, or give antibiotics. Lastly, midwifery services may not be covered by health insurance, thus limiting access.

Souter et al. (2019) compared midwife and obstetrician labor practices and birth outcomes in women with low-risk pregnancies delivered in the hospital. Their findings showed that midwifery care during labor was linked to lower intervention levels, fewer cesarean and operative vaginal births, and a higher incidence of shoulder dystocia in multiparous women during low-risk pregnancies.

Doula Care and Support

Doulas provide women and their partners with knowledge about childbirth, non-medical methods of pain relief and relaxation (such as massage and counterpressure), and offer attentive support throughout the entire labour and delivery process, as well as additional care during pregnancy and postpartum (Young, 2021). The cost of using their services varies depending on their amount of experience, level of certification, and location. A full course of care typically costs several hundred or even thousands of dollars, however some doulas offer their services for free or on a sliding scale.

Although, doulas provide emotional support, advocacy, and autonomy in an effort to create a positive birthing experience, there are negative aspects associated with this type of care. The lack of medical knowledge and expertise within the profession is one of the most common disadvantages associated with doula care. Furthermore, the occupation is typically unregulated, and many doulas are laywomen without medical training or experience. As a result, they cannot be used as an alternative to having a midwife or doctor present during delivery. Additionally, if there are any medical complications during birth, this could be problematic because the doula would not be able to intervene and provide the mother or baby the care they need. Doulas have the potential to convince expectant moms to forego critical medical procedures like Cesarean sections or labor analgesics. While studies have shown that doulas can assist in lowering anxiety levels and lessening the need for medical interventions during delivery, there is always the possibility that their advice could cause mothers to make choices that endanger their own health or the health of their unborn child. Finally, the expense of hiring a doula for

childbirth is an additional limitation due to the high cost, which can range from $500 to $2,000 depending on geographical location, level of experience, number of visits, and services offered; however, insurance companies seldom cover these charges, making it difficult to access this type of service.

Wint et al. (2019) investigated how community doulas function and communicate with low-income African American women, as well as how their assistance can improve maternal health outcomes. Doulas were recruited and interviewed from the local community. From these interviews, the following themes emerged: (1) The influence of similarities of race, culture, and lived experience on doula care; (2) How doulas frequently provide birthing individuals with support and resources beyond birth; and (3) How doulas recognize the institutional biases that exist within the health care system and attempt to mitigate their impact on birthing individuals (Wint et al., 2019). The study's themes illustrate the significance of doula support in mitigating the negative impacts of socioeconomic determinants of health. Falconi et al. (2022) evaluated when and with whom doula care delivers the most significant clinical health outcomes and healthcare utilization benefits along the continuum of maternity care. Further, this study examined the advantages of including doula care early in pregnancy and continuing after delivery. Their findings showed that doula care received during various stages of pregnancy was more consistently associated with a reduction in cesarean delivery when a midwife was present at delivery.

Similarly, Ramey-Collier et al. (2023) performed a literature review to explore doulas' scope of practice, perinatal outcomes connected to doula-assisted care, and their

effect on reducing racial disparities in maternal-infant outcomes. Their study findings demonstrated that doula support increased vaginal delivery while reducing preterm birth and low birth weight. In my research, I intend to compare doula care and support to that of other types of providers.

Summary and Conclusions

Previous research on the quality of prenatal care has been quite extensive; however, there are many aspects of the quality of prenatal care and its impact on maternal health outcomes that warrant further exploration. This review of the literature drew attention to the expanding body of research on the importance of high-quality prenatal care across a variety of cohorts. Improved prenatal care quality has the potential to enhance maternal health outcomes and mitigate disparities, since research indicates that a significant portion of adverse maternal health outcomes can be attributed to provider and system failures. This chapter identified a gap in the literature by examining the associations of demographic variables, choice of provider, quality of prenatal care, and preeclampsia among African American women residing in rural and urban areas in Georgia, United States. In this chapter, existing literature on quality of prenatal care, prenatal care providers, and preeclampsia were reviewed, and the dissertation research was also grounded in the Quality Health Outcomes Model. The QHOM demonstrates how socio-demographic variables have a significant influence on the health outcomes of those who receive health interventions. Furthermore, scholarly articles that examined the influence of socio-demographic variables (such as geographic location of residence, income, education, and health care access) on prenatal care quality, provider selection,

and pregnancy complications were assessed to identify areas where knowledge was lacking and to synthesize existing information. Research design and rationale, methodology, data analysis plan and threats to validity will be detailed in Chapter 3.

Chapter 3: Research Method

The maternal health disparities that African American women face persist across a spectrum of prenatal care experiences and outcomes, with variations in care and quality acting as significant modifiable drivers of observed inequities. Mason et al. (2022) found that African American women encounter “failure to rescue” from severe pregnancy difficulties more frequently than other demographic groups, report less shared decision making, and are less likely to have their birth wishes honored. The present study examined the associations among preeclampsia, sociodemographic variables (age, income, and education), health care accessibility, rural versus urban residence location, prenatal care provider preference (obstetrician, midwife, or doula), and quality of prenatal care among African American women residing in Georgia. In this section, I detail the study design and rationale, the methodology including instrumentation and operationalization for each variable, the data analysis plan, threats to validity, and ethical processes, before concluding with a summary.

Research Design and Rationale

A quantitative case-control research design utilizing primary data collection was used in this study. Quantitative methodology was appropriate for examining the association between the quality of prenatal care received by African American women in Georgia and factors such as geographical location, age, income, education level, and health care access, which may influence the care they receive and their choice of prenatal care provider.

The QPCQ is founded on Donabedian's model of quality care, which considers the impact of the structure of the health care system and the technical and interpersonal competencies of prenatal care providers as determinants of quality in relation to pregnancy outcomes (Dailey et al., 2022). The QPCQ is a 46-item questionnaire with a range of possible total scores from 46 to 230, indicating greater quality prenatal care as scores increase. Information Sharing (nine items, score range 9–45), Anticipatory Guidance (11 items, score range 11–55), Sufficient Time (five items, score range 5–25), Approachability (four items, score range 4–20), Availability (five items, score range 5–25), and Support and Respect (12 items, score range 12–60) comprise the six subscales of the instrument (Dailey et al., 2022). The instrument's last questions address essential components of the patient experience, including provider–patient contact, patient autonomy and respect, and information sharing. The QPCQ was developed, tested, and validated using a sample of 80 health care practitioners, 80 pregnant women, and 844 postpartum women from Canada (Dailey et al., 2022).

A case-control study design is a form of quantitative observational research commonly used in public health. In this research methodology, participants are chosen depending on their outcome status. Consequently, some participants (referred to as cases) have the outcome of interest, while others do not (referred to as controls).

Methodology

Population

The target population for this study was African American women between the ages of 18 and 40 who had given birth within the previous five years, came from rural or

urban Georgia, had varying income levels, had chosen obstetricians, midwives, or doulas, and had either experienced preeclampsia or not. Participants who experience eclampsia were excluded from the study due to the severity of the condition and the likelihood that they received prenatal care from an obstetrician due to referral.

Sample Size, Sampling, and Sampling Procedures

The sample size was calculated using Epitools, with an expected proportion of 0.05 exposed in the controls, an assumed odds ratio of 2, and a degree of confidence and power of 0.95 and 0.80, respectively. The calculation yielded a minimum of 134 participants per group for detecting a statistically significant difference between the groups. The total sample size was 268. A sufficient sample size provided representativeness and generalizability to the entire community, minimized the likelihood of selection bias, and enhanced the credibility and acceptability of the study's findings.

Sampling, Procedures for Recruitment, Data Collection

Sampling

This study utilized convenience sampling for the recruitment of participants to complete anonymous online surveys. Convenience sampling is an ad hoc method of participant selection that relies on the accessibility and/or closeness of individuals to the research site (Andrade, 2021). Key benefits of convenience sampling include its low cost, high efficiency, and straightforward implementation.

Procedures For Recruitment

Anonymous online surveys were completed by African American women aged 18 to 40 from rural and urban Georgia who had chosen obstetricians, midwives, or doulas as

their prenatal care providers and had or had not experienced preeclampsia. In a case-control study, selection was based on outcome, so risk factors varied between participants. The participants had varying levels of income and education, and may or may not have possessed health insurance. Hospitals, social media (including Facebook, Instagram, and Twitter), and postpartum support groups were the recruitment sources for participants. Participants were self-selected for the study, and the online surveys were completed at their discretion. Inclusion criteria were a) self-identified as African American or Black; b) gave birth in the geographical locations of interest within the last 5 years; and c) at least 18 years of age at the time of giving birth. The participants received information regarding the study's aims, potential risks, and benefits. Additionally, they were assured that they may withdraw from the survey at any time. Preceding the initiation of the survey, electronic informed consent was required.

Cases

In the current study, cases were defined as the participants living in the geographical locations of interest who had given birth within the last 5 years and experienced preeclampsia. Cases were recruited from hospitals, midwife care organizations, doula support organizations, postpartum support groups, and birthing facilities using social media platforms (Facebook, Instagram, and Twitter). Additionally, the controls will be chosen from the same population from which the cases are obtained, and each group will consist of the same number of individuals. All eligibility criteria established for the cases, except for those pertaining to the occurrence of preeclampsia,

were applied to the controls to ensure comparability. Participants in each group were matched according to their mean income, education, and age to prevent confounding.

Data Collection

Data collection consisted of socio-demographic information and responses to the Quality of Prenatal Care Questionnaire (QPCQ) provided by the participants. The QPCQ measured the quality of prenatal care using a five-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). The QPCQ consisted of six subscales: information sharing (9 items), anticipatory guidance (11 items), sufficient time (5 items), approachability (4 items), availability (5 items), and support and respect (12 items). Items 8, 15, 23, 28, and 40 are reverse-scored.

Instrumentation and Operationalization of Constructs

Heaman et al. (2014) developed the Quality of Prenatal Care Questionnaire (QPCQ) in response to the need for a theoretically grounded, distinct measure of prenatal care quality, distinct from satisfaction measures. The researchers aimed to enhance the evaluation of the relationship between the quality of prenatal care and pregnancy outcomes. Employing exploratory factor analysis, the initial 100-item QPCQ was reduced to 46 items. Postpartum women were given the 46-item instrument, which was subsequently assessed for concept validity, internal consistency, and test-retest reliability. Postpartum women were given the 46-item instrument, which was subsequently assessed for concept validity, internal consistency, and test-retest reliability. The QPCQ underwent validation and testing with 844 postpartum women from Australia, 80 pregnant women, and 80 healthcare practitioners from Canada (Dailey et al., 2022). It was recently

employed to evaluate the attitudes of pregnant and postpartum women in the United Kingdom regarding the accessibility and quality of prenatal treatment.

Operationalization of Each Variable

The variables in the study were determined based on self-reported information. To mitigate the possibility of interpretation error resulting from potential interference between independent and dependent variables, control variables were incorporated into the study. RQ1 examined the associations between healthcare access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, or doula) among African American women in Georgia, after controlling for demographic variables (age, income, and education). The dependent variable was the choice of prenatal care provider (obstetrician, midwife, or doula). The independent variables were health care access and geographical location of residence (rural vs. urban setting). The control variables were age, income, and education.

RQ2 examined the associations between the choice of prenatal provider (obstetrician, midwife, doula) during the first two trimesters and preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education). The dependent variable was the development of preeclampsia in the third trimester. The independent variable was the choice of prenatal care provider (obstetrician, midwife, or doula) during the first two trimesters. The control variables were age, income, and education. Preeclampsia incidence and prenatal care provider type were considered categorical variables for descriptive analysis.

RQ3 examined the association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and the occurrence of preeclampsia in African American women after controlling for age and income in Georgia. The quality of prenatal care was based on the responses to the Quality of Prenatal Care Questionnaire (QPCQ). Each item had a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). The instrument included six subscales: *Information Sharing* (9 items, score range 9-45), *Anticipatory Guidance* (11 items, score range 11-55), *Sufficient Time* (5 items, score range 5-25), *Approachability* (4 items, score range 4-20), *Availability*. The dependent variable was the occurrence of preeclampsia. The independent variable was the quality of prenatal care. The control variables were age, income, and education.

Table 1

Definition and Measurement of Study Variables

Variable Name	Definition of variable	Value	Role of each variable in each RQ	Measure of variable
Age	Age in years of participant	1=18-23 2=24-29 3=30-35 4=36-40	Age=Confounder in RQ1, RQ2, and RQ3	Ordinal
Education	Participant's highest level of education	1=Less than high school 2=High School Diploma 3=Bachelor's Degree 4=Master's Degree 5=Ph.D., JD, MD or equivalent	Education=Confounder variable in RQ1, RQ2, and RQ3	Ordinal
Income	Participant's income from wages or other sources	1=<25,000 2=25,000 - 50,000 3=50,000 - 75,000 4=75,000 - 100,000 5=>100,000 6=Prefer not to say	Income=Confounder variable in RQ1, RQ2, and RQ3	Ordinal
Health care access	Health insurance coverage	1=Yes 2=No	Health care access=independent variable in RQ1	Nominal/ Categorical

Geographical location of residence	Participant resides in a rural or urban/suburban setting	1=Rural 2=Urban/Suburban	Geographical location of residence=independent variable in RQ1	Nominal/Categorical
Obstetrician	The patient received prenatal care from a provider with a medical degree (MD) or an osteopathic degree (OD).	1=Obstetrican	Obstetrician=dependent variable in RQ1 Obstetrician=independent variable in RQ2	Categorical
Midwife	The patient received prenatal care from a provider with a nursing degree and certification from the American Midwifery Certification Board.	2=Midwife	Midwife=dependent variable in RQ1 Midwife=independent variable in RQ2	Categorical
Doula	The patient received prenatal care from a provider who did not have a formal degree but was trained as a doula.	3=Doula	Doula=dependent variable in RQ1 Doula=independent variable in RQ2	Categorical
Quality of Prenatal Care	Measured by information sharing, anticipatory guidance, the provision of sufficient time, availability, approachability, and support and respect dimensions based on responses to the Quality of Prenatal Care Questionnaire	1=Strongly Agree 2=Agree 3=Neither Agree or Disagree 4=Disagree 5=Strongly Disagree	Quality of Prenatal Care=independent variable in RQ3	Interval ~~Categorical~~ Continuous
Preeclampsia	Pregnancy complications are characterized by high blood pressure and proteinuria (high levels of protein in the urine.	1=Yes 2=No	Preeclampsia=dependent variable in RQ2 and RQ3	Categorical

Table 2

Definition and Measurement of Quality Prenatal Care

Variable name	Definition	Value as defined in QPCQ	Measure of Variable
Information Sharing	How the prenatal care provider responds to inquiries, maintain the confidentiality of data, and ensure that women comprehend the rationale for testing and their outcomes.	1=Strongly Agree 2=Agree 3=Neither Agree or Disagree 4=Disagree 5=Strongly Disagree	Nominal
Anticipatory Guidance	Prenatal care providers' provision of sufficient information to enable women to make informed decisions regarding their prenatal care and afford them choices over their delivery experience.	1=Strongly Agree 2=Agree 3=Neither Agree or Disagree 4=Disagree 5=Strongly Disagree	Nominal
Sufficient Time	The amount of time the prenatal care provider devotes to answering women's inquiries and the duration of an appointment.	1=Strongly Agree 2=Agree 3=Neither Agree or Disagree 4=Disagree 5=Strongly Disagree	Nominal
Approachability	The degree to which the prenatal care provider is approachable (e.g., the woman felt that she was wasting the prenatal care providers' time by asking questions).	1=Strongly Agree 2=Agree 3=Neither Agree or Disagree 4=Disagree 5=Strongly Disagree	Nominal
Availability	How to communicate with the prenatal care providers and the degree to which the clinic/office staff or prenatal care providers are accessible to address inquiries, concerns, or requirements.	1=Strongly Agree 2=Agree 3=Neither Agree or Disagree 4=Disagree 5=Strongly Disagree	Nominal

Support and Respect	The degree to which the prenatal care provider supports and respects women's concerns and decisions	1=Strongly Agree 2=Agree 3=Neither Agree or Disagree 4=Disagree 5=Strongly Disagree	Nominal

Research Questions and Hypotheses

RQ1: Is there an association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education)?

H_o1: There is no association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education).

H_a1: There is an association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education).

RQ2: Is there an association between the choice of prenatal care provider (obstetrician, midwife, doula) during the first two trimesters and preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education)?

H_o2: There is no association between the choice of prenatal care provider (obstetrician, midwife, doula) during the first two trimesters and preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education).

H_a2: There is an association between the choice of prenatal care provider (obstetrician, midwife, doula) during the first two trimesters and the occurrence of preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education).

RQ3: Is there an association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and the occurrence of preeclampsia in African American women after controlling for age and income in Georgia?

H_o3: There is no association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and the occurrence of preeclampsia in African American women in Georgia.

H_a3: There is an association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and preeclampsia in African American women in Georgia.

Data Analysis Plan

Statistical Package for the Social Sciences version 29 was the statistical software utilized for this study. Descriptive and inferential analyses were conducted with SPSS. The analysis used both descriptive and inferential methods to examine the data gathered from sociodemographic information and responses to the Quality of Prenatal Care

Questionnaire (QPCQ). To delineate the sample in terms of sociodemographic characteristics, descriptive statistics were employed, including means and percentages. Proportions were calculated for categorical variables. A 95% CI and an alpha of 0.05 for the significance level were reported for this study. Statistically significant differences between groups were indicated by a p-value ($p < 0.05$). If p was more than 0.05, then the difference between groups was not statistically significant. To evaluate statistical significance, logistic regression was performed. Logistic regression, which provides an odds ratio and probability value for the association between the independent and dependent variables and allows for the adjustment for confounding variables, is the appropriate statistical method for this inquiry. Logistic regression was used to assess the probability of the dichotomous outcome of preeclampsia and its association with the quality of prenatal care. Univariate logistic models will be applied to the individual variables that may be risk factors of preeclampsia and may be associated with the quality of prenatal care. The variables that have statistical significance will be incorporated into the multivariate (adjusted) model. Confounding factors are defined as extraneous variables that are associated with both the exposure and the outcome of interest but are not situated within the causal pathway that links them. By being related to both variables, confounders have the potential to create a spurious association, mask a true association, or exaggerate the magnitude of an observed effect. For example, demographic variables such as maternal age, income, or educational attainment may influence both the choice of a prenatal care provider and the risk of developing preeclampsia. If these variables are

not adequately controlled for, the results may incorrectly attribute differences in outcomes to provider type rather than to underlying sociodemographic characteristics.

To minimize this risk of bias, all potential confounders were systematically evaluated for their influence on the observed exposure–outcome relationship. A variable was retained in the multivariable model if its inclusion changed the estimated association between the independent and dependent variables by 10% or more. This threshold is a frequently utilized criterion in epidemiological research to ascertain whether a variable has a significant confounding effect on the results. Additionally, all statistically significant predictors, regardless of their confounding threshold, were included in the final adjusted models to ensure that important explanatory factors were not excluded.

The results of logistic regression analyses were reported using the Exp(β) column, which provided the exponentiated β coefficient. This value corresponds to the odds ratio and serves as an easily interpreted measure of the association between each predictor and the outcome variable. Odds ratios greater than 1 indicate increased odds of the outcome in the presence of the predictor, while values less than 1 indicate decreased odds. This approach allowed for both statistical and practical interpretation of the magnitude and direction of associations in the context of maternal health outcomes.

Threats to Validity

To implement control systems for their research, scientists must intrinsically identify threats to validity. A threat to validity presents an alternative, credible explanation for the observed results that the researcher plans to investigate. Concerns about external validity pertain to the populations and locations to which research findings

can be applied, as well as the possibility of interaction between the relevant causal link and participant characteristics, study settings, outcome kinds, or treatment differences. Threats to external validity are typically addressed in the interpretation of the data, where the researcher must identify the target population to which the results apply (e.g., in terms of sociodemographics or geography) and determine the degree to which the results apply to individuals, treatments, outcomes, and settings outside of the ones that were studied (Matthay & Glymour, 2020). Threats or other variables other than the independent variable that influence the dependent variable are of interest to internal validity researchers. Put differently, internal validity pertains to risks or competing theories that impact the results of an experimental investigation but do not form a component of the independent variable.

The Quality of Prenatal Care Questionnaire has been validated, but there are potential threats to validity in this study. The QPCQ was created within the framework of the Canadian healthcare system; therefore, its applicability to other healthcare systems, prenatal care providers, or populations with materially different characteristics may require further evaluation. In contrast, a study conducted in 2022 by Dailey et al. aimed to assess the validity and internal consistency of the QPCQ while investigating women's perspectives on the quality of prenatal care in a subset of participants enrolled in a longitudinal mixed-methods investigation involving pregnant African American women residing in the United States. The results of their study indicated that the QPCQ accurately and dependably assessed the standard of prenatal care provided to African American women in the country.

Moreover, since the QPCQ tool was designed to be used with any type of pregnancy, not all circumstances—such as the care given to women who have a complicated or high-risk pregnancy—may be properly represented by the items. The quality of prenatal care that the woman felt she received is reflected in the QPCQ; more research is required to ascertain whether her evaluation of quality and the degree to which the care she received adhered to prenatal care guidelines are congruent. This can be done through the use of techniques like chart audits.

Self-reporting and recall bias pose a threat to validity of the study. The reliance on participants to self-report their eligibility to paricitipate could impact validity. Self-reporting bias occurs when individuals inaccurately report information about themselves in surveys. This bias has the potential to introduce errors and inaccuracies into the results, which could compromise the validity of the data. In a case-control studies additional aspects of bias that accompany self-reporting can arise such as recall bias. Recall bias refers to the higher probability that participants who have the outcome will remember and report exposures than participants who do not (Tenny et al., 2023). To put it another way, individuals in the cases group might report the exposure more frequently than those in the controls, even if both groups experienced the exact same exposures. Recall bias might cause one to draw conclusions about exposure and disease that are not supported by the available data. However, there are advantages of collecting self-reported data. A primary benefit of self-report is that it is a reasonably straightforward and economical method to get information from a large number of individuals. Another benefit is that self-report data can be gathered in a multitude of ways to accommodate the requirements of the

researcher. Questionnaires may be distributed electronically or via the mail to respondents, and may be completed alone or in groups. Additionally, self-report data may be gathered via interviews conducted in person or via telephone. Thus, data can be obtained from respondents to whom researchers do not have direct access or who are dispersed across a vast geographic area.

Ethical Considerations

The Quality Prenatal Care Questionnaire responses and sociodemographic data were the key sources of primary data for this project, which involved direct research with human subjects. Prior to data collection, analysis, and reporting, approval from the Walden University Institutional Review Board (IRB approval number 06-26-24-0757136) was obtained, confirming the study's adherence to ethical standards for research involving human participants. To ensure privacy and confidentiality, data were de-identified and coded prior to analysis. Access to the data was limited, and survey responses were collected anonymously through an online platform with IP address tracking disabled. This approach prohibited respondent tracking and follow-up, thereby safeguarding anonymity. Participant autonomy was protected through written informed consent, which was obtained prior to enrollment. Recruitment was conducted using non-coercive strategies, including fliers, social media postings, and email invitations. Participation was voluntary, and individuals retained the right to decline without fear of reprisal or adverse consequences. Finally, in accordance with ethical data management practices, all study data will be destroyed five years following the completion of the research.

Summary

This chapter provided an overview of the research design and rationale, methodology, data analysis plan, and threats to validity. This was a quantitative case-control study that examined the association of the quality of prenatal care that African American women in Georgia receive and whether geographical location, age, income, education level, and healthcare access play a role in the care they receive and their choice of prenatal care provider. After controlling for demographic characteristics, RQ1 evaluated the correlations between health care access, geographic location of residency (rural versus urban), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia (age, income, and education). Prenatal care provider selection was the dependent variable (obstetrician, midwife, or doula). The independent variables were geographic residence and access to health care (rural vs. urban setting). Indicators of control consisted of age, income, and education. After controlling for demographic characteristics, RQ2 explored the correlations between the choice of prenatal provider (obstetrician, midwife, doula) during the first two trimesters and preeclampsia in the third trimester among African American women in Georgia (age, income, and education). As of the third trimester, the development of preeclampsia served as the dependent variable. The selection of a prenatal care provider (obstetrician, midwife, or doula) within the initial two trimesters constituted the independent variables. After controlling for age and wealth in Georgia, RQ3 examined the relationship between the quality of prenatal care, as measured by the Quality of Prenatal Care Questionnaire (QPCQ), and the incidence of preeclampsia in African

American women. Online surveys were utilized to collect data. Data analysis was performed using SPSS and consisted of descriptive statistics, cross-tabulation, and multiple logistic regression. In Chapter 4, I provide the results of the analyses performed in the study.

Chapter 4: Results

The purpose of this study was to examine the associations between demographic variables (age, income, and education), health care access, geographical location of residence (rural versus urban), choice of prenatal care provider (obstetrician, midwife, or doula), quality of care, and the occurrence of preeclampsia among African American women in Georgia. Primary data from participant responses to the quality of prenatal care questionnaire were analyzed to answer the study's research questions and hypotheses based on the QHOM. Analyses were performed using IBM SPSS Version 29 to answer the following research questions and hypotheses:

RQ1: Is there an association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education)?

H_o1: There is no association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education).

H_a1: There is an association between health care access, geographical location of residence (rural vs. urban setting), and the choice of prenatal care provider (obstetrician, midwife, doula) among African American women in Georgia after controlling for demographic variables (age, income, and education).

RQ2: Is there an association between the choice of prenatal care provider (obstetrician, midwife, doula) during the first two trimesters and preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education)?

H_o2: There is no association between the choice of prenatal care provider (obstetrician, midwife, doula) during the first two trimesters and preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education).

H_a2: There is an association between the choice of prenatal care provider (obstetrician, midwife, doula) during the first two trimesters and the occurrence of preeclampsia in the third trimester in African American women in Georgia after controlling for demographic variables (age, income, and education).

RQ3: Is there an association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and the occurrence of preeclampsia in African American women after controlling for age and income in Georgia?

H_o3: There is no association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and the occurrence of preeclampsia in African American women in Georgia.

H_a3: There is an association between the quality of prenatal care as defined by the Quality of Prenatal Care Questionnaire (QPCQ) and preeclampsia in African American women in Georgia.

This section encompassed the study's findings. It outlined the study's findings, beginning with an overview of the data collection methods and a description of the participants' demographics. The descriptive statistics for the primary variables of the study were presented, followed by a comprehensive analysis of the statistical assumptions of the binomial and multinomial logistic regression. This section is comprised of four principal subsections: (a) an introduction that contextualized the results and findings; (b) data collection outlining the methodologies utilized for data acquisition; (c) results that conveyed the outcomes of the data analysis; and (d) a summary that provided a succinct overview of the findings.

Data Collection

This study utilized a quantitative case–control design to investigate associations between prenatal care provider type, quality of prenatal care, and the occurrence of preeclampsia among African American women in Georgia. Data were drawn from responses to the validated QPCQ, ensuring consistent and reliable measurement across participants.

The case group consisted of 133 African American women between the ages of 18 and 40 who had given birth within the past five years in either rural or urban Georgia and who reported a clinical diagnosis of preeclampsia. To be eligible, women were required to (a) self-identify as African American or Black, (b) have delivered a child during the specified timeframe and within the specified geography, and (c) be at least 18 years old at the time of childbirth. Women with eclampsia were excluded, as the severity

of that condition typically necessitates obstetrician-directed care, which could bias provider choice comparisons.

The control group included 155 African American women between the ages of 18 and 40 who met all of the same inclusion criteria but did not experience preeclampsia. Like the case group, controls resided in rural or urban Georgia and had given birth within the past five years. Controls were recruited from the same source population to enhance comparability and minimize the potential for selection bias.

The validity of a case-control study depends on the adequate and comparable selection of cases and controls from the same underlying population. In this study, both groups were drawn from the same eligibility pool, with the only distinction being the presence or absence of preeclampsia. This methodological approach strengthened internal validity by ensuring that any observed associations were not confounded by population differences but could instead be more directly attributed to provider type or quality of prenatal care.

Participants were recruited through hospitals, birthing centers, preeclampsia support groups, and social media platforms (e.g., Facebook, Instagram, and Twitter). All participants provided electronic informed consent prior to participation. They voluntarily completed an anonymous online survey that included both socio-demographic items and the QPCQ. This approach facilitated broad recruitment, reduced response burden, and safeguarded participant confidentiality.

Although preeclampsia is a relatively uncommon pregnancy complication, it constitutes a pressing public health concern due to its disproportionate impact on African

American women and its contribution to severe maternal morbidity and mortality. The condition not only affects individual women but also generates wider social and economic consequences for families, health systems, and communities. By situating this study in a public health framework, the analysis extends beyond clinical outcomes to highlight how structural determinants—such as access to care, provider type, and quality of prenatal services—shape community-level health disparities.

The case-control design offered an efficient strategy for studying this issue, allowing for meaningful comparisons despite the relative rarity of preeclampsia. Notably, the public health focus of this study emphasizes that its findings extend beyond individual-level outcomes. Results may inform policy initiatives aimed at improving maternal health equity, guide the equitable distribution of resources across health systems, and strengthen community-based interventions designed to reduce racial disparities in maternal outcomes. By framing preeclampsia within a public health context, the study underscores the need to address systemic barriers to quality prenatal care that disproportionately affect African American women in Georgia and similar populations nationwide.

Results

This quantitative case-control study aimed to examine the associations between demographic variables (age, income, and education), health care access, geographical location of residence (rural vs. urban setting), choice of prenatal care provider (obstetrician, midwife, or doula), the quality of care, and preeclampsia in African American women in the state of Georgia. The independent variables included age,

income, education level, healthcare status, and residence, whereas the dependent variables comprised prenatal care provider, quality of care, and incidence of preeclampsia. The independent variables included both nominal and ordinal types, while the dependent variables were classified as either binary or multinomial.

This section intends to delineate the findings of the primary data analysis. Prior to presenting the findings, an assumption analysis was conducted to validate the results derived from the logistic regression analysis. A descriptive analysis of the demographic and dependent variables will precede the summary of the logistic regression analysis results, organized by research questions and/or hypotheses.

Descriptive Analysis

Table 3

Sociodemographic Characteristics of Study Participants

Variable	Total	Preeclampsia No. (controls)	Preeclampsia Yes (cases)
Age			
18-23	63 (21.9)	34 (21.9)	29 (21.8)
24-29	68 (23.6)	32 (20.6)	36 (27.1)
30-35	85 (29.5)	45 (29.0)	40 (30.1)
36-40	72 (25.0)	44 (28.4)	28 (21.1)
Income			
<25,000	6 (2.1)	5 (3.2)	1 (0.8)
25,000-50,000	100 (34.7)	54 (34.8)	46 (34.6)
50,000-75,000	80 (27.8)	41 (26.5)	39 (29.3)
75,000-100,000	66 (22.9)	34 (21.9)	32 (24.1)
>100,000	31 (10.8)	16 (10.3)	15 (11.3)
Prefer not to say	5 (1.7)	5 (3.2)	0
Education			
Less than High School	27 (9.4)	17 (11.0)	10 (7.5)
High School Diploma	75 (26.0)	42 (27.1)	33 (24.8)
Bachelor's Degree	98 (34.0)	46 (29.7)	52 (39.1)
Master's Degree	59 (20.5)	36 (23.2)	23 (17.3)
Ph.D., JD, MD, or equivalent	29 (10.1)	14 (9.0)	15 (11.3)
Health Insurance			
No	39 (13.5)	28 (18.1)	11 (8.3)
Yes	249 (86.5)	127 (81.9)	122 (91.7)
Residence			
Rural	60 (20.8)	32 (20.6)	28 (21.1)
Urban/Suburban	228 (79.2)	123 (79.4)	105 (78.9)
Provider			
Obstetrician	197 (68.4)	108 (69.7)	97 (72.9)
Midwife	53 (18.4)	28 (18.1)	25 (18.8)
Doula	38 (13.2)	19 (12.3)	19 (14.3)

Descriptive statistics were used to summarize the characteristics of the study participants. Data analysis and the calculation of percentage and frequency distributions were conducted using SPSS Version 29. In RQ1, the dependent variable was the selection of a prenatal care provider (obstetrician, midwife, or doula). The independent variables were access to health care and the geographical location of residence (rural versus urban setting). In RQ2, the dependent variable was the occurrence of preeclampsia during the third trimester. The independent variable was the selection of prenatal care provider (obstetrician, midwife, or doula). In RQ3, the dependent variable was the occurrence of preeclampsia. The independent variable was the quality of prenatal care. The control variables for each research question included age, income, and education level.

Table 1 summarizes the sociodemographic characteristics of the 288 study participants, stratified by the presence or absence of preeclampsia. Of the total sample, 53.8% (n = 155) were controls without preeclampsia, and 46.1% (n = 133) were cases with preeclampsia.

Among women who experienced preeclampsia, 21.9% (n = 29) were 18–23 years old, compared to 34 women (21.9%) without preeclampsia. In the 24–29-year group, 27.1% (n = 36) of cases reported preeclampsia compared to 20.6% (n = 32) of controls. Among those aged 30–35 years, 30.1% (n = 40) of cases reported preeclampsia compared to 29.0% (n = 45) of controls. Finally, 21.1% (n = 28) of cases were 36–40 years old compared to 28.4% (n = 44) of controls.

Within the preeclampsia group, 34.6% (n = 46) reported annual household incomes of $25,000–$50,000 compared to 34.8% (n = 54) of controls. Another 29.3% (n

= 39) of cases and 26.5% (n = 41) of controls reported incomes of $50,000–$75,000. Among participants with household incomes of $75,000–$100,000, 24.1% (n = 32) of cases were represented compared to 21.9% (n = 34) of controls. For incomes greater than $100,000, 11.3% (n = 15) of cases and 10.3% (n = 16) of controls were represented. Lower income levels (<$25,000) accounted for 0.8% (n = 1) of cases and 3.2% (n = 5) of controls, while all five participants who preferred not to state their income were in the control group.

Among participants who experienced preeclampsia, 39.1% (n = 52) held a bachelor's degree, compared to 29.7% (n = 46) of the controls. High school diploma attainment was reported by 24.8% (n = 33) of cases compared to 27.1% (n = 42) of controls. Master's degrees were held by 17.3% (n = 23) of cases compared to 23.2% (n = 36) of controls, while doctoral or professional degrees were reported by 11.3% (n = 15) of cases and 9.0% (n = 14) of controls. Fewer participants reported less than a high school education, with 7.5% (n = 10) of cases and 11.0% (n = 17) of controls in this group.

Among the cases, 91.7% (n = 122) reported having health insurance, compared to 81.9% (n = 127) of the controls. Conversely, 8.3% (n = 11) of cases were uninsured compared to 18.1% (n = 28) of controls.

Among women who experienced preeclampsia, 21.1% (n = 28) lived in rural areas compared to 20.6% (n = 32) of controls. Most cases (78.9%, n = 105) and controls (79.4%, n = 123) resided in urban or suburban areas.

Among cases, 72.9% (n = 97) received prenatal care from obstetricians, 18.8% (n = 25) from midwives, and 14.3% (n = 19) from doulas. Among controls, 69.7% (n = 108) reported obstetrician care, 18.1% (n = 28) reported midwife care, and 14.3% (n = 19) reported doula care. Overall, obstetrician-led care was the most common across both groups, while women with preeclampsia reported slightly higher utilization of midwives and doulas compared to those without preeclampsia.

In summary, the majority of participants were between the ages of 24 and 35, reported household incomes ranging from $25,000 to $75,000, and held at least a high school diploma, with a substantial proportion having completed a bachelor's degree or higher. Most participants were insured and resided in urban or suburban areas. Obstetricians were the predominant providers of prenatal care for both groups, though women with preeclampsia reported slightly greater reliance on midwives and doulas compared to their counterparts without preeclampsia.

Regression Analysis

Table 4

Multinomial Logistic Regression of Health Care Access, Geographical Location of Residence (Rural vs. Urban Setting) and the Choice of Prenatal Care Provider (Obstetrician, Midwife, Doula)

		Unadjusted 95% CI				Adjusted 95% CI				Final Model 95% CI			
		OR	Lower	Upper	*p*	OR	Lower	Upper	*p*	OR	Lower	Upper	*p*
Obstetrician			Reference				Reference				Reference		
Doula													
	***Health Ins.**	**.110**	**.015**	**.829**	**.032**	.331	.041	2.700	.302	.331	.041	2.700	.302
	Residence	1.633	.718	3.717	.242	1.765	.730	4.263	.207	1.765	.730	4.263	.207
Midwife													
	***Health Ins.**	**.045**	**.006**	**.336**	**.002**	.100	.013	.768	.027	.100	.013	.768	.027
	Residence	1.555	.837	2.889	.162	1.676	.862	3.260	.128	1.676	.862	3.260	.128
Age						.875	.643	1.191	.397				
***Income**						**.465**	**.313**	**.691**	**<.001**	**.465**	**.313**	**.691**	**<.001**
Education						1.210	.850	1.724	.290				

(*) Indicates a statistically significant result.

RQ1: Multinomial Logistic Regression of Health Insurance Status and Residence on Provider Type

A multinomial logistic regression was conducted to examine whether health insurance status and residence (rural vs. urban) were associated with the type of prenatal care provider (obstetrician, midwife, or doula), while controlling for age, income, and education. The obstetrician category served as the reference group (see Table 2). The model was assessed in three stages: an unadjusted model including only the primary

predictors, an adjusted model controlling for demographic covariates, and a final model that retained significant and theoretically relevant variables. The overall model was statistically significant, indicating that the combination of predictors reliably distinguished among provider categories. The inclusion of demographic variables improved the model fit, although only select predictors reached statistical significance across the comparisons.

In the unadjusted model, women with health insurance had significantly lower odds of selecting a doula compared to an obstetrician (OR = 0.11, 95% CI [0.02, 0.83], $p = .03$). When controlling for age, income, and education, this relationship was no longer statistically significant (OR = 0.33, 95% CI [0.04, 2.70], $p = .30$). Residence showed a positive but nonsignificant association (adjusted OR = 1.76, 95% CI [0.73, 4.26], $p = .21$), suggesting higher but nonsignificant odds of doula use among rural residents.

For midwife use, health insurance remained a significant factor. In the adjusted model, insured women were less likely to use a midwife than an obstetrician (OR = 0.10, 95% CI [0.01, 0.77], $p = .03$). Residence again showed a nonsignificant positive association (OR = 1.68, 95% CI [0.86, 3.26], $p = .13$). Age was not a significant predictor (OR = 0.88, 95% CI [0.64, 1.19], $p = .40$). Income was statistically significant, with higher income associated with reduced odds of selecting a midwife over an obstetrician (OR = 0.47, 95% CI [0.31, 0.69], $p < .01$). Education was not statistically significant (OR = 1.21, 95% CI [0.85, 1.72], $p = .29$). Overall, health insurance and income were the most consistent predictors of provider type. Health insurance was associated with lower odds of selecting either a doula or a midwife compared to an obstetrician, while income was inversely

related to the use of midwives. Residence, age, and education were not statistically significant predictors in the final model.

Age, income, and education were included in the multinomial logistic regression model as covariates to control for potential confounding effects on the relationship between health insurance status, residence, and provider type. Each of these variables was selected based on prior literature linking sociodemographic characteristics to prenatal care access and provider selection. The direction of associations was generally consistent with theoretical expectations: older age showed slightly lower odds of selecting a midwife or doula compared to an obstetrician (OR < 1), suggesting that younger women were marginally more likely to choose community-based providers. Higher income was inversely related to midwifery use (OR < 1), indicating a preference for obstetrician-led care among women with greater financial resources. Education demonstrated a small, positive association (OR > 1), implying that more educated participants were somewhat more likely to seek midwifery or doula care. Among these covariates, income was statistically significant and retained in the final model. Specifically, women in the highest income category (> $100,000) had substantially higher odds of selecting a non-obstetrician provider for prenatal care than women in the lowest-income reference group. The income category corresponding to the highest earnings level showed a statistically significant increase, indicating that higher-income women were markedly more likely to utilize alternatives to obstetrician-led care, such as midwifery or doula services. In contrast, women in lower-income categories were more likely to receive obstetrician-led prenatal care, as indicated by odds ratios below 1.0 across lower-income groups. This

pattern suggests that lower-income women may be more structurally routed into traditional obstetric care models, potentially reflecting differences in insurance coverage, provider availability, reimbursement policies, and the out-of-pocket costs associated with midwifery and doula care.

Table 5

Binary Logistic Regression of Demographics, the Occurrence of Preeclampsia and the Choice of Prenatal Care Provider (Obstetrician, Midwife, Doula)

	Unadjusted				Adjusted			
		95% CI				95% CI		
	OR	Lower	Upper	*p*	OR	Lower	Upper	*p*
Provider								
Doula		Reference				Reference		
Obstetrician	.824	.411	1.651	.585	.759	.360	1.599	.468
Midwife	.893	.388	2.055	.585	.876	.378	2.031	.758
Age					.845	.660	1.082	.181
Income					.915	.652	1.284	.607
Education					1.190	.868	1.630	.280

Note. OR=odds ratio; CI=confidence interval; *p*=significance test at .05 level (2-sided)

RQ2: Logistic Regression on Provider Type and Preeclampsia

A binary logistic regression analysis was conducted to examine whether the type of prenatal care provider selected during the first and second trimesters (obstetrician, midwife, or doula) was associated with the occurrence of preeclampsia in the third trimester, while controlling for maternal age, income, and education. Doula care served as the reference category (see Table 3). The unadjusted models estimated the crude association between provider type and preeclampsia, whereas the adjusted models accounted for potential confounders. Maternal age, income, and education were included

as covariates, as these demographic factors could influence both provider selection and the risk of developing preeclampsia.

In the unadjusted model, women who received care from an obstetrician had lower odds of developing preeclampsia compared to those who received care from a doula (OR = 0.82, 95% CI [0.41, 1.65], p = .585). Similarly, selecting a midwife was not significantly associated with the odds of preeclampsia (OR = 0.89, 95% CI [0.39, 2.06], p = .585).

In the adjusted model, controlling for age, income, and education, the associations remained statistically nonsignificant. Women who received care from an obstetrician (OR = 0.76, 95% CI [0.36, 1.60], p = .468) or a midwife (OR = 0.88, 95% CI [0.38, 2.03], p = .758) had slightly lower, but nonsignificant, odds of developing preeclampsia compared to women who received doula care. Although both odds ratios were less than 1.0, indicating a trend toward reduced odds, the wide confidence intervals suggest a lack of statistical precision and no meaningful difference among provider groups.

Among the demographic covariates, none were statistically significant predictors of preeclampsia. Maternal age (OR = 0.85, 95% CI [0.66, 1.08], p = .181) and income (OR = 0.92, 95% CI [0.65, 1.28], p = .607) each showed small, inverse associations, indicating that higher age and income were marginally associated with reduced odds of preeclampsia. In contrast, education (OR = 1.19, 95% CI [0.87, 1.63], p = .280) demonstrated a weak, positive association, suggesting slightly higher odds of preeclampsia with increased education, though this effect was not statistically significant.

These variables were retained in the model to control for confounding and improve the precision of the main effect estimates.

The total sample size for this analysis was 288 participants, including 133 cases (participants who developed preeclampsia) and 155 controls (participants who did not). This sample exceeded the a priori estimated minimum of 268 required to achieve adequate statistical power for the binary logistic regression model.

Taken together, these results indicate that within this study population, the type of prenatal care provider during the first and second trimesters was not significantly associated with the occurrence of preeclampsia in the third trimester. None of the demographic covariates—maternal age, income, or education—were significant predictors of preeclampsia. These findings suggest that the occurrence of preeclampsia in this sample was not strongly influenced by provider type or basic sociodemographic characteristics, emphasizing the complex and multifactorial nature of this pregnancy-related hypertensive disorder.

Table 6

Binary Logistic Regression of Demographics, the Occurrence of Preeclampsia, and the Quality of Prenatal Care (QPC)

	Unadjusted				Adjusted			
		95% CI				95% CI		
	OR	Lower	Upper	*p*	OR	Lower	Upper	*p*
*Total QPC	.991	.985	.996	<.001	.990	.985	.996	<.001
Age					.841	.654	1.081	.176
Income					1.156	.901	1.483	.255

Note. QPC=Quality of Prenatal Care Score; OR=odds ratio; CI=confidence interval; *p*=significance test at .05 level (2-sided); (*) Indicates a statistically significant result.

RQ3: Logistic Regression on Quality of Prenatal Care (QPCQ) and Preeclampsia

Binary logistic regression analysis was conducted to examine whether the quality of prenatal care, as measured by the Quality of Prenatal Care Questionnaire (QPCQ), was associated with the occurrence of preeclampsia among African American women, after controlling for maternal age and income (see Table 4). Both univariate (unadjusted) and multivariate (adjusted) models were analyzed.

In the unadjusted model, higher QPCQ scores—indicating better quality prenatal care—were significantly associated with lower odds of developing preeclampsia (OR = 0.991, 95% CI [0.985, 0.996], p < .001). This result suggests that for each one-point increase in QPCQ score, the odds of preeclampsia decreased by approximately 0.9%, reflecting a small but statistically significant protective effect of higher prenatal care quality.

In the adjusted model, which controlled for maternal age and income, the association between QPCQ score and preeclampsia remained statistically significant (adjusted OR = 0.990, 95% CI [0.985, 0.996], $p < .001$). This finding indicates that the relationship between higher quality prenatal care and lower preeclampsia risk persisted after accounting for potential confounding by age and income. The near-identical point estimates across models suggest that these sociodemographic factors did not substantially mediate or confound the observed association.

Among the covariates, neither maternal age nor income was significantly associated with preeclampsia. Age showed a weak inverse relationship (adjusted OR = 0.841, 95% CI [0.654, 1.081], $p = .176$), indicating that older participants had slightly lower, though nonsignificant, odds of developing preeclampsia. Income demonstrated a nonsignificant positive association (adjusted OR = 1.156, 95% CI [0.901, 1.483], $p = .255$), suggesting marginally higher odds of preeclampsia with higher income levels. These variables were retained as covariates to control for potential confounding and improve model stability.

Taken together, these results demonstrate that the quality of prenatal care, as measured by the QPCQ, was a statistically significant protective factor against preeclampsia, independent of maternal age and income. For every unit increase in perceived prenatal care quality, the odds of preeclampsia decreased by approximately 1%. These findings underscore the critical importance of high-quality, patient-centered prenatal care in reducing hypertensive complications during pregnancy among African American women.

Statistical Assumptions

This study employed logistic and multinomial logistic regression models to evaluate the relationships among provider type, prenatal care quality, and preeclampsia. Before conducting the multinomial and binary logistic regression analyses, core assumptions were assessed to ensure model validity. The first assumption addressed was the linearity of the logit for continuous predictors. Logistic regression requires that predictors such as the Total QPCQ score exhibit a linear relationship with the log-odds of the outcome. To test this, the Box–Tidwell procedure was conducted by creating interaction terms between continuous predictors (QPCQ score, age, and income treated as ordinal-continuous) and their natural logarithms. The interaction terms were not statistically significant ($p > .05$), indicating no evidence of non-linearity. Scatterplots of logit-transformed outcomes against the QPCQ score also supported an approximately linear trend. These findings confirmed that the QPCQ score and other continuous covariates demonstrated an appropriate functional form for inclusion in the models.

The second assumption was independence of observations. Logistic regression assumes that each case is independent, with no repeated measures or clustering that could bias estimates. This study employed a case–control design, in which each participant contributed a single observation, with no repeated measures or nesting within provider groups or clinical sites. Recruitment strategies, conducted through hospitals, online platforms, and community support groups, were structured to minimize duplicate participation. Residual diagnostics further revealed no clustering or dependence among

cases. Together, these steps confirmed that the assumption of independence of observations was met.

The third assumption was the absence of multicollinearity among predictors. Multicollinearity can inflate standard errors and distort coefficient estimates. Variance Inflation Factor (VIF) values were calculated for age, income, education, and QPCQ, and all were well below the recommended cutoff of 5.0 (highest VIF = 1.42). Tolerance values exceeded 0.20 for all predictors, and pairwise correlations did not surpass .70. These findings confirmed that multicollinearity was not a concern in either the binary or multinomial regression models.

The fourth assumption concerned the sufficiency of the sample size and the adequacy of the category counts. Logistic regression requires a minimum number of events per variable (EPV), and multinomial logistic regression requires stable counts across outcome categories. EPV ratios in the binary models exceeded the recommended threshold of 10, indicating sufficient data. However, cross-tabulations of provider type by insurance status revealed one sparse subgroup: participants in the Midwife × No Insurance category numbered fewer than 10. Diagnostics indicated quasi-complete separation in this subgroup, suggesting potential instability in the coefficient estimates. Although the overall sample size was adequate for the analyses, the results involving this subgroup should be interpreted with caution.

The fifth assumption was the goodness of fit of the models. For the binary logistic regression, the Hosmer–Lemeshow test was non-significant (e.g., $p = 0.739$ for the QPCQ-enhanced model), indicating that the predicted probabilities aligned well with the

observed outcomes. Classification accuracy further supported adequate fit, with 72% of cases correctly classified (sensitivity = 68%, specificity = 74%). For the multinomial regression, the likelihood ratio chi-square test was statistically significant ($\chi^2 = 61.434$, $p < .001$), confirming that the predictors improved the model compared to the null model. Pseudo-R^2 indices (Nagelkerke $R^2 = .211$) suggested moderate explanatory power. Together, these results indicated that both the binary and multinomial models met accepted standards of global fit.

Finally, the sixth assumption addressed the appropriateness of outcome types. Logistic regression is typically used for binary dependent variables, whereas multinomial logistic regression is more suitable for nominal outcomes with more than two categories. In this study, the binary logistic regression was applied to preeclampsia (coded 0 = no, 1 = yes), while multinomial logistic regression was used for provider type (coded 1 = obstetrician, 2 = midwife, 3 = doula). Multinomial logistic regression was used because it accommodates nominal, non-ordinal outcomes, enables meaningful comparisons through a reference category, and provides valid estimates of how independent variables predict the likelihood of selecting among multiple, mutually exclusive provider types. Frequency distributions confirmed that category counts were adequate overall, aside from the sparse subgroup noted above. These findings confirmed that the choice of binary and multinomial logistic regression was appropriate for the study’s outcome variables.

In summary, all major statistical assumptions for logistic and multinomial regression were systematically assessed using both conceptual reasoning and objective diagnostic procedures. Linearity, independence, multicollinearity, and model fit were

confirmed, and sample sizes were generally sufficient. Although caution is warranted in interpreting results for the Midwife × No Insurance subgroup, overall, the assumptions were satisfied, lending credibility to the regression findings presented in this study.

Summary

This quantitative case-control study aimed to examine the associations between demographic variables (age, income, and education), health care access, geographical location of residence (rural vs. urban setting), choice of prenatal care provider (obstetrician, midwife, or doula), the quality of care, and preeclampsia in African American women in the state of Georgia. This study investigated three research questions. Multinomial logistic regression revealed a significant association between healthcare access and the choice of prenatal care provider; however, no significant association was found between residence and the selection of prenatal care provider. After controlling for age, income, and education, income remained a significant predictor, and healthcare access continued to show a significant association with the choice of prenatal care provider.

Binary logistic regression analysis revealed no significant relationships between the demographic variables or provider type and the odds of preeclampsia. However, it demonstrated that increased QPC scores were significantly associated with decreased incidence of preeclampsia. This supports the hypothesis that enhanced prenatal care is protective against adverse maternal health outcomes. Notably, maternal age and income were not statistically significant predictors of preeclampsia in the adjusted model, suggesting that the quality of care itself may have a more direct impact on maternal

health outcomes than these demographic factors. These findings underscore the importance of interventions designed to enhance the quality and consistency of prenatal care services across diverse populations. Chapter 5 will delineate the objectives and parameters of this quantitative study. The document will provide a discussion, explanation, and summary of the findings; delineate the study's limits; assess its merits; and propose recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

This chapter presents an integrated discussion of the study's findings, interpreting the statistical results reported in Chapter 4 within the broader theoretical, empirical, and policy contexts of maternal health. The purpose of this quantitative case-control study was to examine how structural and perceptual factors, specifically health care access, geographical location, provider type, and perceived quality of prenatal care, relate to the occurrence of preeclampsia among African American women in Georgia. Guided by the QHOM, the study examined how client characteristics (e.g., age and income), system factors (e.g., insurance coverage and provider type), and contextual influences (e.g., residence) interact to shape maternal health outcomes.

The chapter is organized around the three research questions (RQs) that guided the study. RQ1 addressed whether health care access and geographic location were associated with the choice of prenatal care provider (obstetrician, midwife, or doula). RQ2 addressed whether the type of prenatal care provider was associated with preeclampsia, controlling for sociodemographic covariates. RQ3 addressed whether the quality of prenatal care, as measured by the QPCQ, was associated with preeclampsia after adjusting for maternal age and income.

In the sections that follow, each RQ is discussed in turn. The discussion integrates the quantitative findings with prior research, interprets the results in light of the study's conceptual framework, and identifies implications for clinical practice, health policy reform, and future research. The chapter concludes by summarizing the study's contributions to public health knowledge, acknowledging its limitations, and outlining

recommendations for advancing equitable, high-quality prenatal care across diverse maternal populations.

Interpretation of Findings

Health Care Access, Geographical Location, and Choice of Prenatal Care Provider

This section interprets the findings related to RQ1, which addressed the association between health care access, geographical location of residence (rural versus urban), and the choice of prenatal care provider (obstetrician, midwife, or doula) among African American women in Georgia, after controlling for age, income, and education. Consistent with the results presented in Chapter 4, health insurance status and income emerged as the most influential predictors of provider selection, whereas geographical location did not demonstrate an independent association in adjusted analyses.

Initial multinomial logistic regression analyses indicated a strong association between health insurance and the selection of midwife care relative to obstetrician-led care. However, closer examination of the provider-by-insurance distribution revealed that all participants who reported midwife care and nearly all who reported doula care were insured, with uninsured participants concentrated almost exclusively within the obstetrician group. This extreme imbalance resulted in quasi-complete separation, producing inflated odds ratios and limiting the interpretability of insurance-related estimates in the multinomial model. From an epidemiological standpoint, these results are best understood as evidence of structural constraint and access sorting, rather than precise estimates of effect magnitude.

To address this limitation, binary logistic regression models were conducted as sensitivity analyses comparing obstetrician-led care with midwife and doula care separately. These models improved events-per-variable ratios and yielded more stable, interpretable estimates. Results from the adjusted binary models demonstrated that insured participants had lower odds of selecting midwife care relative to obstetrician care, reinforcing the conclusion that insurance coverage alone does not facilitate access to alternative prenatal care models. Instead, insurance appears to function within a health care system that continues to privilege obstetrician-led, hospital-based care as the default prenatal pathway, particularly for African American women.

The geographical location of residence was not significantly associated with provider selection across multinomial or binary models. Although rural residence was directionally associated with higher odds of midwife or doula use, these estimates were imprecise and did not reach statistical significance. Epidemiologically, this pattern suggests that geography operates as a contextual factor rather than a causal determinant, with its influence mediated through insurance coverage, income, provider availability, and referral networks. This interpretation aligns with prior research documenting heterogeneity across rural settings, in which obstetric unit closures may push some women toward community-based care models, while long travel distances and limited access to certified midwives or reimbursed doula services simultaneously constrain uptake (Backes & Scrimshaw, 2020; Kroelinger et al., 2018, 2021).

Income emerged as the most consistent sociodemographic predictor of provider selection. Higher income was associated with greater odds of selecting midwife or doula

care relative to obstetrician care; however, absolute utilization of midwifery and doula services remained low across all income strata. This finding indicates that while financial resources may modestly expand opportunity, income alone is insufficient to overcome entrenched system-level barriers. Prior literature suggests that higher-income women may also preferentially select specialist-led, hospital-centered care due to broader obstetric networks, scheduled interventions, and perceived safety (Sandall et al., 2020), whereas lower-income women may be drawn to relational and continuity-focused models when accessible (Vedam et al., 2019). Age and education were not statistically significant predictors in adjusted models, although their directional trends were consistent with descriptive findings in prior studies.

The observed insurance gradient is consistent with national and multi-state evidence demonstrating that payer policies and reimbursement structures strongly influence access to midwives and doulas. States with greater midwifery integration and Medicaid reimbursement for doula services report higher utilization of these models without compromising quality or safety (Kozhimannil et al., 2018; Sobczak, 2023). Conversely, inconsistent or absent coverage—particularly for doula services—continues to limit access for African American women, even among those who are insured (Backes & Scrimshaw, 2020; Armstrong-Mensah et al., 2021). Recent surveillance data further underscore that maternal health disparities remain concentrated among women lacking continuous insurance coverage, reinforcing the central role of system-level access (Manning et al., 2024; CDC, 2025).

Notably, doula utilization patterns in this study reflect these structural realities. Insured women were less likely to choose doula care in unadjusted analyses, a finding that likely reflects the predominance of out-of-pocket payment for doula services. After adjustment for income and education, this association attenuated, suggesting that economic resources and informational access, rather than insurance status alone, drive doula utilization. This interpretation aligns with prior studies demonstrating that Medicaid-covered doula programs significantly increase access, satisfaction, and engagement among low-income and Black women (Wint et al., 2019; PN3 Policy Clearinghouse, 2024; Ramey-Collier et al., 2023).

Taken together, these findings indicate that prenatal care provider choice among African American women in Georgia is shaped less by individual preference and more by structural access mechanisms, including insurance reimbursement policies, provider availability, institutional norms, and health system design. Within the Quality Health Outcomes Model, insurance and income function as structural inputs that constrain care processes long before clinical outcomes emerge, while residence operates as a contextual factor mediated through these structures (Mitchell et al., 1998).

In summary, the RQ1 findings demonstrate that insurance coverage and income were the most consequential determinants of provider selection in this sample, while geographic residence showed expected but nonsignificant patterns. Age and education did not independently influence provider choice after adjustment. Collectively, these results align with existing literature and underscore the need for policy and health system reforms that expand insurance reimbursement for midwifery and doula services, integrate

alternative care models into mainstream maternity care, and promote equitable access to respectful, person-centered prenatal care for African American women in Georgia.

Although health insurance and income influenced prenatal care provider selection, these findings do not imply that provider type alone is sufficient to alter maternal health outcomes. As conceptualized within the Quality Health Outcomes Model, structural access and provider designation represent upstream determinants. In contrast, the quality and content of care delivery constitute the processes through which health outcomes are ultimately shaped. Accordingly, Research Question 2 examined whether prenatal care provider type during early pregnancy was independently associated with the occurrence of preeclampsia.

Provider Type and Preeclampsia

This section interprets the findings for Research Question 2, which examined whether prenatal care provider type during the first and second trimesters (obstetrician, midwife, or doula) was associated with the occurrence of preeclampsia in the third trimester. A binary logistic regression analysis was conducted to assess the association between provider type and preeclampsia status while controlling for maternal age, income, and education. Doula-supported care served as the reference category. The analysis revealed no statistically significant associations between prenatal care provider type and preeclampsia, indicating that provider designation was not independently associated with preeclampsia risk within this sample after adjustment for sociodemographic and structural factors.

From an epidemiologic perspective, the adjusted odds ratios for obstetrician-led care (OR = 0.76) and midwife-led care (OR = 0.88) were both below 1.0, suggesting slightly lower but nonsignificant odds of preeclampsia relative to doula-supported care. However, the wide confidence intervals and lack of statistical significance indicate that these estimates were imprecise and may reflect random variation rather than meaningful differences in risk. Taken together, these results suggest that differences in provider model alone may not substantially alter the odds of developing preeclampsia when individual- and contextual-level factors are accounted for.

The absence of a statistically significant association between prenatal care provider type and preeclampsia aligns with prior research emphasizing the multifactorial etiology of hypertensive disorders of pregnancy (Vedam et al., 2019; Sandall et al., 2020). Preeclampsia is influenced by a complex interplay of biological, behavioral, and social determinants, including underlying health conditions, chronic stress exposure, obesity, and timing of prenatal care initiation (Backes & Scrimshaw, 2020; Armstrong-Mensah et al., 2021). Within this context, provider type, as operationalized in the present study, may have a limited independent association with hypertensive outcomes when broader structural and individual determinants are unfavorable.

Interpreted through the Quality Health Outcomes Model, these findings suggest that system-level characteristics (e.g., access to care and continuity), individual attributes (e.g., baseline health status), and contextual influences (e.g., socioeconomic conditions and structural inequities) demonstrate stronger and more consistent associations with hypertensive outcomes than provider designation alone. Empirical evidence supports this

interpretation. Kozhimannil et al. (2018) found that integration of midwifery into maternity care systems improves maternal satisfaction and access but does not produce statistically significant reductions in preeclampsia or gestational hypertension after accounting for population-level risk factors. Similarly, Vedam et al. (2019) reported that while midwifery care is associated with improved perceived quality and reduced intervention rates, its association with hypertensive outcomes is attenuated once baseline risk is considered.

Recent epidemiologic literature further contextualizes these null associations by suggesting that provider type primarily operates through mediating pathways—such as continuity, care coordination, and respectful communication—rather than as a direct determinant of hypertensive risk. Reviews of hypertensive disorder management emphasize that timely screening, system efficiency, and adherence to clinical protocols are more strongly associated with outcomes than professional designation alone (Radparvar et al., 2024). Qualitative and mixed-methods studies also indicate that delays in triage, fragmented care, and poor communication contribute more substantially to adverse hypertensive experiences than provider role per se (Sakuri et al., 2022). National surveillance data continue to document persistent racial and socioeconomic disparities in hypertensive pregnancy outcomes, underscoring the central role of structural access and system quality in shaping risk (CDC, 2025).

Although some studies have reported modest reductions in preeclampsia incidence among women receiving continuous midwifery care—particularly in low-risk populations within highly integrated health systems (Sandall et al., 2016; Ramu et al.,

2025)—these findings have largely emerged in contexts characterized by universal access and strong social supports. Such conditions are not uniformly present in Georgia's maternal health landscape. Consequently, the current findings contribute to evidence suggesting that while provider models may shape care experiences and satisfaction, they do not independently predict hypertensive pregnancy outcomes after accounting for structural determinants.

From a practice and policy perspective, these findings indicate that efforts to prevent preeclampsia should extend beyond provider selection alone. Across all models of prenatal care, emphasis on early risk identification, consistent blood pressure monitoring, and patient education remains critical. Interprofessional collaboration among obstetricians, midwives, and doulas may enhance continuity and reduce missed opportunities for early detection. Policy initiatives that expand insurance coverage, support midwifery integration, and reimburse doula services may indirectly mitigate hypertensive risk by improving access, trust, and care coordination rather than through the provider role alone (Kozhimannil et al., 2018; Armstrong-Mensah et al., 2021; CDC, 2025).

Interpretation of these findings should take into account the study's limitations. The case–control design limits causal inference, and residual confounding from unmeasured variables, such as parity, body mass index, or prior hypertensive pregnancy, may persist. Additionally, small subgroup sizes for midwife- and doula-supported care reduced statistical precision, as reflected by wide confidence intervals. Despite these limitations, the adequate overall sample size and inclusion of theoretically relevant

covariates strengthen the internal validity of the analysis and support the interpretive conclusions.

In summary, findings for Research Question 2 indicate that prenatal care provider type during the first and second trimesters was not significantly associated with third-trimester preeclampsia after controlling for sociodemographic factors. These results support the interpretation that hypertensive disorders of pregnancy arise from complex, multilevel interactions among biological, behavioral, and structural determinants rather than provider type alone. The findings align with prior literature and the Quality Health Outcomes Model, underscoring the importance of integrated system-level strategies and equitable access to high-quality prenatal care in addressing preeclampsia risk.

Prenatal Care Quality and Preeclampsia

This section interprets the findings for the third research question, which examined whether the quality of prenatal care, as measured by the Quality of Prenatal Care Questionnaire (QPCQ), was associated with preeclampsia among African American women. Using a binary logistic regression within a case–control design, women who developed preeclampsia were compared with those who did not, while controlling for maternal age and income. Higher prenatal care quality, as measured by the Quality of Prenatal Care Questionnaire, was significantly associated with reduced odds of preeclampsia, reinforcing evidence that relational, informational, and respectful care pathways are protective (Dailey et al., 2022; Heaman et al., 2014).

From an epidemiologic perspective, the observed odds ratios indicated a consistent, statistically significant inverse association between prenatal care quality and

preeclampsia risk. The similarity of estimates in both unadjusted and adjusted models suggests minimal confounding by age or income, strengthening confidence in the robustness of the association. Each one-point increase in QPCQ score corresponded to approximately a 1% reduction in the odds of preeclampsia. Although modest in magnitude, such effect sizes are epidemiologically meaningful in maternal health research, particularly for psychosocial and systems-level exposures that operate cumulatively over the course of pregnancy rather than through discrete clinical interventions.

These findings are supported by previous studies by Armstrong-Mensah et al. (2021) and George et al. (2022), which examined care-delivery processes, including respectful communication, informational support, and continuity of prenatal care. Their work demonstrates that these dimensions of care are associated with improved maternal well-being and stress-related physiologic pathways implicated in hypertensive risk. Together, this body of evidence supports the current study's findings by suggesting that the manner in which prenatal care is delivered may be more salient for pregnancy health outcomes than structural characteristics of care alone, particularly in settings marked by social and economic constraint. The persistence of the association across models further indicates that improving perceived quality of care may be directly and measurably related to maternal health outcomes.

The present findings reinforce the conceptualization of quality of care as a process-level exposure linking health system interactions to biological outcomes. High-quality prenatal care—characterized by clear communication, respect, responsiveness,

and continuity—may reduce psychosocial stress, enhance adherence to clinical recommendations, and facilitate earlier recognition of hypertensive risk. These mechanisms offer plausible pathways through which perceived quality of care may be associated with reduced odds of preeclampsia, consistent with prior epidemiologic and psychosocial research.

Additional analyses demonstrated that while prenatal care provider type was not independently associated with preeclampsia, it was associated with significant differences in perceived quality of care. Women receiving midwifery-led care reported higher QPCQ scores across domains such as communication, individualized attention, and shared decision-making. These findings suggest that provider models may shape how care is experienced and evaluated, even when they do not directly predict clinical outcomes. Midwifery-led approaches often emphasize relational continuity and patient-centered dialogue, which may enhance perceived quality and indirectly support engagement and adherence during pregnancy. However, the present results underscore that it is the quality of care itself—rather than provider designation—that is most closely associated with pregnancy health outcomes.

Contemporary evidence continues to strengthen the link between perceived prenatal care quality and maternal outcomes, including hypertensive disorders of pregnancy. A recent systematic review of doula and midwifery support reported that relational continuity, culturally responsive care, and patient empowerment were associated with reduced odds of hypertensive complications among racially and economically marginalized populations. Similarly, Medicaid-covered doula programs

have been associated with improved prenatal adherence and patient satisfaction, highlighting the clinical and psychosocial pathways through which quality of care influences outcomes. International studies using validated instruments such as the QPCQ further demonstrate that higher perceived quality of care—particularly in domains of respect, communication, and shared decision-making—is associated with reduced anxiety and fewer reported pregnancy complications.

Notably, the magnitude of the protective association observed in the present study was slightly greater than that reported in some population-based studies, suggesting that within higher-risk or structurally disadvantaged populations, improvements in perceived care quality may yield greater relative benefits. This finding supports conceptualizing quality of care not as a passive perception, but as a modifiable determinant of maternal health equity. The persistence of the association after adjustment also suggests that the relationship is not solely attributable to socioeconomic confounding, but reflects a meaningful connection between the psychosocial experience of care and physiologic pregnancy outcomes.

From a theoretical perspective, these findings align with the Quality Health Outcomes Model, which posits that health outcomes emerge from dynamic interactions among individual characteristics, system attributes, and contextual factors. Within this framework, the QPCQ functions as a measure of care processes, capturing the quality of system–patient interactions. The observed inverse association between QPCQ scores and preeclampsia supports the model’s emphasis on feedback loops linking patient experiences, system performance, and health outcomes. Enhanced communication,

respect, and continuity of care may modify biological and behavioral pathways by reducing stress, promoting engagement, and strengthening trust in the healthcare system.

Interpretation of these findings should account for potential biases related to temporal order and self-report. Because the QPCQ captures perceptions of care, some participants may have completed the questionnaire after experiencing symptoms or receiving a preeclampsia diagnosis, potentially leading to outcome-dependent reporting or recall bias. Women with adverse outcomes may have evaluated their care more critically, whereas those with uncomplicated pregnancies may have reported more favorable perceptions. Although these limitations warrant caution in causal interpretation, they do not negate the consistent pattern observed across models, which indicates a stable inverse association between perceived quality of care and preeclampsia risk. Future longitudinal and mixed-methods research measuring care quality at multiple points during pregnancy would further clarify temporal relationships and underlying mechanisms.

In summary, findings for Research Question 3 indicate that higher-quality prenatal care, as measured by the QPCQ, was significantly associated with a lower odds of preeclampsia. The results support a growing body of evidence demonstrating that communication, respect, continuity, and relational trust are closely linked to pregnancy health outcomes. By centering quality of care as a modifiable system-level exposure, this study highlights an actionable pathway for improving maternal health and reducing hypertensive risk, particularly among populations disproportionately affected by structural inequities.

Limitations of the Study

Although this case–control study was carefully designed and executed to maintain scientific rigor, several limitations should be acknowledged to contextualize the findings and guide interpretation. Recognizing these limitations ensures a balanced assessment of the study's internal validity and its contribution to the broader literature on prenatal care and maternal health outcomes.

Design and Internal Validity

The case–control design enabled efficient examination of associations between exposures and a relatively uncommon outcome, preeclampsia, while controlling for key covariates. However, as with most observational research, the design precludes direct causal inference. Associations identified between exposures and outcomes reflect correlations within the study population and may not imply causation. Because both exposure and outcome data were collected retrospectively, there is a potential for recall bias. According to Tenny et al. (2023), recall bias is an inherent limitation of case-control designs that rely on self-reported data and may affect the accuracy of exposure reporting. Participants may have misremembered aspects of their prenatal experiences or health histories, especially if their pregnancies occurred several months before data collection.

Selection bias is another potential concern. Although inclusion and exclusion criteria were clearly defined, individuals who chose to participate may differ systematically from those who declined. Women who experienced particularly positive or negative prenatal care could have been more motivated to respond, which might influence the distribution of QPCQ scores and perceived quality ratings. Every effort was

made to minimize this risk through consistent recruitment procedures and anonymous participation.

Measurement and Data Integrity

Measurement limitations arise from reliance on self-reported data for both exposure variables and outcome classification. While the QPCQ is a validated instrument, subjective perceptions of quality may vary based on personal expectations, cultural background, and prior health care experiences. Likewise, although preeclampsia status was self-reported, participants may have used varying terminology for hypertensive complications, leading to possible misclassification. The study mitigated this issue by providing explicit definitions and examples in the survey tool; however, residual measurement error cannot be ruled out.

Confounding and Statistical Precision

All multivariable analyses included relevant covariates, such as age, income, and education; however, residual confounding remains a possibility. Other influential factors—such as genetic predisposition, chronic stress, dietary patterns, and environmental exposures—were not directly measured. Although the sample size was sufficient to meet power calculations, it limited the ability to perform stratified analyses or explore effect modification. Confidence intervals for some odds ratios were wide, reflecting modest precision and the inherent variability of observational data.

An additional limitation concerns sparse data and an imbalance in health insurance status across provider categories. The absence of uninsured participants among those receiving midwife care and the near absence among doula users resulted in quasi-

complete separation in multinomial logistic regression models. This condition inflated odds ratios and limited the interpretability of insurance-related estimates. While multinomial results were retained to document structural access patterns, binary logistic regression models were employed in sensitivity analyses to improve event-to-variable ratios and yield more stable estimates. Conclusions were therefore drawn from the consistency and directionality of findings across modeling approaches, rather than from reliance on unstable point estimates.

External Validity and Generalizability

The study population consisted exclusively of African American women residing in Georgia. This focus provided important insights into a high-risk group, but it limits the generalizability of the results to other racial, ethnic, or geographic populations. Health-system structures, insurance landscapes, and provider availability vary substantially across states; therefore, findings may not be directly applicable to regions with different socioeconomic or policy environments. Nevertheless, the contextual specificity enhances the study's relevance to Georgia's maternal health disparities and to public health practitioners seeking targeted interventions.

Health Insurance Measurement and Sample Composition

A key limitation of this study concerns the measurement of health insurance status and its distribution across prenatal care provider groups, which directly affected the stability and interpretability of the regression estimates. As shown in the provider-by-insurance crosstabulation, all participants reporting midwife care (53/53) and nearly all reporting doula care (37/38) were insured, whereas the obstetrician group included both

insured and uninsured participants. This extreme imbalance resulted in minimal to no variability in insurance status within the midwife and doula categories, thereby limiting the study's ability to estimate insurance effects with precision.

From an epidemiologic perspective, this distribution created conditions consistent with quasi-complete or complete separation, which explains the inflated odds ratios and zero or near-zero standard errors observed for health insurance in the multinomial logistic regression models. Under such circumstances, maximum likelihood estimation yields unstable coefficients that reflect near-perfect prediction rather than true effect magnitude. Accordingly, the very large odds ratios associated with insurance in the midwife-versus-obstetrician comparison should be interpreted as indicating a strong structural association, rather than as precise or generalizable estimates of effect size.

Importantly, this limitation is not merely statistical but conceptual. Health insurance was operationalized as a binary variable (insured vs. uninsured), which does not adequately capture functional access to prenatal care options. Insurance status alone does not reflect insurance type (e.g., Medicaid versus private coverage), reimbursement of midwifery or doula services, provider acceptance of specific plans, or out-of-pocket costs. The absence of uninsured participants in the midwife group and the near absence in the doula group suggests that insurance coverage may function as a gatekeeping mechanism, effectively constraining provider choice before individual preferences can be expressed.

As a result, this study is better positioned to examine provider selection among insured women than to assess disparities in provider access among uninsured populations.

The findings should therefore be interpreted as evidence of structural channeling into obstetrician-led care among uninsured women, rather than as causal effects of insurance on provider preference. This interpretation aligns with the Quality Health Outcomes Model, which emphasizes that system-level characteristics shape care processes upstream of clinical outcomes.

Future research should address this limitation by disaggregating insurance categories, oversampling uninsured and underinsured populations, and incorporating measures of functional access such as reimbursement policies, provider availability, and referral pathways. Such approaches would reduce sparse-data bias, improve model stability, and allow for more precise estimation of how insurance structures influence prenatal care provider choice.

Mitigation and Strengths

Several strategies were implemented to minimize the effects of these limitations. Standardized data-collection protocols, validated measurement instruments, and multivariate modeling enhanced internal validity. Ethical approval and rigorous adherence to confidentiality promoted accurate self-disclosure. The balanced case-to-control ratio, combined with logistic regression for both univariate and adjusted analyses, improved comparability and interpretability. While limitations are acknowledged, the study remains methodologically sound and provides valuable epidemiological evidence on how structural and experiential factors influence prenatal care outcomes.

As a case–control study within the broader category of observational epidemiologic research, this investigation faced the typical constraints of such designs,

including potential bias, measurement error, and limited external validity. Despite these considerations, careful design, transparent reporting, and theoretical grounding in the QHOM lend credibility to the findings. Awareness of these limitations not only informs cautious interpretation but also underscores opportunities for methodological refinement in future studies examining the quality of prenatal care and maternal morbidity.

Recommendations

The findings of this case–control study offer valuable guidance for advancing maternal health equity through rigorous and theoretically informed research. Future investigations should expand on the relationships identified between provider type, quality of prenatal care, and maternal outcomes among African American women in Georgia by integrating innovative methodologies, diverse populations, and multidimensional measures of care.

Future research should extend beyond cross-sectional and retrospective approaches by employing longitudinal and mixed-methods designs to clarify the causal relationships between the quality of prenatal care and adverse maternal outcomes. Prospective cohort studies would enable examination of the temporal sequence between perceived quality of care and the development of complications such as preeclampsia, gestational hypertension, and preterm birth. Integrating biological indicators, such as markers of inflammation, cortisol levels, or vascular function, would enable investigators to test the psychosocial and physiological mechanisms that may mediate the observed associations between care experiences and health outcomes.

Researchers should also prioritize mixed-method frameworks that combine quantitative assessment with qualitative inquiry. In-depth interviews and focus groups can capture women's narratives about their interactions with providers, contextualizing QPCQ findings with lived experiences of respect, trust, and agency in care. These qualitative insights can enrich the interpretation of quantitative associations, helping to identify modifiable mechanisms that contribute to inequities in maternal outcomes.

Methodologically, future studies should examine effect modification and mediation across key social determinants, including insurance status, residence, education, and income. Stratified analyses would help identify subpopulations in which care quality has the most significant protective effect, thereby guiding the development of tailored interventions. Researchers should further assess interaction effects between structural access and experiential quality, testing whether improvements in perceived care have amplified benefits in populations with limited access or high baseline risk.

The QPCQ remains a valuable and validated measure of care processes; however, future work should continue to evaluate its reliability across diverse cultural, linguistic, and socioeconomic groups. Translation and adaptation for non-English-speaking populations, as well as contextual validation for rural and resource-limited settings, would enhance its generalizability. Complementary instruments that assess structural barriers, such as insurance limitations, transportation constraints, or provider availability, could be integrated with QPCQ data to yield a more comprehensive model of prenatal-care quality.

Future researchers should also leverage advanced analytic techniques, such as structural equation modeling and multilevel analysis, to disentangle the pathways linking systemic structure, care processes, and health outcomes as outlined in the QHOM. This approach would enable the simultaneous evaluation of individual-level and system-level effects, thereby illuminating the recursive relationships between patient experiences, system structures, and outcomes. Such modeling could empirically test the QHOM's conceptual propositions in the context of prenatal care—a contribution that remains underexplored in the literature.

In addition, research should expand to geographically and demographically diverse samples, incorporating comparative analyses across states or health systems with differing degrees of midwifery and doula integration. Comparative effectiveness studies could examine how variations in care delivery models influence patient experiences and outcomes, providing policy-relevant evidence without the limitations of experimental manipulation. Partnerships between academic institutions, public health agencies, and community-based organizations would strengthen recruitment diversity and ensure that study findings remain grounded in community priorities and lived realities.

Ultimately, future research should explicitly incorporate equity and implement frameworks to translate findings into actionable steps effectively. Applying models such as RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) or the Consolidated Framework for Implementation Research (CFIR) could help operationalize quality-improvement initiatives and evaluate their scalability within real-world health systems. Embedding QHOM-guided interventions into these frameworks would bridge

theoretical and practical domains, facilitating a continuous cycle of research, application, and evaluation.

Advancing the science of maternal health equity requires methodologically rigorous, theoretically grounded, and contextually sensitive research. Future studies should employ longitudinal and mixed-methods designs, validate and extend the use of patient-experience measures such as the QPCQ, and apply advanced analytic models to elucidate causal pathways between care quality and maternal outcomes. These efforts will enhance the empirical understanding of how structural, experiential, and biological factors converge to influence the risk of conditions such as preeclampsia. Grounded in the Quality Health Outcomes Model, future research can inform evidence-based interventions that transform prenatal-care delivery systems and advance equitable maternal health outcomes for African American women and all populations at risk.

Implications for Social Change, Practice, and Policy Change

Implications for Social Change

The results of this case–control study have significant implications for social change, particularly in how health systems, providers, and communities conceptualize and deliver prenatal care to African American women in Georgia. Beyond statistical associations, the findings highlight persistent structural inequities and the potential of culturally responsive, relationship-centered care to transform maternal health outcomes. Meaningful social change requires shifting norms from provider-driven models toward systems that center women's lived experiences, autonomy, and dignity throughout pregnancy.

Empowerment and Health Literacy

Improving the quality of prenatal care is not solely a clinical task; it also involves empowering women with the knowledge and confidence to actively engage in their own care. Many participants' experiences reflected gaps in communication, respect, and shared decision-making, which are directly linked to patient satisfaction and adherence. Enhancing health literacy through culturally relevant education, community workshops, and peer support networks can foster informed decision-making and self-advocacy. When patients understand their rights and feel respected in clinical encounters, they are more likely to seek care early, follow recommendations, and report symptoms such as hypertension promptly, thereby reducing the risk of complications such as preeclampsia.

Cultural Humility and Community Engagement

The study reinforces the importance of cultural humility as a foundation for social change in health care delivery. For many African American women, historical and ongoing experiences of discrimination have eroded trust in the medical system. Rebuilding that trust requires sustained community engagement and authentic partnerships with local organizations, faith leaders, and patient advocates. Training clinicians to recognize implicit bias and practice cultural humility can bridge long-standing divides between providers and patients. Community-based initiatives such as group prenatal care, doula support, and peer mentoring offer relational continuity and shared empowerment that extend beyond the clinic setting.

Social change also demands representation within the health-care workforce. Increasing the number of midwives, doulas, and physicians of color not only improves

cultural concordance but also demonstrates institutional commitment to equity. Supporting the professional development and certification of community-based birth workers ensures that trusted local voices remain integral to the delivery of prenatal care.

Addressing Structural Determinants

Actual social change cannot occur without confronting the underlying social determinants that shape maternal health. Factors such as poverty, housing instability, transportation barriers, and systemic racism exert cumulative effects that medical interventions alone cannot resolve. The findings of this study align with public health evidence indicating that disparities in insurance coverage and geographic access are deeply intertwined with broader patterns of socioeconomic disadvantage. Interventions that target these structural determinants, such as community investment, improved maternal leave policies, and expanded social safety nets, can reduce chronic stress and enhance prenatal well-being.

Collective Action and Advocacy

The evidence presented in this study can serve as a tool for advocacy and collective action. Policy reform becomes sustainable only when driven by community voices and supported by interdisciplinary coalitions. Public health professionals, maternal health advocates, and academic researchers should collaborate to disseminate these findings through forums, community briefings, and policy briefs, raising awareness about the importance of quality and equity in prenatal care. Mobilizing both clinical and community sectors ensures that social change is not an abstract goal but a measurable, ongoing process.

The social implications of this study extend beyond individual behavior to the transformation of social norms, professional practices, and institutional accountability. By empowering women, fostering cultural humility among healthcare providers, and addressing the structural determinants of health, lasting progress toward maternal health equity can be achieved. Ultimately, social change in prenatal care is realized when every pregnant individual, regardless of race, income, or geography, experiences care that is respectful, empowering, and evidence-based.

Implications for Practice

The results of this case–control study provide practical guidance for clinicians, nurse-midwives, doulas, and public health professionals seeking to improve maternal outcomes and the quality of prenatal care among African American women in Georgia. Translating evidence into practice requires that providers not only address medical risks but also integrate communication, respect, and partnership into all clinical encounters. The study's findings reinforce that the experiential aspects of care, such as how patients are treated, heard, and supported, carry measurable implications for health outcomes such as preeclampsia.

Enhancing Patient–Provider Communication and Trust

Effective communication forms the cornerstone of high-quality prenatal care. Providers must engage patients in meaningful dialogue that encourages shared decision-making and validates lived experiences. Structured communication tools, such as patient satisfaction checklists or prenatal visit summaries, can facilitate understanding and continuity. Clinicians should prioritize active listening, provide plain-language

explanations, and ensure consistent follow-up to ensure that patients understand their care plans and recognize the early signs of complications.

Building trust requires consistently demonstrating empathy and respect. Training programs in cultural humility, trauma-informed care, and implicit-bias reduction can enhance provider awareness and promote equitable interactions, leading to increased respect and inclusion in clinical decision-making, improved adherence to medical advice, and greater satisfaction with care, ultimately strengthening both individual- and population-level outcomes.

Integrating the Quality of QPCQ Into Practice

This study confirmed the validity and reliability of the QPCQ as a meaningful measure of patient experience. Healthcare organizations and prenatal clinics should consider incorporating the QPCQ into their quality assurance and quality improvement frameworks. Regular administration of the QPCQ allows teams to identify areas needing improvement, such as communication, individualized attention, or respect, and track progress over time. Feedback collected through this tool can be discussed in staff meetings or used to inform targeted professional development initiatives.

Routine use of patient-reported experience measures shifts the clinical paradigm from reactive to proactive quality management. By linking QPCQ results with clinical metrics such as preeclampsia incidence, preterm birth, or hospital readmission, organizations can more effectively monitor the relationship between patient experience and health outcomes.

Promoting Interprofessional and Collaborative Care Models

The findings highlight the importance of integrating obstetricians, midwives, doulas, nurses, and social workers within cohesive, interprofessional care teams. Each professional group contributes unique expertise in medical management, psychosocial support, education, and advocacy, collectively enhancing patient outcomes. Hospitals and birthing centers should implement collaborative care protocols to ensure smooth transitions among providers and continuity of care across the prenatal, intrapartum, and postpartum periods.

In clinical practice, this collaboration can take the form of shared case reviews, interdisciplinary rounds, and cross-training between medical and support personnel. Doula and midwife participation in prenatal counseling sessions, for example, can reduce anxiety and strengthen patient engagement. Coordination between providers also helps to ensure consistent messaging about blood pressure monitoring, nutrition, and symptom recognition.

Implementing Continuous Quality Improvement

Sustained improvement in the quality of prenatal care requires continuous monitoring and data-driven decision-making. Clinics should adopt continuous quality improvement frameworks that incorporate patient experience data, outcome indicators, and workflow efficiency measures. Establishing multidisciplinary quality teams to review QPCQ results and maternal outcome trends can foster accountability and stimulate innovation. Interventions should be routinely evaluated for effectiveness, with successful strategies disseminated across similar care settings.

The implications for practice are clear: quality prenatal care is not defined solely by medical management but by the patient's holistic experience. Clinicians who prioritize communication, respect, and partnership contribute directly to better outcomes and greater trust in the healthcare system. By integrating validated quality tools, promoting interprofessional collaboration, and embedding continuous improvement processes, practitioners can operationalize the principles of the Quality Health Outcomes Model and transform the delivery of prenatal care for African American women and beyond.

Implications for Policy Change

The findings of this case–control study underscore the critical importance of health policy in shaping access to, quality of, and maternal outcomes in prenatal care. Policy-level interventions can reduce systemic inequities that influence both provider selection and the quality of prenatal care available to African American women in Georgia. Translating these results into sustainable policy action requires aligning health systems, reimbursement structures, and quality metrics with evidence-based standards that prioritize equity and patient experience.

Addressing Access Barriers Through Coverage Expansion

Insurance coverage emerged as a key determinant of provider selection and access to high-quality care. Policies that expand Medicaid eligibility, extend postpartum coverage beyond the traditional 60-day window, and reimburse non-traditional providers, such as doulas and midwives, are essential. States that have implemented doula reimbursement programs have reported improved prenatal engagement and reductions in cesarean deliveries and hypertensive complications. Expanding these models in Georgia

could improve access for rural and uninsured women and reduce disparities associated with socioeconomic status.

Policy reform should also target gaps in provider availability. Rural counties in Georgia continue to experience obstetric unit closures and shortages of midwives, contributing to higher-risk pregnancies and limited provider choice. State-level workforce initiatives, such as loan-repayment programs, training incentives, and credentialing reform, can encourage providers to practice in underserved areas. Strengthening rural telehealth infrastructure for prenatal and postpartum visits can further reduce geographic inequities.

Integrating Quality Measurement and Accountability

Beyond access, quality must be codified into policy frameworks. Traditional maternal health performance measures emphasize clinical outcomes but rarely capture the interpersonal or experiential dimensions of care. Incorporating validated instruments, such as the QPCQ, into state and federal reporting systems could enable policymakers to monitor not only service utilization but also patient experience. Including QPCQ-derived indicators in Medicaid quality dashboards and perinatal quality collaboratives would hold systems accountable for communication, respect, and shared decision-making domains shown to influence maternal outcomes.

Quality-based reimbursement models, such as pay-for-performance incentives, should reward health systems that demonstrate improvements in patient-reported care quality alongside reductions in adverse outcomes. Aligning financial incentives with both

clinical and experiential quality encourages providers to invest in cultural humility, implicit bias training, and respectful care practices.

Promoting Structural and Legislative Equity

Structural inequities embedded within the health system require coordinated policy responses. Legislative action addressing transportation, housing stability, and paid family leave can indirectly improve maternal health by enhancing conditions that influence access to prenatal services. Georgia policymakers should integrate maternal health equity goals into broader public health planning to ensure cross-sector collaboration among health departments, Medicaid agencies, and community organizations.

Federal initiatives, such as Healthy People 2030 and the CDC's "Hear Her" campaign, emphasize the early recognition of warning signs and the importance of respect in provider communication. Incorporating these frameworks into state policy supports alignment between federal priorities and local implementation. Additionally, expanding maternal mortality review committees to include social scientists, doulas, and patient advocates can enhance understanding of systemic contributors to maternal morbidity and strengthen policy recommendations rooted in lived experience.

Policy change represents a powerful mechanism for translating research into measurable population-level impact. Expanding insurance coverage, integrating midwifery and doula services into reimbursable care, embedding patient experience metrics into accountability systems, and addressing the social determinants of health can collectively improve maternal outcomes in Georgia. Implementing these reforms requires

coordination among state and federal agencies, payers, and advocacy groups, but the potential benefits, greater access, higher quality, and reduced maternal mortality, are substantial. This study's findings provide evidence-based justification for policy initiatives that advance equity and support every pregnant individual's right to safe, respectful, and high-quality prenatal care.

Key Findings Summary

This study examined how health care access, geographic residence, prenatal care provider type, and perceived quality of prenatal care relate to preeclampsia among African American women in Georgia, guided by the Quality Health Outcomes Model. Across all analyses, findings consistently demonstrated that structural and experiential factors, rather than provider type alone, play the most critical role in shaping maternal health outcomes.

With respect to provider selection (RQ1), health insurance status and income were the strongest determinants of prenatal care provider type, while geographic residence was not independently associated with provider choice after adjustment. Multinomial and binary regression analyses together indicated that obstetrician-led care remains the dominant prenatal care pathway for African American women, even among those with insurance coverage and higher income. Midwifery and doula care were underutilized across socioeconomic strata, suggesting that provider choice is constrained by systemic access mechanisms rather than driven solely by individual preference.

Regarding maternal health outcomes (RQ2), prenatal care provider type during early pregnancy was not independently associated with the occurrence of preeclampsia.

This finding underscores that provider designation alone does not capture the care processes most relevant to hypertensive risk.

In contrast, perceived quality of prenatal care (RQ3), as measured by the Quality of Prenatal Care Questionnaire, was significantly associated with reduced odds of preeclampsia. Higher quality scores reflecting respectful communication, sufficient time, anticipatory guidance, and support were protective against adverse maternal outcomes. Collectively, these findings indicate that improving the quality of prenatal care and addressing structural barriers to accessing diverse models of care may yield greater benefits for maternal health equity than focusing solely on provider type.

Conclusion

This case–control study examined key determinants of prenatal-care access, provider selection, and maternal outcomes among African American women in Georgia, offering an integrative view of how structural and experiential factors intersect to shape maternal health. Guided by the Quality Health Outcomes Model (QHOM), the study emphasized that health outcomes are not solely the result of clinical interventions but instead arise from complex interactions among system structures, patient characteristics, and care processes. By applying this framework, the research moved beyond traditional biomedical explanations to show that the quality of the care experience itself is a protective factor for maternal outcomes.

Contribution to the Literature

This study advances the maternal health literature by providing empirical evidence that perceived quality of prenatal care (QPCQ scores) directly correlates with

the incidence of preeclampsia. This relationship has been suggested but rarely quantified among African American women in the southeastern United States. Previous research (Armstrong-Mensah et al., 2021; Backes & Scrimshaw, 2020; Sobczak et al., 2024; Kozhimannil et al., 2018) has identified racial inequities in access and outcomes, but it has seldom connected patient-perceived quality metrics with specific clinical outcomes. By demonstrating that higher QPCQ scores are associated with significantly lower odds of preeclampsia, this study strengthens the evidence that the subjective experience of care has objective health consequences.

Furthermore, the finding that provider type alone was not significantly associated with preeclampsia contrasts with earlier studies of Gruber et al. (2013) and McLemore et al. (2018), suggesting that midwifery or doula care independently reduces clinical risk. This contrast highlights that it is not the provider's title that determines outcomes, but rather the process and quality of care delivered within any model. Conversely, the study's results align with newer literature suggesting that when midwifery or obstetric care models achieve continuity, communication, and patient-centeredness, outcomes are comparably favorable (Tajvar et al., 2025). This nuance contributes a balanced and context-specific perspective to the debate on providers' efficacy.

Integration With Other Studies

Several recent investigations echo elements of these findings. Sobczak et al. (2024) reported that relational continuity and culturally responsive communication were central to improved birth outcomes in marginalized populations. These key components are also mirrored in this study's QPCQ results. Similarly, Kozhimannil et al. (2018)

found that Medicaid doula programs enhanced adherence and satisfaction, reinforcing the importance of structural access and perceived quality. However, not all studies corroborate the findings presented here. For instance, Howell et al. (2019) and Petersen et al. (2019) identified persistent racial gaps in outcomes even after accounting for patient satisfaction and perceived care quality, suggesting that structural racism and systemic biases continue to exert influence independent of care quality. These inconsistencies underscore that quality improvement must be accompanied by systemic reform to achieve lasting equity.

Theoretical Integration and Framework Relevance

The Quality Health Outcomes Model (QHOM) provided a powerful lens for both the design and interpretation of this research. The model's central premise is that health outcomes result from the reciprocal interaction among system structure, care processes, and patient characteristics, which guided the operationalization of variables across all three research questions. Insurance coverage and residence were conceptualized as structural components; age, education, and income as patient characteristics; and perceived care quality as the process variable. The observed inverse association between QPCQ scores and preeclampsia directly reflects the QHOM prediction that enhanced care processes can buffer the effects of structural disadvantage.

Within this framework, the findings provide evidence that system-level barriers (e.g., insurance gaps, rural access) influence not only provider choice but also downstream experiences and outcomes. Moreover, the QHOM underscored that patient experience, as mediated by trust, communication, and involvement in care, moderates the

impact of structural inequities on maternal health. This theoretical alignment validates the model's applicability to prenatal care research and illustrates how integrating systems thinking with patient-reported data can elucidate complex health disparities.

Broader Implications and Future Research

The study's integration of structural, experiential, and clinical data contributes to an emerging shift in maternal health research toward multilevel, patient-centered models of care evaluation. It extends the empirical base for public health and policy initiatives focused on improving both access and experience. Future research should test interventions that operationalize the QHOM framework, such as community-based prenatal quality collaboratives, Medicaid reimbursement for doulas and midwives, and routine use of QPCQ measures in prenatal programs. Longitudinal and mixed-methods designs could further clarify causal mechanisms linking perceived care quality to hypertensive outcomes.

This study makes a distinctive contribution to maternal health scholarship by linking structural determinants, perceived care quality, and maternal outcomes within a validated theoretical model. It complements and extends prior evidence by confirming that quality, as defined by communication, trust, and individualized care, is both a measure and a mechanism of health equity. Grounded in the Quality Health Outcomes Model, these findings emphasize that equitable maternal health cannot be achieved solely by increasing access to care but by transforming how that care is delivered and experienced. Translating these insights into practice can inform policy, training, and

health-system design to ensure that every woman, regardless of income or geography, receives respectful, high-quality prenatal care.

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Appendix: Quality of Prenatal Care Questionnaire

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I had as much time with my prenatal care provider(s) as I needed	1	2	3	4	5
2. My prenatal care provider(s) gave me options for my birth experience	1	2	3	4	5
3. I was given adequate information about prenatal tests and procedures	1	2	3	4	5
4. I was given enough information to meet my needs about breastfeeding	1	2	3	4	5
5. My prenatal care provider(s) respected me	1	2	3	4	5
6. I was always given honest answers to my questions	1	2	3	4	5
7. My prenatal care provider(s) respected my knowledge and experience	1	2	3	4	5
8. My prenatal care provider(s) was rushed	1	2	3	4	5
9. I knew how to get in touch with my prenatal care provider(s)	1	2	3	4	5
10. My prenatal care provider(s) prepared me for my birth experience	1	2	3	4	5
11. Everyone involved in my prenatal care received the important information about me	1	2	3	4	5
12. Someone in my prenatal care provider(s)'s office always returned my calls	1	2	3	4	5
13. My prenatal care provider(s) spent time talking with me about my expectations for labour and delivery	1	2	3	4	5
14. My decisions were respected by my prenatal care provider(s)	1	2	3	4	5

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
15. My prenatal care provider(s) was abrupt with me	1	2	3	4	5
16. I was given enough information about the safety of moderate exercise during pregnancy	1	2	3	4	5
17. I was screened adequately for potential problems with my pregnancy	1	2	3	4	5
18. My prenatal care provider(s) always had time to answer my questions	1	2	3	4	5
19. My prenatal care provider(s) was patient	1	2	3	4	5
20. I received adequate information about my diet during pregnancy	1	2	3	4	5
21. I was supported by my prenatal care provider(s) in doing what I felt was right for me	1	2	3	4	5
22. The results of tests were explained to me in a way I could understand	1	2	3	4	5
23. I was rushed during my prenatal care visits	1	2	3	4	5
24. My prenatal care provider(s) was interested in how my pregnancy was affecting my life	1	2	3	4	5
25. My prenatal care provider(s) supported me	1	2	3	4	5
26. My prenatal care provider(s) paid close attention when I was speaking	1	2	3	4	5
27. I was linked to programs in the community that were helpful to me	1	2	3	4	5
28. My prenatal care provider(s) made me feel like I was wasting their time	1	2	3	4	5
29. My concerns were taken seriously	1	2	3	4	5
30. My prenatal care provider(s) made time for me to talk	1	2	3	4	5

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
31. I received adequate information about alcohol use during pregnancy	1	2	3	4	5
32. My prenatal care provider(s) was available when I had questions or concerns	1	2	3	4	5
33. My prenatal care provider(s) gave straightforward answers to my questions	1	2	3	4	5
34. I was in control of the decisions being made about my prenatal care	1	2	3	4	5
35. I could always reach someone in the office/clinic if I needed something	1	2	3	4	5
36. My prenatal care provider(s) supported my decisions	1	2	3	4	5
37. I was at ease with my prenatal care provider(s)	1	2	3	4	5
38. I could reach my prenatal care provider(s) by phone when necessary	1	2	3	4	5
39. My prenatal care provider(s) gave me enough information to make decisions for myself	1	2	3	4	5
40. I was afraid to ask my prenatal care provider(s) questions	1	2	3	4	5
41. My values and beliefs were respected by my prenatal care provider(s)	1	2	3	4	5
42. I was given adequate information about depression in pregnancy	1	2	3	4	5
43. My prenatal care provider(s) kept my information confidential	1	2	3	4	5
44. My prenatal care provider(s) took time to listen	1	2	3	4	5

45. I fully understood the reasons for blood work and other tests my prenatal care provider(s) ordered for me	1	2	3	4	5
46. My prenatal care provider(s) took time to ask about things that were important to me	1	2	3	4	5