Exploring the Cross-Sectional Association Between Metropolitan Residence and Preterm Birth in Black Individuals Using the National Survey of Family Growth

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Abstract

Preterm birth is one of perinatal health's most significant, intractable problems. It is associated with morbidity for both the newborn and the birthing person throughout the life course. Compounding the issue of preterm birth are the large health disparities between racial groups in the United States, with Black women experiencing preterm birth at higher rates than their White counterparts. Recent research has suggested the role of environmental factors in preterm birth risk, but there is no consistent evidence for the role of urbanicity or rurality in preterm birth. Thus, the main objective of this analysis was to describe and compare the prevalence of Black preterm births by metropolitan status using the National Survey of Family Growth (NSFG) 2017-2019. We also explored whether maternal age, education level, poverty status, health insurance coverage, or marital status explain an association between metropolitan status and preterm birth. The data were analyzed using bivariate analysis and logistic regression, including adding covariates to the model to assess their impact. There were no statistically significant associations between metropolitan status and preterm birth in the unadjusted (OR: 1.02; CI: 0.56-1.87) or fully adjusted (OR: 0.97; CI: 0.54-1.73) models. The role of urbanicity in preterm birth risk among Black women needs to be explored further by incorporating covariates that measure structural risk factors such as discrimination and reproductive health policy landscape, as well as doing more within-group analysis to understand better and ameliorate this significant public health problem.

Table of Contents

List of Tables

Preface

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Hail to Pitt!

1.0 Introduction

1.1 Maternal and Child Health Crisis

Since the turn of the 21st century, it has become increasingly evident that the United States is facing a maternal and infant health crisis. According to multiple maternal health status indicators, the U.S. is falling behind other comparable nations in terms of preventing adverse birth outcomes. One such indicator is maternal mortality, which is defined by the World Health Organization (WHO) as death from a pregnancy complication within 42 days of the end of pregnancy (1). According to a 2020 report by the Commonwealth Fund, rates of maternal mortality in the U.S. are the highest as compared to other high-income countries. This report also identified a maternity care deficit, noting a shortage of maternal healthcare providers (2). Another indicator of maternal and child health, infant mortality, was 5.4 per 1000 live births in the United States, the highest rate among comparable high-income countries (3). While there is emerging data about the United States' poor pregnancy and infant outcomes, it is important to seek to ameliorate these issues through further description and intervention. The human toll is daunting, with approximately 700 women in the United States dying from maternal causes every year (4) in addition to 20,000 infants dying before their first birthday (5).

Morbidity associated with pregnancy and birth can also be extremely expensive. A recent estimate found that total costs associated with maternal and child morbidity in 2019 were over $32 billion from conception to the child's 5th birthday (6). In addition to the acute impacts of morbidity associated with pregnancy and infancy, complications can have long-term health implications. Preterm birth specifically is a risk factor for maternal morbidity. Studies have shown that having birth complications can have negative impacts on cardiovascular health throughout the life course, such as an increased risk of premature cardiovascular death in women who had previously delivered a preterm infant (7). For the infant, having complications such as preterm birth may have detrimental effects on health throughout their life course, making this issue of utmost importance for preventing future morbidity.

1.2 Preterm Birth in the United States

Preterm birth is defined as the birth of a live infant before 37 weeks of gestation (8). The WHO further defines three categories within preterm birth. Births with a gestational age of less than 28 weeks are extremely preterm, births between 29 and 32 weeks are very preterm, and births that take place between 32 and 37 weeks are considered moderate to late preterm, with late preterm births being the most common (1). Preterm birth can arise in three different clinical scenarios: preterm premature rupture of membranes (PPROM), spontaneous labor with dilation, and medically indicated due to a maternal or infant complication (9). Globally, preterm birth is a leading cause of infant death, and infants born preterm suffer from a disproportionate amount of acute and chronic health issues. Preterm birth negatively affects the pregnant person, and accounts for a majority of perinatal mortality (10). Infants born preterm may have difficulties with breathing and feeding and may have long-term developmental delays (8). A recent analysis estimated that one out of every ten infants is born preterm in the United States (11). While preterm birth rates in the United States have improved since a peak prevalence of 12% in 2006, there is still research and intervention needed to bring the rates down to low levels, or at least to rates that are comparable to those in other high-income countries such as the UK and Canada, which have a prevalence of about 8% (12–14). Neonatal intensive care units have greatly improved outcomes for infants that are born preterm, but this also takes a financial toll on families and is emotionally straining (15). A 2016 analysis estimated an excess financial burden of $25.2 billion in direct healthcare fees, special education, and loss of productivity due to disability in later life (16).

Several factors are known to play a role in preterm birth risk, though the exact pathways are complex and yet to be fully understood. Risk factors such as smoking and obesity have been found to be associated with higher preterm birth risk. Being pregnant with multiple gestations is a risk factor for preterm birth, and women who have had preterm labor in the past are at increased risk for preterm birth in a subsequent pregnancy. Other individual factors such as hypertension and diabetes are associated with increased preterm birth rates (17). Women who are younger than 18 or older than age 35 are more likely to have a preterm birth. Additionally, lack of prenatal care, lack of social support, stress, domestic violence, use of drugs and alcohol, long working hours, and environmental pollutants have been linked to preterm birth (18). Given the importance of protecting the health of the nation's youth, preterm birth is an outcome that requires more research, especially considering the health disparities that are evident in the United States.

1.3 Preterm Birth in Black Women

Health equity is a major concern when investigating maternal and child health outcomes such as preterm birth. Since racism is so closely linked with drivers of socioeconomic status inequality, this association aligns with racial disparities in health. Black women in the United States are at a higher risk for preterm birth, with a recent yearly prevalence estimate of almost 17% (18). In comparison to White women, Black women are approximately 1.5 times more likely to experience preterm birth (17,18). While the racial gap in preterm births between Black and White women has narrowed over time, more work is still needed to understand the structural factors that impact preterm birth risk for Black women (19). Additionally, a recent analysis found that increasing socioeconomic advantage conferred lower preterm birth rates among White women, but this did not hold true for Black women, who experienced the greatest disparities in the most socioeconomically advantaged strata (20). Health disparities such as this one reflect this nation's history of segregation, unequal access to healthcare, and lived experiences with racism. Since stress is a risk factor for preterm birth, recent research has sought to investigate the role that racism plays as a stressor and thus a contributor to increased maternal health morbidity in Black women. Thus, Black women were chosen as the population of interest for this study, to prioritize further investigation of preterm birth risks for them specifically.

1.4 Health and Metropolitan Status

Urbanicity can also play a role in the health disparities observed for preterm birth in the U.S. Perinatal women living in rural areas are more likely to be uninsured than those living in metropolitan urban areas (21). Additionally, there is a shortage of reliable transportation to access healthcare, making it difficult for women in rural areas to access perinatal healthcare services (22). Women living in metropolitan regions face a different set of health challenges that may hinder them from having healthy pregnancies and births, such as increased transmission of infectious diseases, exposure to pollutants, and residential deprivation due to historical economic disinvestment (23). While healthcare might be geographically closer in urban areas, it can be cost-prohibitive, making poverty a key determinant of healthcare access. A 2007 study in Pennsylvania found that women in larger, city-focused rural areas had a lower risk of preterm birth than women living in urban areas after controlling for prenatal care use and maternal characteristics (24). Another study found that Black women experiencing neighborhood poverty were 19 – 28% more likely to have preterm birth, making the intersection between race, place, and socioeconomic status an important one to research further (25).

1.5 Social Ecological Model

This work is being conducted with the understanding that individual health outcomes do not exist in a vacuum. There are larger community, organizational, and policy-level contexts in which health-related factors reside. Thus, this analysis seeks to interpret findings based on a social ecological model. Social ecological models are adapted from theories from Dr. Urie Bronfenbrenner and Dr. Kenneth McLeroy, and the use of this framework aims to understand the effects of nested social and structural environments on individual health behavior (26). While social and structural determinants of health are not available in the dataset of interest in this analysis, this lens has guided the formation of the research question, which is: Understanding that both race and place have an impact on perinatal health outcomes, do rates of Black preterm birth as reported in the National Survey of Family Growth differ by urban status (as measured by metropolitan statistical area)?

1.6 Gap in Knowledge

Recent research has sought to investigate Black preterm birth disparities in metropolitan areas, such as a 2008 study that found that the rate of very preterm birth for Black women residing in metropolitan statistical areas was three times higher than that of their White counterparts (27). There have also been efforts to characterize Black preterm birth disparities in rural areas, such as a 2010 study that found that among Black low-income women in rural North Carolina, rates of preterm birth were higher than that of the state as well as the nation, suggesting a layering of risks resulting from racism, rurality, and poverty (28). Studies comparing preterm births have found mixed results, with one study in Pennsylvania associating reduced risks of preterm birth with less remote rural communities as compared to urban communities (24). Conversely, a 2021 analysis of trends in preterm births in the U.S. found that rates of preterm birth were higher in rural areas as compared to urban areas, for all racial and ethnic groups (29). However, no current research describes rates of preterm birth in metropolitan statistical areas compared to non-metropolitan statistical areas.

1.7 Public Health Significance

There has been a recent renewal of public and scientific interest in Black maternal health. This is in part due to birth stories from prominent figures such as Serena Williams, as well as attention from the social justice movement precipitated by the disparities revealed by the COVID-19 pandemic. As preterm birth is a leading cause of infant mortality and Black infants are at the highest risk, descriptive research that centers on this community is important for crafting health policy. It has been established that where one resides can have a myriad of impacts on health, so analyzing outcomes by metropolitan status can have implications for infusing interventions with regional nuance. Investigating the association between place and health will serve to enhance health policy for resource allocation and can give insight to future public health surveillance efforts. Ultimately, describing the factors associated with Black preterm birth will facilitate interventions that address health disparities over time.

2.0 Objectives

The objective of this essay was to describe and compare the prevalence of Black preterm births by metropolitan status using the National Survey of Family Growth. It also aimed to explore whether selected covariates (maternal age, education level, poverty status, health insurance coverage, and marital status) impact the association between metropolitan status and preterm birth.

3.0 Methodology

3.1 Description of Data Source

This analysis used the publicly available 2017-2019 National Survey of Family Growth (NSFG), a dataset collected by the National Center for Health Statistics at the Centers for Disease Control and Prevention (30). This cross-sectional survey collected information on pregnancy, births, marriage and cohabitation, infertility, contraceptive use, family life, reproductive health, and other health questions. The survey was designed to provide nationally representative estimates using a complex, multi-stage survey design with sample weights. Survey responses were collected via interviews for most questions, though sensitive questions were reported via self-report. For increased representativeness, Black, Hispanic, and teenaged respondents were oversampled. The interviews were conducted by trained female interviewers using computer-assisted personal interviewing (CAPI). Measures to ensure data quality include careful questionnaire design, consistency checks, and thorough interviewer training. This analysis used only a subset of the dataset that pertained specifically to pregnancy. This dataset contains one record per pregnancy for all interviewed females. There were 10,215 observations in the original dataset, and records were based on both completed and current pregnancies. The current analysis was performed using observations from Black, non-Hispanic respondents who reported a nulliparous first birth. The full sample size of the dataset was n=10,215 observations. The data was subsetted to only include Black respondents (n=2266) who reported their first live birth (n=686) and excluded multiparous births (final n=680).

3.2 Exposure

The exposure of interest was metropolitan statistical area (MSA). The Office of Management and Budget designated these areas. MSAs have a total population size of at least 50,000 and are in urban areas. The largest city in each metropolitan statistical area is designated a "principal city." The three categories available in the original dataset designate residence in the principal city of a metropolitan statistical area, other residences in a metropolitan statistical area, and residence outside of a metropolitan statistical area. For this study, metropolitan status was dichotomized as (1) metropolitan statistical area and (2) non-metropolitan statistical area.

3.3 Outcome

The outcome of interest was preterm birth. In this dataset, the gestational age was measured in weeks based on self-report and recorded as a categorical variable to protect the privacy of respondents. The categories available: early preterm (<34 weeks), preterm (34-36 weeks), term (37-40 weeks), and post-term (>40 weeks). For this study, gestational age was collapsed into two categories: (1) pre-term birth (before 37 weeks) and (2) non-preterm birth (after 37 weeks).

3.4 Individual Characteristics

Maternal age at birth outcome was recorded as a continuous variable and used as a categorical variable (1) Less than 18 years old, (2) 18-34 years old, and (3) Greater than 35 years old) for this analysis, with the understanding that both early and advanced maternal age have been shown to increase risk of preterm birth (17). Poverty level was assessed using % income ratio according to the Federal Poverty Level (FPL). The FPL income % was recorded as a continuous variable by the NSFG and collapsed into a dichotomous variable for this analysis: (1) Less than 200% FPL and (2) Greater than 200% FPL. This decision was made based on the Kaiser Family Foundation's designation of 200% below FPL as low-income status (31). Marital status was recorded as formal marital status at pregnancy outcome: never married, widowed, divorced/separated, and married to a partner of the opposite sex. For this analysis, this variable was dichotomized into (1) married and (2) unmarried. Educational attainment was recorded by NSFG as completion of 9^{th}, 10^{th}, 11^{th}, 12^{th} grades, some college, college, and advanced degrees. This analysis recoded the education variable into (1) Some high school, (2) High school completed, (3) Some college, and (4) College and above. Health insurance status was recorded in the NSFG as (1) Medicare, military, or other state government plan, (2) Private or Medigap insurance, (3) Single-service only, Indian Health Service, or uninsured, and (4) Medicare or other federal plan, and used in this analysis as recorded.

3.5 Statistical Analysis

Bivariate descriptive statistics were performed to assess distributions of the variables of interest across metropolitan status using Chi-squared or Fisher's exact test. Survey weighted logistic regression models were constructed to assess the association between metropolitan status and preterm birth, while investigating the role of individual characteristics. Three nested models were generated: Model 1: unadjusted, Model 2: adjusted for the confounder of maternal age, and

Model 3: further adjusted for other covariates of interest: education level, poverty level, health insurance coverage, and marital status. Odds ratios and 95% confidence intervals were used to interpret the model findings. These analyses were performed using R version 4.3.1.

4.0 Results

4.1 Descriptive Characteristics

There were 680 survey responses analyzed in this study from Black, Non-Hispanic pregnancies that were recorded as being first, nulliparous births. About 15% of these pregnancies were from women residing in rural or non-MSA regions (n=101), and 85% lived in MSAs (n=579) (Table 1). After the survey weights were applied to the sample, the results represent a total of nearly 5.7 million pregnancies. The rate of preterm birth ranged from 19.2% in metropolitan areas to 21.8% in rural areas. In metropolitan areas, 26.4% of respondents completed a college degree or above, as compared to 21.8% of respondents in non-metropolitan areas. Respondents in non-metropolitan areas were younger than those in metropolitan areas (median 21 years old in MSA vs 20 years old in non-MSA). The proportion of respondents whose income was below 200% of the federal poverty level was 64.1% in MSA and 72.3% in non-MSA. 44.4% of respondents in MSAs were covered by Medicaid, as compared to 45.5% from non-MSAs. A higher percentage of respondents from MSAs were married, as compared to non-MSAs (19.2% vs 13.9%), respectively.

Table 1. Study Sample Characteristics

	MSA (N=579)	Non MSA (N=101)	Overall (N=680)
Preterm Birth Status			
Not Preterm	468 (80.8%)	79 (78.2%)	547 (80.4%)
Preterm	111 (19.2%)	22 (21.8%)	133 (19.6%)
Education level			
College graduate and above	153 (26.4%)	22 (21.8%)	175 (25.7%)
High School Graduate	220 (38.0%)	48 (47.5%)	268 (39.4%)
Less than High School	76 (13.1%)	12 (11.9%)	88 (12.9%)
Some college	130 (22.5%)	19 (18.8%)	149 (21.9%)
Maternal Age			
Median [Min, Max]	21.0 [13.0, 40.0]	20.0 [14.0, 37.0]	20.0 [13.0, 40.0]
Poverty Status			
Above 200% FPL	208 (35.9%)	28 (27.7%)	236 (34.7%)
Less than 200% FPL	371 (64.1%)	73 (72.3%)	444 (65.3%)
Insurance Status			
Medicaid, CHIP, state health plan	257 (44.4%)	46 (45.5%)	303 (44.6%)
Medicare, military, other government health plan	32 (5.5%)	2 (2.0%)	34 (5.0%)
Private or MediGap	228 (39.4%)	40 (39.6%)	268 (39.4%)
Single service, IHS, or uninsured	62 (10.7%)	13 (12.9%)	75 (11.0%)
Marital Status			
Married (to opposite sex)	111 (19.2%)	14 (13.9%)	125 (18.4%)
Unmarried	468 (80.8%)	87 (86.1%)	555 (81.6%)

4.2 Description of Model Findings

The interpretation of the unadjusted logistic regression between metropolitan status and preterm birth in this sample is that without adjusting for other factors, the odds of preterm birth for pregnancies reported among Black women living in a rural area (non-metropolitan statistical area) were 2% greater than that of Black women living in urban areas (metropolitan statistical areas) (OR: 1.02; 95% CI: 0.56 – 1.87). After adjusting for the main confounder of maternal age, this association remained similar, with 5% increased odds of preterm birth among pregnancies reported by Black women in rural areas (OR: 1.05; 95% CI: 0.56 – 1.96). The full model contained covariates of education level, poverty level, health insurance coverage, and marital status, in addition to maternal age. These results indicated that after controlling for these covariates, pregnancies reported by Black women in rural areas were 0.97 times as likely to be preterm than their urban counterparts (OR: 0.97; 95% CI: 0.54 – 1.73). In the full model, advanced maternal age (above 35 years old) was associated with an increased risk of preterm birth (OR: 3.75; 95% CI: 0.66 – 21.37), and younger maternal age was associated with a decreased risk of preterm birth (OR: 0.93; 95% CI: 0.48 – 1.80) when compared to the age group of 18-34. When compared to a reference level of completed college and above, high school completion was associated with an increased odds of preterm birth (OR: 1.20; 95% CI: 0.47 – 3.07), while less than high school and some college completed were associated with decreased odds of preterm birth (OR: 0.65; 95% CI: 0.23 – 1.88 and OR: 0.42; 95% CI: 0.18 – 0.98 respectively). Income levels below 200% of the federal poverty level were associated with an increased odds of preterm birth (OR: 1.59; 95% CI 0.64 - 3.91). Additionally, when compared to being covered by Medicaid, Medicare/military/other government and Private/MediGap were associated with increased odds of preterm birth (OR: 2.65; CI: 0.77 – 9.08 and OR: 1.60; CI: 0.70 - 3.68), while having single service/HIS/uninsured was associated with the similar odds of preterm birth (OR: 1.01; 95% CI: 0.37 – 2.76). Being unmarried was associated with 1.61 times increase in odds of preterm birth (OR:1.61, 95% CI: 0.92 - 2.82). None of the associations the logistic regression models indicated were statistically significant using an alpha level of 0.05 except for some college as compared to completed college or higher (p=0.045).

Table 2. Logistic Regression

	Unadjusted			**Partially adjusted**			**Fully adjusted**		
Predictors	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*
(Intercept)	0.24	0.16 – 0.35	**<0.001**	0.23	0.16 – 0.34	**<0.001**	0.11	0.04 – 0.28	**<0.001**
Non-MSA	1.02	0.56 – 1.87	0.937	1.05	0.56 – 1.96	0.886	0.97	0.54 – 1.73	0.906
>35 years old				3.35	0.64 – 17.51	0.148	3.75	0.66 – 21.37	0.133
<18 years old				0.91	0.50 – 1.63	0.739	0.93	0.48 – 1.80	0.829
High school							1.20	0.47 – 3.07	0.697
<High school							0.65	0.23 – 1.88	0.417
Some college							0.42	0.18 – 0.98	**0.045**
<200% FPL							1.59	0.64 – 3.91	0.305
Medicare, military, other government							2.65	0.77 – 9.08	0.118
Private or MediGap							1.60	0.70 – 3.68	0.256
Single service, IHS, or uninsured							1.01	0.37 – 2.76	0.987
Unmarried							1.61	0.92 – 2.82	0.093
Observations	680			680			680		
R^2 / R^2 adjusted	0.000 / -14.089			0.007 / -14.687			0.050 / -17.426		

5.0 Discussion

5.1 General Findings

This analysis used data from the National Survey of Family Growth to investigate an association between geographic residence and preterm birth among Black pregnancies, using the metropolitan statistical area as a proxy for urbanicity. The models indicated that after controlling for various individual characteristics, there were similar odds of preterm birth among Black pregnancies of women living in rural areas as compared to more urbanized areas. While the results of the logistic regression models were not statistically significant, this analysis contributes to the body of work that seeks to better characterize the complex contributors of preterm birth risk among Black women.

Several factors may have contributed to the study's null findings. One is that there is some spareness in the data, which the complex survey is designed to account for by creating an artificial population that is like that of the U.S. population. However, it is not clear that this was effectively achieved. This may have biased results toward the null, as unmeasured confounders may have masked an underlying association between metropolitan status and preterm birth. In addition, factors such as prenatal care and smoking, which are risk factors for preterm birth, were not included in this analysis, as these questions were only asked to a smaller subset of respondents to the NSFG. It is also important to note that rurality and urbanicity were assessed as a dichotomous variable, which eliminates the nuance that exists in the space between totally rural and totally urban geographic regions. Previous work has implicated a role of rurality and urbanicity as factors in health outcomes, and more work is needed to determine which method for assessing geographic region is most appropriate for birth outcomes.

This sample displayed a high preterm birth rate of approximately 20%, which is twice that of the average rate of preterm births in the United States (11). Even among Black women, preterm birth prevalence was estimated to be 17% in 2024 (18). Given that prior preterm labor is a major risk factor, and this analysis was restricted to only first births, this is a striking finding. Additionally, this sample population had bachelor's degree attainment (total: 25.7%), which was slightly lower than the national average, which for Black women in 2019 was 27.9% (32). This sample also displayed economic disadvantage, with 65.3% earning below 200% of the Federal Poverty Level, as compared to 28.3% of Americans (33). More respondents in rural areas earned below 200% of the FPL (72.3%) than their urban counterparts (64.1%). This sample also displayed higher rates of Medicaid utilization and lower rates of private insurance than seen in the general U.S. Black population (34). This sample also had a lower marriage rate than the U.S. Census Bureau estimated for Black Americans, which states a marriage rate of 29.8% via 5-year estimates of the American Community Survey (35). By elucidating the characteristics of this population within the larger context of Black Americans, it is evident that this sample may not be representative of Black pregnancies in the United States, and there may have been an oversampling of participants with unmeasured risk factors for preterm birth and socioeconomic disadvantage. This highlights the need to also collect and incorporate measures of community, organizational, and policy-level factors to better understand perinatal and infant health outcomes among Black women. Future iterations of national pregnancy and birth surveys should aim to construct measures of factors such as neighborhood-level resources, exposure to structural racism, and reproductive healthcare policy environments to capture the other factors of one's context that have direct impacts on health. An example of a national surveillance system that has begun to collect data on social and structural determinants of health is the Pregnancy Risk Assessment Monitoring System (PRAMS), which enables public health professionals to assess and improve maternal health programs (36).

The results of this study differ from the current literature, which indicates that several of the predictors explored in these logistic regression models are associated with increased preterm birth risk. For example, in 2018, Fuchs et al. found an increased risk of preterm birth in women over the age of 40 (37). However, in our study, maternal age was not found to be statistically significantly associated with preterm birth. Our study used the maternal age of 35 as the cut point for increased preterm birth risk, and a post-hoc analysis demonstrated a statistically significant association between maternal age above 40 and preterm birth risk, consistent with this study. Additionally, we found a non-statistically significant U-shaped association between maternal educational status and preterm birth odds, with lower levels of education and higher levels of education being associated with lower preterm birth odds when compared to completion of high school only. Luo et al. found that lower educational levels are associated with an increased risk of preterm birth (38). Additionally, a recent study found that having a high school diploma or less is associated with increased odds of preterm birth compared to having a master's degree or higher (39). However, these studies did not specifically find that education was a protective factor for Black women. Though the results were not statistically significant, we also found that lower income was associated with increased odds of preterm birth, which is consistent with recent work linking socioeconomic deprivation and adverse birth outcomes (40). We found mixed associations between insurance coverage type and preterm birth odds, which may be consistent with a meta-analysis that found no statistically significant differences in birth outcomes between women using

Medicaid compared to women using private insurance (41). Our analysis also noted an association between marriage and lower odds of preterm birth. While our results were not statistically significant, previous research has found that being married is associated with a lower risk of preterm birth in American women (42).

One major strength of this study is the use of the National Survey of Family Growth, which has a strong survey design that is meant to be representative of the U.S. population. Another strength is the novelty of assessing preterm birth risk factors by urbanicity among Black pregnancies specifically, as there is not a lot of evidence for their perinatal outcomes. A limitation of this study is that it relies on self-report data and does not use medical record linkage to verify birth outcomes or other characteristics. This may lead to reporter bias, where participants' recollections of events and diagnoses may not be accurate. Additionally, the sampling scheme may have produced results that do not represent the true status of Black births.

5.2 Future Directions and Conclusion

Future research should further explore urbanicity as a risk factor for preterm birth among Black women by using a wider gradient of urbanicity, such as the Rural Urban Continuum Codes. This analysis used the publicly available NSFG pregnancy dataset, which redacts sensitive information such as gestational age by week and more specific geographic information. A more granular, rather than dichotomized, definition of urbanicity would contribute to existing research in social and environmental epidemiology, highlighting the importance of place for health. Understanding the influence of different types of rural, suburban, and urban communities will support tailored, community-centered interventions to reduce preterm birth incidence among

Black women. Another consideration for future research is performing cohort studies using medical records to verify the preterm birth diagnosis. This approach mitigates reporting bias and is a more precise way of measuring the outcome of interest. Finally, this study demonstrates the need for more within-group analyses for those at increased risk for maternal mortality and morbidity. While the inclination is to compare racial minority groups to Whites, important associations and patterns may be missed when treating Black Americans as a monolith instead of as a dynamic group with different health behaviors, healthcare needs, and exposures. Without a more granular understanding of the complex mechanisms that cause Black women to be at higher risk for poor perinatal health outcomes, it will be a challenge to implement population-level interventions that will be sustainable and effective. For example, a potential policy solution to preterm birth could be increasing the availability of high-quality prenatal care, but without understanding the barriers to care faced by Black women, the policy may not be as effective.

In conclusion, this study sought to use cross-sectional data from the 2017-2019 NSFG to describe preterm birth rates and associated covariates in Black women. Considering this analysis from the lens of a social ecological model, it is important to reiterate that higher-level (community, organizational, or policy-level) factors were not available in the dataset to be included. Recent studies have underscored the impact of social determinants on health outcomes, and without these factors, the present analysis can only describe individual-level risk factors, which do not consider the larger health contexts. Thus, implications for future research would be collecting and leveraging data on factors such as structural and systemic racism, workplace pregnancy benefits, and reproductive health policy landscapes to better characterize and intervene on preterm birth rates among Black women. For public health practice, developing more robust perinatal surveillance systems will inform effective interventions. Failure to focus future studies on this population amidst a maternal health crisis will lead to exacerbation of this significant public health problem.

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