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## **Racial and ethnic disparities in long-term contraception use among the birthing population at an academic hospital in the Southeastern United States.**

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# Racial and ethnic disparities in long-term contraception use among the birthing population at an academic hospital in the Southeastern United States

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## Abstract

Ensuring women and birthing people have access to the contraceptive of their choice is essential for patient-centered care, health equity, and reproductive justice. While trends in national data in the United States reveal racial disparities in long-term contraceptive use, health-system and hospital-level investigations are essential to understand disparities and encourage interventions. We used data from 5011 patients who delivered at a large academic hospital to determine the effect of race/ethnicity and social vulnerability index (SVI) on the odds of undergoing a long-term contraceptive procedure. Results indicate that SVI substantially affects the odds of long-term contraception for non-Hispanic White women and birthing people. In contrast, Hispanic and non-Hispanic Black women and birthing people have significantly higher odds of undergoing a long-term contraceptive procedure due to race/ethnicity. Contributions to these disparities may be based on factors including healthcare providers, organizational and external policies. Interventions at all levels of care are essential to address disparities in contraceptive care, outcomes, and patient experience.

## Keywords

Contraception, Racial/Ethnic Disparities, Health Equity, Long-term Contraceptives, Health System, Maternal Care

## Introduction

Contraception is the use of medicine, device, or surgery to prevent pregnancy (*Birth Control*, n.d.). Contraception use after childbirth contributes to the health of both the mother and child by preventing unintended close-interval pregnancies, preterm births, and other health complications, potentially reducing maternal and child mortality and severe maternal morbidity (Rodriguez et al., 2022; World Health Organization & United States. Agency for International Development, 2013).

Prior research has identified racial/ethnic disparities in the use of long-term contraceptives such as sterilization and Intrauterine Devices (IUDs). For example, in a 2015 U.S. study of 4,787 women of childbearing age, Black women had a higher likelihood of undergoing sterilization compared to White women (Shreffler et al., 2015). This finding is consistent with the national data trend on sterilization contraceptive use by the National Survey of Family Growth (NSFG) in the U.S. Between 2006 and 2010, Black and White women

accounted for 23.8% and 18.2% of total sterilization contraceptive use, respectively (Daniels et al., 2013). Similarly, the NSFG data from 2015 to 2017 indicates that Black women accounted for 22.9% and White women accounted for 18.1% of sterilization contraceptive use during that period (Daniels & Abma, 2018). These trends show that Black women were more likely to use the sterilization contraceptive method. These trends raise concerns, particularly when considering that the population of White women aged 15–44 in the U.S. in 2020 is about three times greater than that of Black women

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**Table 1.** Results of nested, multilevel logistic regression models of long-term contraception (n=5011).

Model	Variables of Interest	OR (95% CI); p value
<b>Model 1:</b> Adjusted for Demographic Covariates	<b>Individual level:</b>	1.53 (1.02, 2.31); 0.04
	<b>Race/Ethnicity</b>	1.44 (1.17, 1.77); <0.001
	Hispanic	1.43 (0.94, 2.17); 0.10
	Non-Hispanic Black	
	Non-Hispanic White (ref)	
<b>Model 2:</b> Adjusted for Demographic and Comorbidity Covariates	<b>Individual level:</b>	1.42 (0.94, 2.15); 0.09
	<b>Race/Ethnicity</b>	1.40 (1.13, 1.72); 0.002
	Hispanic	1.39 (0.92, 2.12); 0.12
	Non-Hispanic Black	
	Non-Hispanic White (ref)	
<b>Model 3:</b> Fully Adjusted for with Census Tract Level Social Vulnerability Index	<b>Individual level:</b>	1.14 (0.91, 1.42); 0.20
	<b>Race/Ethnicity</b>	1.27 (0.84, 1.92); 0.30
	Hispanic	1.33(0.88, 2.03); 0.20
	Non-Hispanic Black	
	Non-Hispanic White (ref)	
	Others	
	<b>Census Tract Level</b>	1.05 (1.03, 1.07); <0.001
Social Vulnerability Index (per 5 units)		
<b>Model 4:</b> Fully Adjusted for with Census Tract Level Social Vulnerability Index with Interaction	<b>Individual level:</b>	2.85 (1.45, 5.61); 0.002
	<b>Race/Ethnicity</b>	1.74 (1.11, 2.72); 0.02
	Hispanic	1.59 (0.73, 3.44); 0.20
	Non-Hispanic Black	
	Non-Hispanic White (ref)	
	Others	
	<b>Census Tract Level</b>	1.08 (1.05, 1.11); < 0.001
	Social Vulnerability Index (per 5 units)	
	<b>SVI * Race/Ethnicity</b>	0.92 (0.87, 0.97); 0.003
	Hispanic	0.96 (0.93, 0.99); 0.02
Non-Hispanic Black	0.98 (0.91, 1.05); 0.50	
Others		

within the same age range (*Population of Women 15-44 Years by Race/Ethnicity*, n.d.).

Although some of these differences in use are attributable to preference, research suggests that healthcare providers and organizations also influence the selection of contraceptive methods, contributing to disparities ('Access to Postpartum Sterilization', 2021; Bullington & Arora, 2022). Disproportionate use of long-term contraceptive methods is concerning, given the history of involuntary and forced sterilization of Black women in the U.S. (Lee, 1999; Washington, 2008). More recently, a whistleblower alleged that detained immigrant women, predominantly Hispanic, received hysterectomies without consent in a migrant detention center in Georgia ('ICE Whistleblower', 2020). Ensuring women and birthing people have access to the full range of birth control options and are not subject to coercion in choosing their desired method is critical for reproductive justice and health equity in maternal care.

While policy-level interventions are often necessary to help alleviate disparities in health and healthcare, hospitals

also need to identify, investigate, and address variations in care that contribute to disparities in outcomes and adverse experiences (Alfred & Tully, 2022; Howell, 2018). These efforts are essential to supporting equity in quality care (Morison, 2021). The work presented in this extended abstract is part of a larger research study examining equity in maternal care. This analysis examined the impact of race/ethnicity and social vulnerability (*At A Glance*, 2022) on the likelihood of long-term contraceptive use. Only by investigating potential disparities in outcomes and variations in care can hospitals redesign their clinical systems to support safe, equitable outcomes for their birthing population.

## Methods

This cross-sectional study used data from the electronic health records of patients who delivered at a large academic health system in the Southeastern U.S. in the 2019 and 2020 time periods. The hospital maintains a comprehensive women's health center that serves a diverse patient population;

approximately 50% of the patients are White, 36.5% Black, 9.5% Hispanic, and 4% "Other," including American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander. The study was approved by the hospital's Institutional Review Board (Pro00105892). The dependent variable for this study was the indication of long-term contraceptive procedure, either tubal ligation or intrauterine device (IUD) placement. The presence of either procedure was coded as a binary indicator variable (yes/no).

Demographic variables for individual patients included age in years, race/ethnicity (Hispanic, non-Hispanic Black, non-Hispanic White, and Other), and primary spoken language (English, Spanish or Other). Body mass index (BMI) was measured continuously and categorized into groups (<18.5, 18.5 to <25, 25 to <30, 30 and above). Other variables include four comorbid health conditions (anemia, hypertension, preeclampsia, and diabetes), 21 indicators of severe maternal morbidity by the Centers for Disease Control and Prevention (*How Does CDC Identify Severe Maternal Morbidity?*, 2021) and census tract level Social Vulnerability Index (SVI). The SVI is composed of 16 socioeconomic and demographic factors collected by the U.S. Census Bureau, including measures across dimensions of (1) socioeconomic status, (2) household characteristics, (3) racial/ethnic composition, and (4) housing and transportation (*At A Glance*, 2022). Nested generalized linear mixed models (GLMM) for multilevel binary logistic regression in R package 'lme4' was used for the data analysis.

## Results

A total of 5011 patients met the inclusion criteria for the study and delivered between 2019 and 2020. Patients in counties with fewer than 50 patients and those with missing county geographic information were excluded. The patients included were residents of eight counties in the coastal region of South Carolina. The top 3 counties were Charleston (50.4%), Berkeley (23.8%), and Dorchester (14.5%), which accounted for 88.7% of the patients in the study. Patients were split evenly between 2019 (50.0%) and 2020 (50.0%). In the full model with the interaction of race/ethnicity and SVI, both Hispanic (OR=2.85; 95% CI: 1.45, 5.61;  $p=0.002$ ) and non-Hispanic Black (OR=1.74; 95% CI: 1.11, 2.72;  $p=0.02$ ) women had higher odds of long-term contraceptive procedures than non-Hispanic White women, the main effect for SVI increased to an 8% increase in the odds of long-term contraception for each 5-unit increase in SVI (OR=1.08; 95% CI: 1.05, 1.11;  $p<0.001$ ), but was negatively modified in Hispanic (OR=0.92; 95% CI: 0.87, 0.97;  $p=0.003$ ) and non-Hispanic Black (OR=0.96; 95% CI: 0.93, 0.99;  $p=0.02$ ) women.

## Discussion

Ensuring women and birthing people have access to the contraceptive of their choice is essential for patient-centered

care, health equity, and reproductive justice. Although data trend at the national level reveals disparate patterns in long-term contraception among non-Hispanic Black and non-Hispanic White women (Daniels & Abma, 2020), hospital-level data is important in developing a local understanding of racial/ethnic disparities in long-term contraception. By uncovering these disparities in an individual health system, our study will encourage active participation in improving health equity at the institution. Our findings demonstrate that the prevalence of long-term contraception is higher in Hispanic women, non-Hispanic Black women, and socio-economically disadvantaged non-Hispanic White women. After accounting for the interaction between SVI and race/ethnicity and controlling for other variables, SVI substantially affected the odds of long-term contraception for non-Hispanic White women. In contrast, Hispanic and non-Hispanic Black women have significantly higher odds of the long-term contraceptive procedure due to race/ethnicity. These findings complement research and data on racial/ethnic disparities in long-term contraception (Gomez & Wapman, 2017; White & Potter, 2014).

Further investigation is needed to understand the causes of racial/ethnic and socioeconomic disparities in long-term contraception use. Prior research suggests that factors such as comfort, protection from sexually transmitted diseases, cultural/religious beliefs, knowledge, and access to different contraceptive options could influence an individual's preference for contraceptive use (Bullington & Arora, 2022; Callegari et al., 2016). However, biases in counseling, organizational practices and external factors such as health insurance policies also influence contraceptive use (Bullington & Arora, 2022). Implicit bias by healthcare providers during contraceptive counselling has been identified as a concern in the use and disuse of long-term contraceptives. For instance, an exploratory study of 50 contraceptive users found that women of color, including Black women, were more likely to have long-term contraceptives, such as IUDs, promoted to them by healthcare providers compared to other races (Higgins et al., 2016). Interventions such as provider training on implicit bias and curriculum reform to eliminate all forms of racial stereotypes and unscientific beliefs impacting care can address these biases (Green et al., 2021). Organizational factors, such as available contraceptive methods, providers' availability, and lack of standardized communication, also impact contraception use. Organizational efforts, including initiating contraceptive counseling during prenatal care and ensuring patients are aware of insurance coverage, are essential to support equity in care (*LARC Statement Of Principles*, 2021; 'Obstetric Care Consensus No. 8', 2019). External factors such as insurance policies also contribute to disparities. Expanding Medicaid coverage and allowing more providers, such as pharmacists and nurse practitioners, to provide contraceptive care can improve access and equity (*Toolkits*, 2022). Only through interventions at all levels, from individual care providers to health systems and policymakers, can we improve equity in maternal care.

## Limitations

We do not have data on patients' marital status, number of children and dependents, and pregnancy history; these factors likely impacted their decision on contraceptive use. Additional data and analysis are necessary to identify specific factors within the hospital, such as family planning counselling, patient understanding of insurance policies regarding contraceptive options, or hospital policies, which may influence contraceptive decisions. However, prior work has already noted that Black women do not have access to their preferred method of contraception and have described discrimination in family planning services (Dehlendorf et al., 2010; Gomez & Wapman, 2017). This suggests opportunities for improvement in the delivery of maternal care at the health system level. Lastly, we also recognize that "women" does not include all individuals with the capacity for birth. As we do not have data on patients' gender identities, we have incorporated the gender-neutral language, "birthing people," in the study.

## Conclusion

We demonstrated that race/ethnicity significantly increases the odds of undergoing a long-term contraceptive procedure for Hispanic and non-Hispanic Black, and SVI strongly affects non-Hispanic White women at the hospital level. This knowledge is essential to encourage further investigation and the development of strategies and hospital-level interventions that will support health equity, patient-centeredness and reproductive autonomy among women and birthing people of color.

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