Gendered Racism on the Body:

Maternal Mortality in the United States

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Abstract:

While gender and race are understood as highly important indicators of health trajectories, research has not yet thoroughly documented the role race and gender concurrently have in the production of maternal mortality outcomes for black and white women. This study uses formal demographic techniques to examine the strikingly high maternal mortality rates in the U.S. since between 2016-2017 and the ways state legislation surrounding abortion access and Medicaid produce divergent maternal mortality rates between states and racial categories. Through a novel methodological approach, and the incorporation of race and gender health theories on a demographic phenomenon, this study contributes to the study of health, race, gender, discrimination, and maternal mortality outcomes.

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Maternal Mortality in the United States

Despite global maternal mortality rates (MMR) steadily decreasing since the 1990's, U.S. maternal mortality has trended in the opposite direction—increasing, and even more than doubling between 2000-2014 (MacDorman et al 2016). In fact, among 31 nations in the Organization for Economic Cooperation and Development, the U.S. ranks 30th (OECD Health Statistics 2015). Typically, divergent MMR's are explained using income levels, with high income nations faring better than low income counterparts; however, the U.S. is an outlier in this explanation, for it is a very wealthy nation with abysmal maternal health outcomes. Moreover, maternal deaths disproportionately impact Black women across the nation, and scholars point to causes of death—cardiovascular diseases, infection, and hemorrhage—without disentangling the mechanisms leading to this racial disparity (CDC Pregnancy Mortality Surveillance System 2017). The reason behind this rise in maternal deaths is complex, and scholars have struggled to pinpoint specific explanations.

For instance, MacDorman and colleagues (2016) show that maternal mortality rates of specific states tell different stories; for example, California has gradually improved while Texas's MMR doubled within two years between 2010 and 2012. Moaddab et al (2016) attributes the inter-state difference to racial composition differences among states, as well as different proportions of unmarried parents with unplanned pregnancies. However, the underlying pathways and institutions behind this between state variation requires further analysis. This study seeks to move beyond essentialist racial explanations and examine the broader structural and sociopolitical factors influencing maternal mortality through an intersectional framework that examines and compares state contexts rather than focusing on a less nuanced national or single state context.

While scholars of population have long sought to understand patterns in mortality and mortality transitions (e.g. Omran 1971; Horiuchi 1999), and some included specifically infant mortality (e.g. Ewbank and Preston 1990; Caldwell 1986), these frameworks do not address maternal mortality. We argue that the role of racism and sexism must be examined, as well as maternal mortality on its own as a crucial indicator because both gender and race frame (see Ridgeway 2009) our experiences of society. These frames provide cues to institutions and organizations, mutating how they work based on the information imbedded in the social structure of U.S. society. While infant mortality points to embodied structural problems that involve women and women's bodies, studying infant mortality trends does not fully explicate the mechanisms undergirding widespread maternal deaths. Infants do not emerge from "floating wombs," but rather from bodies which bear the brunt of structural inequalities, such as racism and sexism (Geronimus 1992).

Work in intersectionality points to the concurrent—and often compounding—impact of gender and race (Collins 1995, 2002; Crenshaw 1991). In regard to health outcomes in particular, research similarly points to the simultaneous structuring of race and gender in the production and maintenance of health (Warner & Brown 2011; Schulz & Mullings 2006). Using an intersectional theoretical approach grounded in structural inequality (Thornton & Zambrana 2009), this can be explained by the strong impact of one's gender and race on access to resources which promote health and exposure to risks that undermine health. The effects of gender and race on divergent health outcomes cannot be disaggregated or understood separately (Warner & Brown 2011). Instead, these markers must be understood as mutually defining the production

and maintenance of health across the life course (Warner & Brown 2011; Mullings & Schulz 2006). In fact, Warner and Brown (2011) conducted a study that supports an intersectional approach on health, by examining the joint impacts of race and health on the development of functional limitations. Conducting their analysis through an intersectional approach, they found that race and gender combine to construct worse functional limitation trajectories for non-white women, relative to white women and men. This study adds to the growing literature which considers health trajectories through an intersectional approach, by looking at maternal mortality as a simultaneously gendered and racialized outcome. By interrogating the striking disparity in maternal mortality between white, black, and latinx American women, we can analyze the joint impact of racism and sexism on the body.

This study fills several critical gaps in the literature by approaching maternal mortality through an intersectional framework and analyzing the impact of racial composition and state context on maternal mortality rates. This study then goes one step further to examine the role of racial and gender inequality—in the form of state health policies—on these divergent interstate maternal mortality outcomes. These analyses allow for a more comprehensive view of maternal mortality and the way race and gender inequality, both independently and concurrently, shape health and life trajectories.

Demographic Transitions and State Policies

In his study of nations and one state with high life expectancy and low infant mortality rates relative to level of income, Caldwell (1986) identified overarching sociopolitical similarities among the 3 highest ranked regions. These are: autonomy for women, emphasis on education, the lack of a rigid class structure, an open political system, and a history of egalitarianism and radicalism. Meanwhile, McLanahan (2004) identifies two trajectories after the 1960's sexual and cultural revolutions, which gave rise to new birth control technologies, women's empowerment, delay of marriage and fertility, new labor market opportunities for women, and welfare-state policies. Since this wave of change, women follow one of two main trajectories: delaying childbearing and experiencing an increase in employment and resources or achieving nonmarital or divorced childrearing and consequently decreased employment and resources. McLanahan theorizes that these divergent trajectories lead to the widening of social class disparities in women's and children's resources. Bringing to bear Caldwell's discussion of sociopolitical predictors of strong health achievements with McClanahan's framework of women's divergent trajectories can be particularly potent in a discussion of maternal mortality. Using these frameworks in tandem, one can interrogate how a state's sociopolitical landscape propagates two trajectories: one where women's maternal and perinatal health outcomes manifest a state's value of women's rights, and another where a state's negligence of women leads to worsening outcomes and increased maternal deaths.

In this analysis, we operationalize a state's value of women rights vis-à-vis state policies toward abortion. There is a documented relationship between nonrestrictive abortion policies and positive health outcomes for women (e.g. Habbad & Nour 2009; Jewkes, et al 2005). In fact, international organizations list safe abortion access as one of three primary modes of reducing maternal mortality, along with accessible family planning services and antepartum care (Nour 2008). This association between liberal abortion policies and women's health outcomes is twofold. First, there is a high morbidity and mortality associated with unsafe abortions outside of the health system, which have been shown to increase in regions with restrictive laws (Grimes, Benson, Singh, et al. 2006). Approximately one third of all pregnancies are unintended, and 1 in 5 pregnancies ends in abortion worldwide, underscoring the importance of accessible, safe

abortion options. Additionally, experts agree that abortion overall is safer than pregnancy and childbirth, particularly for women of color and of lower socioeconomic status, for whom pregnancy and childbirth are the riskiest (Raymond & Grimes 2012; Grimes 2006; Petitti & Cates 1977). In fact, abortion within the medical system is 14 times safer than childbirth in the United States (Raymond & Grimes 2012). As such, areas in which abortion is inaccessible for all women endangers the health of women in highly preventable ways.

A major limitation for the literature on abortion laws and maternal mortality is its focus on "developing nations," particularly as a contrast to Europe, where abortion is widely legal and available (Habbad & Nour 2009). A critical look at the association between restrictive abortion access and maternal mortality is crucial within the United States, a country with stark variation in policies from state to state. While some states, such as Delaware, Illinois, and New York are expanding access to family planning—including abortion provision—other states, such as Mississippi and West Virginia, actively limit abortion provision and other family planning through a series of targeted legislation, bureaucratic obstacles, and abortion bans (Nash et al 2017). Thus, there is wide variation among states in regard to access to reproductive healthcare, from highly hostile to supportive, in a way that is often overlooked in this literature. It is particularly important in the United States context, given the important role that specialized reproductive health providers have in American healthcare—a system with myriad gaps in provision (Frost et al 2012). Specialized reproductive health centers are especially needed to fill gaps for low income women and rural areas. For instance, 56% of Planned Parenthood health centers are in medically underserved or rural areas, and 35% of its patients are Black or Latino, while 75% have incomes at or below 150% of the federal poverty level. Additionally, 60% of Planned Parenthood patients access care through Medicaid and or the Title X family planning program (Frost et al 2012; Planned Parenthood Federation of America 2017).

Given the gaps in the literature, we will examine the social topography of maternal mortality in the United States while accounting for state policies toward abortion services as a proxy of access to reproductive healthcare and state support of women's health. Given the unique healthcare system in the United States, we also account for Medicaid expansion or restriction, in order to account for the impact of socioeconomic status on access to reproductive healthcare. Additionally, we compare rates between black and white women—for whom there is a documented disparity in maternal health outcomes. However, t is crucial to incorporate the literature on race, gender, and health trajectories to fully inform this demographic phenomenon with a critical examination of gendered racial disparities. In the following pages, I review the literature on how race and gender shape health trajectories. I then identify one particularly insidious way race and gender discrimination impacts health: discrimination in the healthcare system itself. Bringing to bare literature on race, gender, health, and discrimination sets up a robust theoretical foundation on which to build a study on race and maternal mortality in the context of reproductive healthcare inequities.

Racialized and Gendered Health Outcomes

Race and health scholars have established persistent racial health disparities in the United States (Monk 2015; Williams et al. 2012; Williams & Sternthal 2010). Within this stratified system of health and illness, Black Americans have consistently exhibited the worst health outcomes—suffering on nearly every health measure, relative to White Americans (Dressler et al 2005) as well as higher rates of overall mortality (Williams & Mohammed 2013). The severity of this inequality is evident in the fact that it was not until the year 1990 that black Americans

attained the life expectancy whites achieved in the year 1950 (Williams 2012). Myriad theories have been put forth to explain these racialized health outcomes; while many scholars emphasize racialized socioeconomic disadvantages as the primary health indicator (e.g. Yao &Robert 2008), others point to unequal and cumulative exposure to stressors and discrimination (Brown 2003; Williams & Mohammed 2009) which cause "weathering" on the body (Geronimus 1992). Further, many scholars point to unequal distribution of resources—including education, income, and wealth (e.g. Dupre 2007; Mirowsky & Hu 1996; Wilson et al 2007)—which shape health by influencing individual health behaviors and access to healthcare and nutritious foods. However, other studies (e.g. Brown et al 2012) challenge these longstanding claims that resources and behaviors produce these racial health disparities; after adjusting for childhood socioeconomic status, Brown and colleagues (2012) found that adult social and economic resources and health behaviors did not fully explain the racial disparities in health outcomes.

Given this lapse in explanation, some recent scholarship examines the role of racialized embodiment on health outcomes through a look on the impact of skin tone on discrimination and health (Monk 2015). Discrimination is a function of stigmatization—a "fundamental cause" of health (Phelan et al 2010), which more broadly encompasses labeling, stereotyping, social exclusion, and status loss. Social psychologists demonstrate that in interpersonal scenarios, the classification of superordinate categories of race and sex occurs swiftly (e.g. Ito & Urland 2003), and often subconsciously (Bargh et al 2012; Monk 2015). Accordingly, these socially constructed superordinate categories signal to various stereotypes which shape and constrain social interactions and often perpetuate macro-level social inequalities (Monk 2015; Fiske 2000; Macrae and Bodenhausen 2001). Due to this process of labeling and stereotyping, small increases in the darkness of individuals' skin tone is associated with an increase in the odds of reporting more skin color discrimination—both in terms of self-reported and secondarily rated skin tone (Monk 2015). Cumulatively throughout the life course, these instances of discrimination produce divergent health pathways based on skin tone (Monk 2015). In order to try to mitigate the external ascription of racialized stigma, it is a longstanding strategy for black Americans to engage in "impression management" (Brooks 1993). However, Lee & Hicken (2016) find that these dramaturgical acts themselves also come with its own set of health consequences. As such, we can understand racial labeling and discrimination to be a constant, and often inescapable, predictor of stratified outcomes in mental and physical health.

In addition to race/ethnicity, gender is also considered a key dimension of social stratification with established health outcomes (Warner & Brown 2011). More specifically, though women generally live longer lives than men, they are more likely to suffer from chronic health problems and have several comorbidities (Warner & Brown 2011; Laditka & Laditka, 2002; Newman & Brach, 2001; Verbrugge, 1989). Consequently, scholars continuously demonstrate the link between being a woman and spending significantly more years of life with functional limitations and disabilities (Warner & Brown 2011; Laditka & Laditka, 2002; Read & Gorman 2006). Further, a few scholars have found a link between gender inequality in social and economic arrangements on the health of women—in addition to men and children (Chen et al., 2005; Kawachi et al., 1999; Koenen et al., 2006).

How Much Does It Actually Hurt? Medicalized Racism and Sexism

The observed macrolevel patterns of racialized health inequality are often exacerbated by instances of interpersonal discrimination. An insidious form of such discrimination—with substantial health consequences—is between a medical professional and a patient. As aforementioned, the process of labeling and stereotyping based on race, gender, and other

superordinate categories is extremely quick and often unconscious (Ito & Urland 2003; Bargh et al 2010). Since medical professionals are not impervious to broader social influences, we can infer that they, too, involuntarily—and at times voluntarily—engage in racialized and gendered stereotyping and discrimination when interacting with patients. This inference has been empirically demonstrated by the racialized and gendered patterns in medical diagnosis and treatment. For instance, a growing body of research indicates that the pain of black patients is likely to be underestimated and undertreated, relative to white patients (Anderson et al. 2009; Bonham 2001; Clintron & Morrison 2006). This racialized pattern is manifest in the prescription of pain medications for myriad ailments; for example, in the emergency room, black patients are significantly less likely than white patients to receive analgesics for fractures (Todd et al. 2000). The disparity is present among children as well; Goyal and colleagues (2015) found that black children with appendicitis are less likely to receive pain medication for moderate or severe pain, relative to white children. Recently, Hoffman and colleagues (2016) found that these racialized patterns in pain assessment and treatment recommendations are rooted in false beliefs about biological differences between blacks and whites. These beliefs include "blacks have denser, stronger bones," and "blacks have thicker skin." As this corpus of research indicates, racist beliefs have serious implications on the treatment of black patients within the medical system.

Scholars have separately examined the impact of gender biases on medical treatment, particularly in the context of pain assessment and management (e.g. Samulowitz et al 2018). In a review of the literature on men and women's pain, Samulowitz and colleagues (2018) find that a variety of gendered norms influence professional's treatment decisions. This includes notions of "hysterical" or hyper-sensitive women (e.g. Barsky et al 2001; Hoffman & Tarzian 2001; Barker 2011) and a pervasive belief that women can handle more pain due to menstruation and childbirth (Bernades et al 2008; Barsky et al 2001; Dao & Leresche 2000; Smitherman & Ward 2011). This gendered phenomenon within the medical sphere is often called the "Yentl Syndome," which refers to the overall less aggressive medical treatment of women in their initial encounters with the healthcare system until they prove they are "as sick as male patients" (Hoffman & Tarzian 2001). Accordingly, a recent study found that women with heart attack symptoms, on average wait 3 minutes longer to receive an initial EKG, and 7 minutes longer to receive treatment (Choi et al. 2016). Similarly, McCaffery and Ferrell (1992) found that a sample of nurses endorsed beliefs about differences in women's pain sensitivity and tolerance and planned significantly different pain treatments for women. Though more research is needed, such findings indicate significant gender biases in healthcare with substantial impacts in the diagnosis and treatment of men and women.

Though these bodies of work treat gender and race separately, intersectionality scholars point to the concurrent—and often compounding—impact of gender and race (Collins 1995, 2002; Crenshaw 1991). In regard to health outcomes in particular, research similarly points to the simultaneous structuring of race and gender in the production and maintenance of health (Warner & Brown 2011; Schulz & Mullings 2006). Using an intersectional theoretical approach grounded in structural inequality (Thornton et al. 2009), this can be explained by the strong impact of one's gender and race on access to resources which promote health and exposure to risks that undermine health. The effects of gender and race on divergent health outcomes cannot be disaggregated or understood separately (Warner & Brown 2011). Instead, these demographic markers must be understood as mutually defining the production and maintenance of health across the life course (Warner & Brown 2011; Mullings & Schulz 2006). In fact, Warner and Brown (2011) conducted a study that supports an intersectional approach on health, by

examining the joint impacts of race and health on the development of functional limitations. Conducting their analysis through an intersectional approach, they found that race and gender combine to construct worse functional limitation trajectories for non-white women, relative to white women and men. This study adds to the growing literature which considers health trajectories through an intersectional approach, by looking at maternal mortality as a simultaneously gendered and racialized outcome. By interrogating the striking disparity in maternal mortality between white and black American women, we can analyze the joint impact of racism and sexism on the body.

This study fills several critical gaps in the literature by approaching maternal mortality through an intersectional framework and analyzing the impact of reproductive healthcare legislation on maternal mortality rates. This study then goes one step further to examine the role of race on these divergent interstate maternal mortality outcomes. These analyses allow for a more comprehensive view of maternal mortality and the way race, gender, and class inequality, both independently and concurrently, shape health and life trajectories. In the following section, we will describe the data and methodology we used, followed by an overview of the results.

DATA AND METHODS

We made use of data provided by the Centers for Disease Control and Prevention's (CDC) tool for dissemination public health data and information regarding the U.S., CDC Wonder. Specifically, we used the Multiple Causes of Death Database (CDC 2018) and the Natality Database (US DHHS 2018) to study the maternal mortality of two groups, Non-Latina black women and Non-Latina white women. The death database provided age-specific information on the overall deaths during the period of study, 2016-2017, and also the deaths due to causes related to childbirth. We used ages 15 to 50 as our range for childbearing years. The natality database provided information about the births in 2016 and 2017 by the age of the mother. In addition we made use of a map from the Guttmacher Institute (2018) that classified each state in the U.S. by their level of support in 2017 regarding abortion rights. The Guttmacher map contained four levels of support: extremely hostile, hostile, neutral, and supportive. We operationalized this as an indicator of level of support for women's health at the state level. For our analyses, we examined maternal mortality for the nation, and then states classified as *supportive*[1] abortion rights and states classified as *extremely hostile*[2] with respect to abortion rights. Each of the databases allowed us to restrict our data requests to the groups of states, but also provided information for the entire nation.

We used a variety of measures to describe the differences in maternal mortality. We examined the overall life expectancy for the groups of interest (we calculated abridged 2016-2017 life tables). In addition, we provided descriptive characteristics based on life tables including, the proportion of the population in childbearing years, the proportion of deaths during childbearing years, the probability of a female newborn to survive to age 50, the number of years a female newborn can expect to live during childbearing years, the probability of surviving childbearing years, the maternal mortality ratio, and the reproductive maternal mortality ratio.

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[1] There were 12 supportive states: California, Connecticut, Hawaii, Maine, Maryland, Montana, New Jersey, New Mexico, New York, Oregon, Vermont, and Washington.

[2] There were 23 extremely hostile states: Alabama, Arizona, Arkansas, Florida, Indiana, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, and Wisconsin.

The maternal mortality ratio is a ratio of the number of deaths from maternity related causes to the number of live births. Because we wanted to hone in on the issue of the replacement of females, we also estimated the maternal mortality ratio with female live births only. We called this the reproductive maternal mortality ratio. While measures such as the proportion of deaths due to maternal mortality, maternal mortality ratios, and reproductive ratios helped us understand a piece of the picture, we also calculated each of these for the seven five-year age groups that represent the childbearing years. Each of these calculations was done by race and level of support towards women's health.

RESULTS
Overview

Table 1 provides an overview of the general landscape of maternal mortality in the U.S. during the period studied, 2016-2017. For the U.S., the life expectancy of black women was 78.7 and it was 81.2 for white women. The black population had a larger proportion of women in their childbearing years than white women, and the proportion of deaths during the childbearing years was more than twice as high for black women than white women. Further the maternal mortality ratio was about 83% higher for black women than white women.

One of the issues we sought to make clear in this paper was the role of health care policies in maternal mortality. To that end, we examined two groups of states – states we operationalized as supportive of health care policy (based on data from Guttmacher Institute) pertinent to women and states that we operationalized as hostile. The life expectancy was higher for both races in the supportive state-groups than the hostile state-groups, and the maternal mortality ratio was much higher for both racial groups in the hostile state-groups. Other measures showed small differences between the groups. However, this first table does not factor in the age distribution of women giving birth. Certainly, the risk of death to something related to childbirth is different by age, and we would expect that the oldest ages have a higher risk of death. For this reason, the remainder of our analyses examine the differences by age.

Differences by Space and Race

Table 2 provides the most salient finding based on our analysis of state-groups supportive of women's health versus state-groups deemed as hostile. Both maternal mortality ratio measures for white women was less than one for each age group. Black women, on the other hand, did not share the same fate. The younger age groups, specifically women aged 20-29 who represent the ages where black women are most likely to give birth, carried a penalty in the hostile state-groups.

Figures 2 and 3 depict the relative differences between black and white women in the proportion of deaths due to birth related causes and the reproductive maternity mortality ratio, which we calculated the black to white ratios. A ratio greater than one means that the measure is higher for black women, and a ratio less than one indicates that the measure is lower for black women. In each of these comparisons we controlled for age group and state-group.

With respect to relative differences in the proportion of maternal deaths, there was great variation by age. In general, we saw a larger relative difference between racial groups in the supportive state-groups than the hostile state-groups. This is not the case for women aged 15-19 and 40-44. The highest difference between white and black women occurs in supportive state-groups with women aged 25 to 30, which is the age-group where we see the highest

concentration of births. For both racial groups, about 30 percent of the live births during 2016 and 2017 were born to women in this age group. Perhaps this larger gap is indicative of another phenomenon we typically see in states with supportive policies regarding women's health. We find better health policies in spaces characterized by income inequality by race.

Similar to the proportion of maternal deaths, we found higher relative differences between black and white women in the supportive group states. Here, we also discovered a more pronounced visual theme, where the relative difference by race gradually increase by age-group, peaking with women ages 25-29 for supportive state-groups and the 30-34 age-group with the hostile states, followed by a decline. Again, this may be indicative of differences in socioeconomic status by race. Perhaps women giving birth at later ages have similar resources by race; however, black women still incur a penalty in maternal and infant mortality that we continue to try to uncover.

TABLES AND FIGURES

Table 1. Characteristics of Mortality of Women by Race and Stance on Women's Health, 2016-2017

	All States		Supportive Towards Women's Health		Hostile Towards Women's Health	
	Black	White	Black	White	Black	White
Life Expectancy at birth	78.69	81.21	80.54	82.45	78.01	80.48
Proportion of population in childbearing years	0.486	0.417	0.481	0.412	0.486	0.417
Proportion of deaths during childbearing years	0.102	0.048	0.090	0.038	0.106	0.053
Probability of a newborn surviving to 50	0.934	0.953	0.944	0.963	0.923	0.948
Number of years newborn can expect to live during childbearing years	33.94	34.31	34.15	34.46	33.87	34.34
Probability of surviving childbearing years	0.946	0.960	0.954	0.968	0.942	0.955
Maternal Mortality Ratio (per 100,000)	82.4	44.8	69.5	31.3	82.0	51.3
Reproductive Maternal Mortality Ratio (per 100,000)	168.3	91.7	142.0	64.3	167.0	105.2

Source: *Authors' Calculation using data from National Center for Health Statistics*

Figure 1. Proportion of Deaths Due to Maternal Mortality by Race, 2016-2017
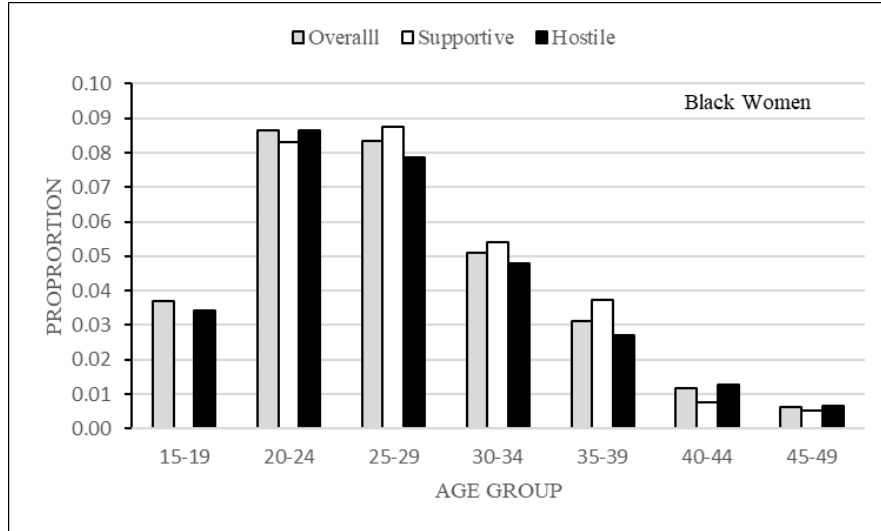
Figure 1a. Non-Latina Black Women
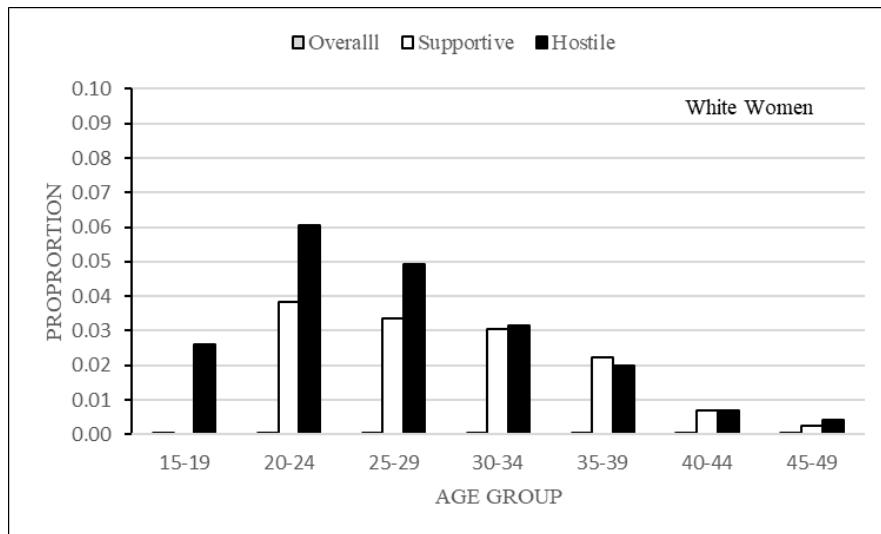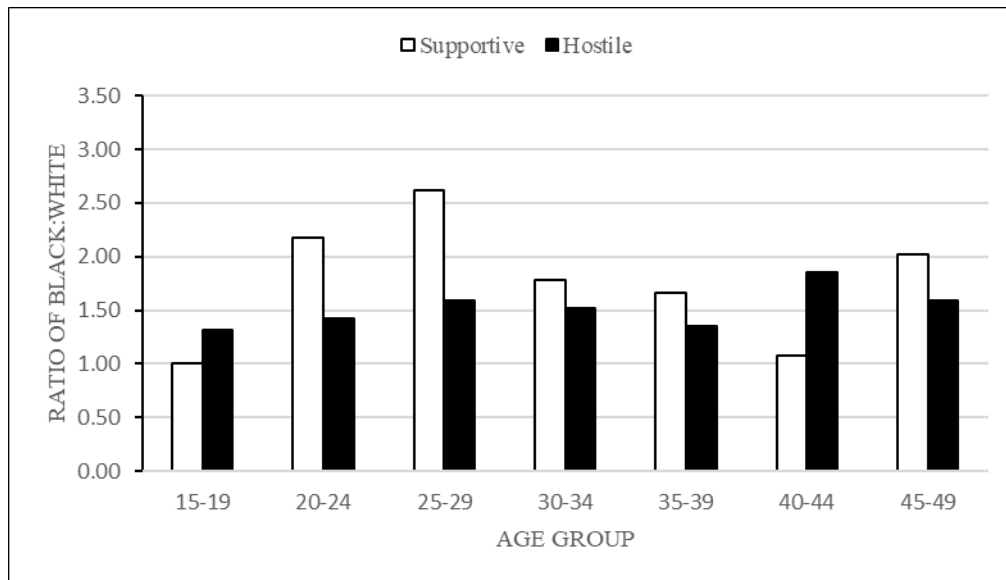

Figure 1b. Non-Latina White Women

Table 2. Age-Specific Proportion of Maternal Deaths, Maternal Mortality Ratio, and Reproductive Maternal Mortality Ratio by Level of States Support for Women's Health

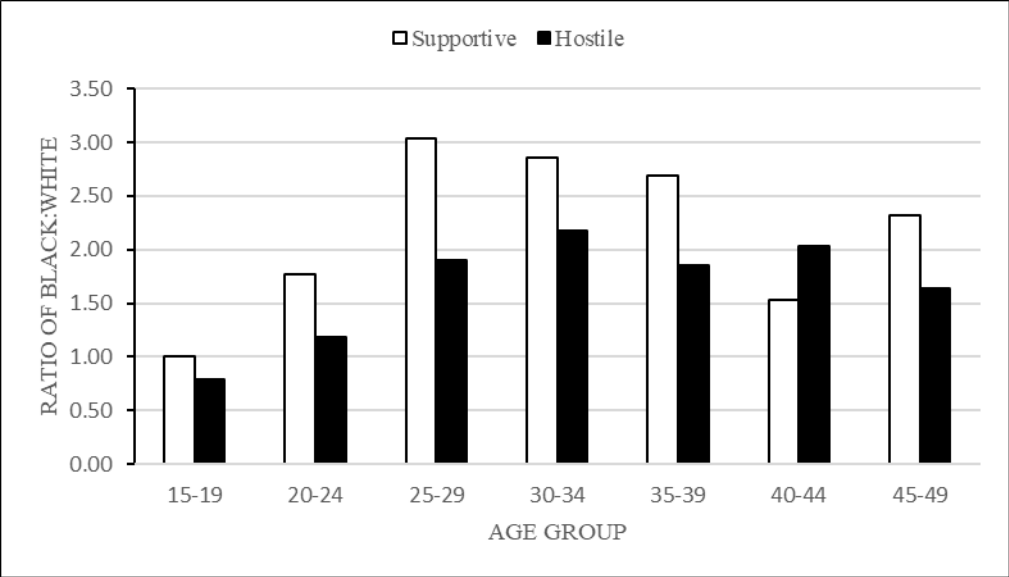|	Supportive Towards Women's Health		Hostile Towards Women's Health		Ratio of Supportive:Hostile	
	Black	White	Black	White	Black	White
Maternal Mortality Ratio (per 100,000)						
Ages 15-19	0.00	0.00	41.55	52.25	0.00	0.00
Ages 20-24	68.31	38.10	58.72	48.94	1.16	0.78
Ages 25-29	79.01	25.87	73.60	38.13	1.07	0.68
Ages 30-34	66.54	23.00	79.83	36.15	0.83	0.64
Ages 35-39	101.42	37.47	127.60	67.98	0.79	0.55
Ages 40-44	109.78	70.93	360.89	176.94	0.30	0.40
Ages 45-49	1,245.75	535.77	3,939.39	2,447.44	0.32	0.22
Overall (Ages 15-50)	78.64	31.61	84.60	50.46	0.93	0.63
Reproductive Maternal Mortality Ratio (per 100,000)						
Ages 15-19	0.00	0.00	84.46	107.49	0.00	0.00
Ages 20-24	138.41	78.39	119.50	100.45	1.16	0.78
Ages 25-29	161.13	53.09	149.37	78.49	1.08	0.68
Ages 30-34	135.07	47.30	161.57	74.25	0.84	0.64
Ages 35-39	207.10	76.95	258.91	139.34	0.80	0.55
Ages 40-44	220.31	143.81	729.93	359.56	0.30	0.40
Ages 45-49	2,522.94	1,089.74	8,227.85	5,006.42	0.31	0.22
Overall (Ages 15-50)	159.87	64.93	171.75	103.65	0.93	0.63
Proportion of Maternal Deaths						
Ages 15-19	0.000	0.000	0.034	0.026	0.00	0.00
Ages 20-24	0.083	0.038	0.087	0.061	0.96	0.63
Ages 25-29	0.088	0.033	0.079	0.049	1.11	0.68
Ages 30-34	0.054	0.030	0.048	0.032	1.13	0.96
Ages 35-39	0.037	0.022	0.027	0.020	1.38	1.12
Ages 40-44	0.008	0.007	0.013	0.007	0.59	1.01
Ages 45-49	0.005	0.003	0.006	0.004	0.79	0.62
Overall (Ages 15-50)	0.028	0.015	0.030	0.019	0.94	0.79

Source: Authors' Calculation using data from the National Center for Health Statistics

Figure 2. Relative Difference in Proportion of Deaths from Maternity Related Causes by Age Group, 2016-2017

Figure 3. Relative Difference in Reproductive Maternity Mortality Ratio by Age Group, 2016-2017

REFERENCES

"Racial Bias in Pain Assessment and Treatment Recommendations, and False Beliefs About Biological Differences Between Blacks and Whites." PNAS 113 (16) 4296-4301.

Airhihenbuwa, Collins O. and Leandris Liburd. 2006. "Eliminating Health Disparities in the African American Population: The Interface of Culture, Gender, and Power." Health Education & Behavior. Vol. 33 (4): 488-501

"AFRICAN-AMERICAN LEGISLATORS 2009." 2008. NCSL: National Conference on State Legislatures.

Alkema, Leontine et al. 2016. "National, Regional, and Global Levels and Trends in Maternal Mortality between 1990 and 2015 with Scenario-Based Projections to 2030: A Systematic Analysis by the United Nations Maternal Mortality Estimation Inter-Agency Group." *Lancet (London, England)* 387.10017: 462–474. *PMC*.

Alvarez JL, Gil R, Hernandez V, Gil A. 2009. "Factors associated with maternal mortality in Sub-Saharan Africa: an ecological study." *BMC Public Health*: 9:462

Bargh, John A., Kay L. Schwader, Sarah E. Hailey, Rebecca L. Dyer, and Erica J. Boothby. 2012. "Automaticity in Social-Cognitive Processes." Trends in Cognitive Sciences 16 (12): 593–605.

Berer M. "Making abortions safe: a matter of good public health policy and practice." 2000. *Bull World Health Organization*: 78:580–592.

Braude, A., 1994. Evelyn Brooks Higginbotham. Righteous Discontent: The Women's Movement in the Black Baptist Church, 1880–1920. Cambridge: Harvard University Press

Brown, Tyson H., Angela M. O'Rand, and Daniel E. Adkins. 2012. "Race-Ethnicity and Health Trajectories: Tests of Three Hypotheses across Multiple Groups and Health Outcomes." Journal of Health and Social Behavior. 53 (3): 359- 377

Caldwell, John C. 1986. "Routes to Low Mortality in Poor Countries." Population and Development Review 12(2): 171-220.

Campbell, O. M., Graham, W. J., & Lancet Maternal Survival Series steering group. (2006). Strategies for reducing maternal mortality: getting on with what works. *The Lancet*, *368*(9543), 1284-1299.

Casagrande, Sarah S., Tiffany L. Gary, Thomas A. LaVeist, Darrell J. Gaskin, and Lisa A. Cooper. 2007. "Perceived Descrimination and Adherance to Medical Care in a Racially Integrated Community." Journal of General Internal Medicine. 22(3): 389-395

Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2017 on CDC WONDER Online Database, released December, 2018. Data are from the Multiple Cause of Death Files, 1999-2017, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program.

Choi et al., 2016. American Journal of Emergency Medicine. 2016; EPub ahead of print.

Clark, Rob and B. Mitchell Peck. 2012. "Examining the Gender Gap in Life Expectancy: A Cross-Cultural Analysis, 1980-2005." Social Science Quarterly. 93(3):820-827.

Collins, Patricia Hill. 2015. "Intersectionality's Definitional Dilemmas." Annual Review of Sociology 41:1-20.

Cook, R. J., Dickens, B. M., & Bliss, L. E. (1999). International developments in abortion law from 1988 to 1998. *American journal of public health*, *89*(4), 579-586.

Crenshaw, Kimberle. 1991. "Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color." Stanford Law Review 43(6):1241-1299.

Dressler, William W., Kathryn S. Oths and Clarence C. Gravlee. 2005. "Race and Ethnicity in Public Health Research: Models to Explain Health Disparities."Annual Review of Anthropology 34:231-252.

Dupre, M. E. 2007. Educational differences in age-related patterns of disease: reconsidering the cumulative disadvantage and age-as-leveler hypotheses. Journal of Health and Social Behavior, 48(1), 1-15.

Fiske, Susan T. 2000. "Stereotyping, Prejudice, and Discrimination at the Seam between the Centuries: Evolution, Culture, Mind, and Brain." European Journal of Social Psychology 30:299–322.

Frost, Jennifer J. et al. 2012. Specialized Family Planning Clinics in the United States: Why Women Choose Them and Their Role in Meeting Women's Health Care Needs. Women's Health Issues , Volume 22 , Issue 6 , e519 - e525

GBD 2015 Maternal Mortality Collaborators. (2016). Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet (London, England)*, *388*(10053), 1775–1812.

Geronimus, A.T., 1992. "The weathering hypothesis and the health of African-American women and infants: evidence and speculations." Ethnicity & disease, 2(3), pp.207-221.

Grimes DA, Benson J, Singh S, Romero M, Ganatra B, et al. Unsafe abortion: the preventable pandemic. Lancet. 2006; 368:1908–1919.

Goffman, D., Madden, R. C., Harrison, E. A., Merkatz, I. R., & Chazotte, C. (2007). Predictors of maternal mortality and near-miss maternal morbidity. *Journal of Perinatology*, *27*(10), 597.

Gupta, Nidhi and Nicole T. Carr. 2000. "Understanding the Patient-Physician Interaction: Potential for Reducing Health Disparities." Journal of Applied Social Science, 2(2): 54-65.

Guttmacher Institute. 2018. "29 states were hostile or extremely hostile to abortion rights in 2017, only 12 supportive." Retrieved March 18, 2019 (gu.tt/statetrends2017).

Haddad, L. B., & Nour, N. M. (2009). Unsafe abortion: unnecessary maternal mortality. *Reviews in obstetrics & gynecology*, *2*(2), 122-6.

Hadley, J. (2003). Sicker and Poorer—The Consequences of Being Uninsured: A Review of the Research on the Relationship between Health Insurance, Medical Care Use, Health, Work, and Income. *Medical Care Research and Review*, *60*(2_suppl), 3S-75S.

Hoffmann, Diane E. and Tarzian, Anita J., The Girl Who Cried Pain: A Bias Against Women in the Treatment of Pain (2001). Journal of Law, Medicine & Ethics, Vol. 29, pp. 13-27, 2001.

Hoffman, Kelly M., Sophie Trawalter, Jordan R. Axt, and M. Norman Oliver. 2016.

Homan, Patricia, 2017. Political gender inequality and infant mortality in the United States, 1990–2012. Social Science & Medicine, 182, pp.127-135.

Ito, T. A., and G. R. Urland. 2003. "Race and Gender on the Brain: Electrocortical Measures of Attention to the Race and Gender of Multiply Categorizable Individuals." Journal of Personality and Social Psychology 85:616−626.

Jewkes R, Rees H, Dickson K, et al. The impact of age on the epidemiology of incomplete abortion in South Africa after legislative change. BJOG. 2005;112:355–359.

Kassebaum, Nicholas J et al.2015. Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study. *The Lancet*: (388, 10053) *pp* 1775 – 1812

Koch, Elard et al. 2012. "Women's Education Level, Maternal Health Facilities, Abortion Legislation and Maternal Deaths: A Natural Experiment in Chile from 1957 to 2007." Ed. Philippa Middleton. *PLoS ONE* 7.5: e36613. *PMC*. Web. 20 Nov. 2017.

Koroukian, S. M. (2004). Relative risk of postpartum complications in the Ohio Medicaid population: vaginal versus cesarean delivery. *Medical Care Research and Review*, *61*(2), 203-224.

Lee, Hedwig and Margaret Tikako Hicken. 2016. "Death by a Thousand Cuts: The Health Implications of Black Respectability Politics." Souls: A Critical Journal of Black Politics, Culture, and Society 18:421-445.

MacDorman, Marian F, Eugene Declerq, Howard Cabral, and Christine Morton. 2016. "Is the United States Maternal Mortality Rate Increasing? Disentangling Trends from Measurement Issues." *Obstetrics and Gynecology* 128(3):447-455.

Macrae, C. Neil, and Galen V. Bodenhausen. 2001. "Social Cognition: Categorical Person Perception." British Journal of Psychology 92:239–55.

Martin, Nina and Renee Montagne. 2017 "U.S. Has the Worst Rate of Maternal Deaths in the Developed World." *NPR*.

McAlister C, Baskett TF. 2006. "Female education and maternal mortality: a worldwide survey. *Journal of Obstetrics Gynecology*: 28:983–990.

McLanahan, Sara. 2004. "Diverging Destinies: Children and the Second Demographic Transition." Demography. 41: 607-627.

Mirowsky, John and Paul N. Hu. 1996. "Physical impairment and the diminishing effects of income." Social Forces, 74(3), pp.1073-1096.

Moaddab, A., GA Dildy, HL Brown, ZH Bateni, MA Belfort, H Sangi-Haghpeykar, and SL Clark. 2016. "Health Care Disparity and State-Specific Pregnancy Related Mortality in the United States 2005-2014." *Obstetrics and Gynecology* 128(4):869-75.

Monk, Ellis P. 2015. "The Cost of Color: Skin Color, Discrimination, and Health among African-Americans." American Journal of Sociology 121(2): 396-444.

Moss, N., & Carver, K. (1998). The effect of WIC and Medicaid on infant mortality in the United States. *American journal of public health*, *88*(9), 1354-1361.

Nour N. M. (2008). An introduction to maternal mortality. *Reviews in obstetrics & gynecology*, *1*(2), 77-81.

OECD health statistics. 2015. *Organization for Economic Cooperation and Development*.

Permanyer, Iñaki. 2010. "The measurement of Multidimensional Gender Inequality: Continuing the Debate." *Social Indicators Research*. 95 (2): 181-198.

Petitti, D. B., & Cates Jr, W. (1977). Restricting medicaid funds for abortions: projections of excess mortality for women for childbearing age. *American journal of public health*, *67*(9), 860-862.

Phelan, J. C., B. G. Link, and P. Tehranifar. 2010. "Social Conditions as Fundamental Causes of Health Inequalities: Theory, Evidence, and Policy Implications." Journal of Health and Social Behavior. 51:S28–S40.

Raymond, E. G., & Grimes, D. A. (2012). The comparative safety of legal induced abortion and childbirth in the United States. *Obstetrics & Gynecology*, *119*(2), 215-219.

Rhode, Nicholas and Ross Guest. 2013. "Multidimensional Racial Inequality in the United States." *Social Indicators Research*. 114(2): 591-605.

Rosen, J. D. (2012). The public health risks of crisis pregnancy centers. Perspectives on sexual and reproductive health, 44(3), 201-205.

Samulowitz, Anke, Ida Gremyr, Erik Eriksson, and Gunnel Hensing. 2018. "'Brave men' and 'emotional women': A Theory-Guided Literature Review on Gender Bias in Health Care and Gendered Norms Toward Patients with Chronic Pain." Pain Research and Management.

Schulz, Amy J. and Leith Mullings. 2006. Gender, Race, Class, and Health: Intersectional Approaches. San Francisco, CA: Jossey-Ba

Simkhada B, Teijlingen ER, Porter M, Simkhada P. 2008. "Factors affecting the utilization of antenatal care in developing countries: systematic review of the literature." Journal of Advanced Nursing: 61:244–260.

Singh K, Ratnam SS. 1998. "The influence of abortion legislation on maternal mortality." International Journal Gynecology and Obstetrics: 63(Suppl 1):S123–129.

Thornton Dill, B., & Zambrana, R. E. (2009). Critical thinking about inequality: an emerging lens. In B. Thornton Dill, & R. E. Zambrana (Eds.), Emerging intersections: Race, class, and gender in theory, policy, and practice (pp. 1e21). Piscataway, NJ: Rutgers University Press.

United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Division of Vital Statistics, Natality public-use data 2007-2017, on CDC WONDER Online Database, October 2018.

Warner, David F., and Tyson H. Brown. 2011. "Understanding how race/ethnicity and gender define age-trajectories of disability: An intersectionality approach." Social Science & Medicine 72:1236-1248.

Williams, David R., and Michelle Sternthal. 2010. "Understanding Racial-Ethnic Disparities in Health: Sociological Contributions." Journal of Health and Social Behavior. 51:S15–S27.

Williams, David R., Dolly A. John, Daphna Oyserman, John Sonnega, Selina A. Mohammed, and James S. Jackson. 2012. "Research on Discrimination and Health: An Exploratory Study of Unresolved Conceptual and Measurement Issues." American Journal of Public Health 102:975–78.

Williams, David R., and Selina A. Mohammed. 2009. "Discrimination and Racial Disparities in Health: Evidence and Needed Research." Journal of Behavioral Medicine 32:20–47.

———. 2013. "Racism and Health I: Pathways and Scientific Evidence." American Behavioral Scientist 57 (8): 1152–73.

Williams, David R., Selina A. Mohammed, Jacinta Leavell, and Chiquita Collins. 2010. "Race, Socioeconomic Status, and Health: Complexities, Ongoing Challenges, and Research Opportunities." Annals of the New York Academy of Sciences 1186:69–101.

World Health Organization, Department of Reproductive Health and Research. 2007. "Unsafe abortion: global and regional estimates of incidence of unsafe abortion and associated mortality in 2003."

Zureick-Brown, Sarah et al. "Understanding Global Trends in Maternal Mortality." 2013. International perspectives on sexual and reproductive health 39.1.