

**Opinion***Copyright © All rights are reserved by Kecia Gaither***Black Pregnant.2019****Kecia Gaither\***

NYC Health Hospitals Lincoln, UK

**\*Corresponding author:** Kecia Gaither, NYC Health Hospitals Lincoln, Division of Maternal Fetal Medicine 234 East 149th Street, Bronx, NY 10451, USA.

**Received Date: April 17, 2019****Published Date: April 24, 2019****Opinion**

In 1986, the CDC established the pregnancy mortality surveillance system to evaluate clinical issues surrounding maternal death. At its inception the number of maternal deaths was noted to be 7.2/100,000; in 2019, three decades later, the rate has almost tripled-with Black women disproportionately affected, no matter the socioeconomic status. The cause of this disparity remains unclear. Extant studies have proposed myriad factors, inclusive of prenatal infections, lack of prenatal care and medical co-morbidities, during pregnancy as critical. While these internal factors are important, what impact do external influences, such as racism and implicit bias factor into the dismal perinatal outcomes that are prevalent in 2019? This editorial will explore internal and external forces impacting perinatal health for women of color.

Policy makers have known for years that racial and ethnic differences in health outcomes exist and multiple agencies like the Federal government have prioritized venues- like Health People 2010- the goal of which was the elimination of racial disparities in health outcomes. The final review of Healthy People 2010 was, while it was an ambitious endeavor, there was a significant lack of progress in reducing health disparities. What it did achieve was the development of more informative models and approaches to measuring disparities which serves as an information foundation for Healthy People 2020.

There are two words that need to be highlighted- difference and disparity- and the question becomes when does a difference become a disparity? There is little consensus on what constitutes a disparity or when a difference between two groups should be given the more charged term disparity. For some, disparity implies an inequity or an injustice, rather than a simple inequality. Determining when a difference becomes a disparity is not measured directly, but rather as a residual or a distinction between two groups, often after other factors might contribute to that difference have been statistically controlled for. Difference vs disparity is quite important

when discussing the reproductive disadvantages seen among African American women in this country. Does a difference exist which compounds the disparities noted?

Despite improvements in obstetrical and neonatal care, Black infants and mothers still experience excess mortality. The mortality rate for Black infants is 2.5 x higher than for White infants. Black women have 4x higher pregnancy related mortality and 70% higher hospitalization rates for pregnancy related complications than do White women. Extreme preterm birth, fetal growth restriction and sepsis predominantly account for excess Black neonatal mortality; conversely vascular, hypertensive and infection related complications primarily account for disparity in maternal mortality and morbidity.

There are certain experiences embedded within the social context of African American women's lives; exposure of lifelong stress, and genetic variables- but when stratified across a socioeconomic continuum-the same poor prenatal outcomes still persist. So, the question becomes are there certain pathophysiologic differences at hand accounting for outcomes?

Genitourinary, and to a lesser extent, non-genitourinary tract infections are implicated in preterm birth. Intrauterine infection seems to be the common denominator to racial disparities regarding preterm birth. Although the exact mechanism hasn't been fully elucidated, intrauterine infection likely results from ascending lower genital tract infections preceding or shortly following conception. Most types of genitourinary infections, including sexually transmitted diseases like gonorrhea, trichomonas, and chlamydia and non-sexually transmitted infections such as Group B strep, UTI and bacterial vaginosis occur more frequently among Black women. Numerous studies have correlated vaginal infection with BV to the high incidence of preterm birth. There is a compelling body of evidence that racial differences exist in the vaginal flora or the vaginal microbiome of women. A healthy vagina

has an abundance of lactobacillus species that work to ward off infectious entities by their production of hydrogen peroxide, lactic acid and bacteriocins- in addition they maintain an acidic vaginal pH. Research in this arena has noted that Black women affected by preterm labor show a shift, or an imbalance, of these helpful bacteria to a more diverse polymicrobial community. This variation allows for an overgrowth of pathogenic bacteria and a resultant change to a more alkaline pH-increasing the risk of ascending intrauterine infection resulting in preterm labor and endometritis in the postpartum period.

Pregnancy requires adaptations in maternal vascular tone, hemodynamics, hemostatic factors and angiogenesis. Women with endothelial disorders may be at higher risk for adverse birth outcomes. Placental factors such as inadequate cytotrophoblast invasion, abnormal modeling of the spiral arteries and placental size may further compromise uteroplacental perfusion. Racial differences in microvascular or endothelial function seem to presage disparities in both hypertensive disorders in pregnancy and fetal growth disturbances. Low uteroplacental perfusion during the third trimester has been associated with IUGR; Black fetuses show slower growth during this period. Moderate increases in blood pressure are associated with fetal growth among Whites, but not among Blacks, suggesting ethnic differences in uteroplacental perfusion in response to changes in systemic blood pressure. Black women also have higher levels of alpha fetoprotein during pregnancy which is a marker for uteroplacental ischemia. Uteroplacental hypo perfusion among black women is also supported by pathology. Histologic placental analysis from Black women show higher rates of accelerated placental maturation, thrombosis and/or necrosis of the decidua basalis in comparison to placentas from White counterparts. The vascular endothelium is not simply a semi-selective barrier that allows the diffusion of macromolecules but also modulates vasomotor tone, coagulation and secretes vascular growth factors and immune-modulators. Black women show greater vascular resistance, higher resting blood pressure and altered vascular tone than do white women. Additionally, Black women are found to have higher concentrations of markers of endothelial dysfunction such as Von Willebrands factor and C reactive protein in their serum than do white women. The abnormal mediators, ultimately impacting endothelial function, contribute to the increased risk of hypertensive and hemorrhagic complications seen among Black women.

There have been numerous studies evaluating the impact of stress, particularly during the prenatal period, on African American women. So why might Black women be more susceptible to gestational stress? One possibility involves allostatic load. Allostatic load is a concept of comprehensive and cumulative risk across multiple physiologic regulatory systems resulting from chronic exposure to life challenges or stressors that influence health outcomes across the life span. Allostasis is the body's ability to maintain homeostasis and adapt to acutely stressful events- and is challenged in situations of chronic or frequent stresses when there is an exclusive demand on the body's regulatory system. A

complementary perspective on cumulative health risk among Black women is the concept of "weathering"- which provides an explanation for potentially greater susceptibility to stress among African American women compared to White women. According to this weathering framework, Black women experience health decrements due to the cumulative impact of repeated experience with social, economic, or political exclusions involving institutional and individual racism.

Racism has been shown to affect an individual's world view, self-esteem, feelings of personal value and it assaults a major characteristic of an individual's basic identity-a characteristic that can't be changed. Black women's' unique experience of racism and discrimination are likely contributors to the effects of weathering and help to produce greater susceptibility to the impact of prenatal stress.

Let me introduce the term epigenetics. Epigenetics is the study of heritable changes in gene expression, most often secondary to environmental influences. Convergent evidence has identified three physiologic pathways through which maternal stress results in an epigenetic modification impacting a neuroendocrine pathway, a maternal vascular disease pathway, and an immune inflammatory pathway. It has been noted that women of color inherently, physiologically, have differences which, when impacted upon by disparate treatment, i.e. racism throughout the life cycle-compounds and results in poor reproductive outcomes.

A major physiologic marker to explain prenatal stress effects on birth outcomes is Corticotrophin Releasing Hormone (CRH). CRH plays a role within the hypothalamic-pituitary adrenal axis and in physiological responses to stress. Corticotrophin stimulates secretion of cortisol by the adrenal axis; elevated cortisol inhibits release of corticotrophin by the anterior pituitary gland and inhibits release of CRH by the hypothalamus. Chronic stress can interrupt this negative feedback loop resulting in overproduction of cortisol. Unlimited cortisol secretion is associated with hypertension, immunosuppression, heightening the inflammatory response- and also stimulated the release of prostaglandins from the placenta and fetal membranes, thus facilitating the actions of oxytocin- both of which stimulate contractions of the uterus.

Elevated CRH leads to changes in vascular tone and reactivity. Pathophysiologic changes to the microvasculature contribute to hypertension – IUGR due to aberrant uterine blood flow- and hemorrhage secondary to change in vascular tone.

Stress impairs cellular immunity decreasing WBC counts and natural killer cells resulting in excessive immunosuppression. Inherent differences in the vaginal microbiome among melanated women increase their susceptibility to infection, compounded with the immunosuppressive effects of stress- exponentially increase the women's' risk for infection and adverse birth outcomes- even after adjusting for sociodemographic and behavioral risk factors.

Racism is deeply woven into the fabric of US society. So, for pregnant Black women who already have inherent pathophysiologic

vulnerabilities, how does this intersection impact upon their reproductive outcomes? Let me introduce the term unconscious bias. Social stereotypes about particular groups of people that individuals form outside their own conscious awareness- it's far more prevalent and pervasive than conscious bias. Encounters with health care providers and pregnant Black women are all across the headlines, from Serena Williams' birthing experience, and beyond--the common denominator from women across all sociodemographic strata is the feeling of being devalued and disrespected by medical providers- they spoke of providers who equated being African American with being poor, uneducated, noncompliant and unworthy. They spoke of providers not listening to their symptoms or having protracted delays in diagnosis or operative management or offering different therapeutic options than given to their White counterparts. As a result, Black women are far less likely to get follow up appointments, evaluations, or treatments they need—and are less likely to open up to a doctor who doesn't take their symptoms seriously. Unconscious bias can lead to deadly effects- and the mortality and morbidity rate for Black women during pregnancy and the postpartum period are prime examples.

Options for improvement? Initiation of new health paradigms. There is an organization called Black Mamas Matter Alliance – they have established a holistic approach for prenatal care for women of color. Community based models of care exist in locales of color as an alternative to hierarchical rushed and profit centered models of care that are impacted by unconscious bias and historically

racist beliefs. Some of these models are pioneered and run by Black women and should be seen and included as a part of a comprehensive approach to care.

Care partnerships- Organizations like the Healthy Start Organization of the Health Resources and Services Administration work towards reducing maternal mortality multiple ways- principally by empowering Black women with clear information about their health status, risk factors and various options for disease prevention and management. These interactions may help to mitigate a system that dismisses their care concerns as incorrect or under educated; an additional benefit will be an increase in health literacy.

Mandatory screening- as a novel universal health initiative- not just for GC, chlamydia, HIV and syphilis- but for bacterial vaginosis as well every trimester.

As more research evolves in the quest to understand factors presaging infectious, hypertensive and hemorrhagic morbidities, as more attention is garnered to the disparate reproductive outcomes of Black women, hopefully its existence will become an anomaly of the past.

### **Acknowledgement**

None.

### **Conflict of Interest**

No conflict of interest.