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What's Medical School Got to Do with It?: Health Professionals and Medical Education in Maternal Health Disparities

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WHAT'S MEDICAL SCHOOL GOT TO DO WITH IT?: HEALTH PROFESSIONALS AND MEDICAL EDUCATION IN MATERNAL HEALTH DISPARITIES

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ABSTRACT

A plethora of research exists on maternal health disparities, highlighting both its variation across ethnoracial identity[1] and causes of it. Similarly, much research exists on the professional socialization of medical students. However, there is a lack of research that bridges the two seemingly disparate literature together. Maternal health outcomes are greatly influenced by doctor-patient interactions. During medical school, medical students learn what it means to be a physician and how to interact with patients. A key component of the professional socialization of medical students is the medical school curriculum, including both pre-clinical courses and clerkships. It is through the curriculum where students transition from layperson to a practicing physician who interacts with patients. I conducted interviews with 25 medical students at one allopathic, religiously affiliated private predominately White institution (PWI) and observed that the medical students in this study were not being professionally socialized into future doctors who actively seek to reduce maternal health disparities. In addition, I conducted a content analysis of the public-facing websites of 100 medical schools and observed that only 3 medical schools include information on their website on the instruction of maternal health disparities for medical students (none of these schools were the school that I conducted the interviews at). I also

[1] I use the term "ethnoracial identity" to be more inclusive of the ways in which various people consider *themselves* on the basis of race and ethnicity. Additionally, the term race in the U.S. is a social construct that was created for racist purposes to create a binary between "White" people and "non-White" people (Bean 2018). The set of "race" categories in the U.S. continue to change, however, White supremacy remains with the use of the term.

conducted interviews with 4 U.S. medical clerkship professors at the same medical school. Interestingly, I observed a disconnect between my 3 methods, as during my interviews with the 4 clerkship professors observed that the 2 OBGYN professors reported that maternal health disparities are incorporated into their clerkship curriculum. Additionally, this study investigated how chronic—experiences with racism and poverty— and acute stressors—interactions with health care professionals during pregnancy—affect maternal mental health using Phases 6-8 (2009-2020) of the Pregnancy Risk Assessment Monitoring System (PRAMS). I observed that recent mothers who were more satisfied with their interactions with healthcare professionals (acute stressors) or who did not experience stressful life events and racial discrimination (chronic stressors) had lower odds of experiencing postpartum depressive symptoms; and that these associations vary across ethnoracial identity—Black women have higher odds of postpartum depressive symptoms than Asian, White[2], other non-White, more than one race, and Latina women. In addition to assessing the association between acute and chronic stressors and postpartum depressive symptoms, I also assessed variations in who healthcare professionals are talking to about maternal health disparities during prenatal visits. I observed that Black women reported the highest odds of having discussions with healthcare professionals about postpartum depression during prenatal visits than women from all other ethnoracial identity groups

[2]I capitalize the word White when referring to people who are racialized as White people or people of European decent just as I capitalize people from all other ethnoracial identities because opting to not capitalize the word White but capitalizing all other ethnoracial identities affirms Whiteness and White racial dominance and disregards accountability of White people in racism (Mack and Palfrey 2023).

CHAPTER 1

INTRODUCTION

Introduction

Maternal Health Disparities

Maternal health is an important topic to study as hundreds of women in the United States die annually as a result of pregnancy and childbirth. Although maternal mortality has greatly declined in the United States over the last century, from 607.9 maternal deaths per 100,000 live births in 1915 to 12.1 maternal deaths per 100,000 live births in 2003 (Hoyert 2007), the rates of maternal mortality have been rising over the last decade. In 2018, the maternal mortality rate was 17.4 deaths per 100,000 live births. In the United States, the maternal mortality rate increased from 20.1 in 2019 to 23.8 and in 2020 to 32.9 deaths per 100,000 live births in 2021, a 12.7 death increase from 2019 (Hoyert 2023). Among developing countries, women in the United States are at greater risk of dying from pregnancy-related complications than women in 40 other countries (Amnesty International 2010). This is despite the fact that pregnancy and childbirth are the highest hospitalization costs, about 86 billion dollars annually (Amnesty International 2010). The Centers for Disease Control and Prevention (CDC) suggested that approximately half of all maternal deaths are preventable (Bacak et al. 2006).

In the literature on maternal health, there are two overarching themes: physical and mental health. Scholars who have studied maternal health disparities have focused primarily on maternal physical health, in particular both maternal and infant morbidity and mortality (Aron et al. 2000; Barber et al. 2011; Bryant et al. 2010; Roth and Henley 2012; Tangel et al. 2018).

There are three commonly used measures of maternal death (Declereq and Zephyrin 2020). The first is pregnancy-associated mortality which studies death during pregnancy or within one year of the end of the pregnancy. The other two measures are reported as a ratio per 100,00 live births. The second measure is pregnancy-related mortality which also occurs during pregnancy or within one year of the end of the pregnancy; however, it focuses on pregnancy-related causes. The last measure is the maternal mortality ratio which focuses on death during pregnancy or within 43 days of the end of pregnancy (Declereq and Zephyrin 2020). In the United States, the approximate annual number of annual deaths from pregnancy or pregnancy-related complications is 700 (Petersen et al. 2019).

Ethnoracial disparities persist in maternal morbidity and mortality, as compared to all other ethnoracial groups, Black women experience disproportionately higher rates of maternal mortality and morbidity (Amnesty International 2010; Petersen et al. 2019; Roth and Henley 2012; Tangel et al. 2018). The overall maternal mortality rate in 2021 was 32.9 deaths per 100,000 births. However, when examining maternal mortality rates by ethnoracial identity[1], stark differences in death per 100,000 births were noticed. The number are lower for White[2] and Latina women at 26.6 and 28.0 deaths per 100,000 live births, respectively, but drastically higher at 69.9 deaths per 100,000 births for Black women (Hoyert 2023). Some scholars have suggested that this gap exists as Black women are more likely to receive prenatal care later than White

[1]I use the term "ethnoracial identity" to be more inclusive of the ways in which various people consider *themselves* on the basis of race and ethnicity. Additionally, the term race in the U.S. is a social construct that was created for racist purposes to create a binary between "White" people and "non-White" people (Bean 2018). The set of "race" categories in the U.S. continue to change, however, White supremacy remains with the use of the term.

[2]I capitalize the word White when referring to people who are racialized as White people or people of European decent just as I capitalize people from all other ethnoracial identities because opting to not capitalize the word White but capitalizing all other ethnoracial identities affirms Whiteness and White racial dominance and disregards accountability of White people in racism Mack and Palfrey 2023).

women (Bryant 2010; Roth and Henley 2012), while others have attributed this gap to the role of cesarean delivery (Aron et al. 2000; Barber et al. 2011; Roth and Henley 2012).

Fifty percent of the leading causes of maternal mortality—hemorrhage, complications of anesthesia, and infection— have been linked to cesarean deliveries (Roth and Henley 2012). Since 1996, there has been a 53% increase in cesarean deliveries (Barber et al. 2011). When examining cesarean deliveries across ethnoracial groups, Black, Latina, and Native American women are more likely to have primary cesarean deliveries than White and Asian women (Roth and Henley 2012). A final natality data by the National Center for Health Statistics (NCHS) shows that in 2020, 31.8% of all live births were by cesarean delivery (Osterman et al. 2022). American Indian/Alaska Native, White, and Latina women had the lowest percentages of cesarean delivers at 28.8%, 30.8%, and 31.4% respectively, while Black and Asian women have the highest percentages of cesarean deliveries at 36.3% and 32.6% respectively (Osterman et al. 2022). Research has shown that subjectively defined indications, such as non-reassuring fetal heart tracing, suspected macrosomia, and labor arrest disorder were the main contributors to cesarean deliveries and that these subjectively defined indications increased while objectively defined indications remained stable (Barber et al. 2011). Scholars have argued that cesarean delivery rates vary by both clinical and nonclinical factors, such as the woman's health and background (Aron et al. 2000; Barber et al. 2011; Roth and Henley 2012). Clinical factors include subjectively defined indications—labor arrest disorders, non-reassuring fetal heart tracings, and suspected macrosomia— and objectively defined indications—malpresentation, obstetric conditions, and maternal-fetal conditions (Barber et al. 2011). Results from a 2003-2006 study of live births at Yale-New Haven Hospital showed that 33% of births were cesarean deliveries, and among those, subjective indications were the main contributors (Barber et al.

2011). Additionally, scholars found that subjectively defined indications increased while objectively defined indications remained stable (Barber et al. 2011). These results imply the need for attention to be paid to subjective clinical factors and the impact that physicians have in maternal health disparities

Regarding studies on maternal mental health, scholars mostly focus on perinatal anxiety and depression (Bayrampour, McDonald, and Tough 2015; Cheng et al. 2009; Davenport et al. 2020; Gauthreaux et al. 2017; Kending et al. 2017) and postpartum depression (Alipour, Lamyian, and Hajizadeh 2012; Bauman et al. 2020). One in every seven women is affected by anxiety and depression during the perinatal period (Davenport et al. 2020; Kending et al. 2017) and one in every eight women experience symptoms of postpartum depression (Bauman et al. 2020). When looking at the prevalence of postpartum depressive symptoms across ethnoracial groups, stark differences are observed. American Indian/Alaska Native, Asian/Pacific Islander, and Black women have the highest prevalence of postpartum depressive symptoms at 22%, 19.2%, and 18.2%, respectively; while White, Latina, and women who identify as other have the lowest prevalence of postpartum depressive symptoms at 11.4%, 12%, and 16.3%, respectively (Bauman et al. 2020).

To reduce depression in pregnant women, physicians should be routinely screening women for depression (Alipour, Lamyian, and Hajizadeh 2012; Bobo and Yawn 2015; Gjerdingen and Yawn 2007; Hollier 2018). However, research is showing that screenings for depression during pregnancy and the postpartum period are not occurring routinely. The CDC reported that only about 20% of women were not asked about depression during prenatal visits, 12.5% were not asked in postpartum visits, and more than 50% of pregnant women with depression were not treated (CDC 2020a). Others have also indicated that depression during

pregnancy and the postpartum period is underdiagnosed and undertreated (Flynn et al. 2006; Marcus et al. 2003; Sidebottom et al. 2020). Ethnoracial disparities exist in screening, as women who are disproportionately affected by systemic oppression[3], such as Black women, were less likely to be screened postpartum than White women (Sidebottom et al. 2020). These findings shed light on the behaviors of medical professionals and the impact that they may have on poor maternal mental health. Although previous research has indicated that physicians are not routinely screening women for depression during pregnancy and the postpartum period, limited literature has examined the impact that medical institutions have on the maternal mental health of Black women. More specifically, research on maternal health disparities and medical education have not investigated whether or to what extent medical schools are teaching and training medical students about maternal health disparities.

Healthcare Professionals Behavior

During prenatal care, White women experience better communication with health care professionals than Black women (Attanasio, Kozhimannil, and Kjerulff 2008). Despite knowing this, research has not examined how interactions with healthcare professionals affect women's maternal mental health. Research has however, paid significant attention to the role that implicit bias has on maternal health disparities (Green et al. 2021; Omeish and Kiernan 2020; Saluja and Bryant 2021). A quantitative study with a sample of 2,500 physicians using the implicit association test (IAT) Race Task— which asks people to link images of Black and White faces with positive traits and words as fast as they can—observed that 70% of the sample *implicitly* preferred the White faces (Sabin et al. 2009). Implicit bias shape physicians' behavior towards

[3]I use the term "women who are disproportionately affected by systemic oppression" to emphasize the notion that it is not one's ethnoracial identity that puts them at greater risk for adverse life and health outcomes, but that it is due to systemic oppression—i.e., racism and discrimination.

patients and medical decision-making, which relates to unequal treatment of patients (Chapman, Kaatz, and Carnes 2013).

Scholars in medical education have suggested that research should focus on the forms of bias that persist at the institutional and structural levels (Green et. al. 2021) as medical educators and medical professionals have a strong influence on the professional socialization of medical students. Medical students' implicit biases are influenced by their formal curricular, informal curricular, and interracial contact with patients (Van Ryn et al. 2015). A quantitative study examining the relationship between changes in medical students' implicit racial bias observed that implicit biases were more common among students who heard a resident or attending physician make negative comments about Black patients (Van Ryn et al. 2015). The results from this study highlight the impact that negative role model behavior has on medical students' implicit racial bias.

In addition to implicit bias, empathy expressed by doctors also influences the doctor-patient interactions and health outcomes of patients (Larson and Yao 2005). Currently, medical students are explicitly trained to express emotions and it is part of USMLE Step 2 exam where students are tested on evaluating how well the physician managed patients' emotions in simulated medical encounters (Hoppe et al. 2013). Physicians should be exhibiting clinical empathy when they are interacting with patients (Vinson and Underman 2020). In the literature, clinical empathy has been described as "a kind of emotional reasoning that allows physicians to incorporate emotional experiences as part of clinical decision-making" (Underman and Hirshfield 2016: 97) by some scholars, while others argue that in addition to being a form of reasoning, it is also "a clinical skill that can be used as a strategy to manage consumerism and corporatization" (Vinson and Underman 2020:1).

Professional Socialization of U.S. Medical Students

Sociologists of education have examined the professional socialization in U.S. medical education, namely the training of U.S. medical students, through in-depth interviews and ethnographic field work (Becker et al. 1961; Everitt et al. 2020; Jenkins et al. 2021; Underman 2015; Underman and Hirshfield 2016; Vinson 2019). Literature in this field has shown that training in medical education is not standardized (Becker et al. 1961; Everitt et al. 2020; Everitt et al. 2022; Underman 2015). Becker et al.'s (1961) study of U.S. medical students, White men, at the University of Kansas revealed that the training that medical students receive was deeply influenced by medical students' interactions and perceptions of what is important to know rather than a standardized top-down process. More recent work showed that U.S. medical students engaged in similar approaches for preparing for class exams today as the participants in Becker et al.'s (1961) study (Everitt et al. 2020; Everitt et al. 2022). Additionally, research has shown that the instruction of social inequalities—which the Liaison Committee on Medical Education (LCME) standard requires medical educators at allopathic institutions to teach students "about the manifestations and underpinnings of social inequalities in the first four years of medical school" (Olsen 2019:59)—is not taught by professors but rather are small group discussions that are dependent on students who are not White sharing their individual experiences with race.

The findings of Everitt et al. (2020) and Olsen (2019) demonstrate that professionalization in medical schools is not homogenous, rather it is an active and interpretive process that medical students experience, which in turn affect the medical practices of physicians. Understanding the professional socialization of medical students and what is taught in medical school will aid researchers in understanding the impact that medical physicians have

in maternal health disparities. This study adds to the existing literature by investigating the following 4 research questions and two sub-questions:

1. How do U.S. medical students make sense of and understand maternal health disparities, and what they are or are not learning about maternal health disparities in the curriculum of their school?
2. How do medical schools incorporate a curriculum on maternal health disparities (if at all)?
    a. How do the differences in curriculum foci regarding maternal health disparities and related concepts vary across features of schools?
3. How do interactions with healthcare professionals affect maternal mental health?
    a. How does this association vary across ethnoracial identity?
4. How do discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity?

Chapter Overview

The remainder of this dissertation is organized in the following manner. *Chapter 2 Data and Methods* provides the 4 different types of methods used to answer the four aforementioned research questions. The organization of this dissertation aligns with the ordering of the research questions and subsequent chapters. First, I describe the qualitative in-depth interviews that were conducted between June and October 2022 with 25 medical students at an allopathic, religiously affiliated private Midwestern school. Then, I describe the two methodologies—quantitative content analysis of 100 U.S. medical schools and interviews with 4 medical clerkship professors conducted between July and October 2022 at an allopathic, religiously affiliated private Midwestern school—that answer the second research question and sub-question. Lastly, I

describe the quantitative secondary data analysis that I conducted using the last 3 Phases (6-8) of the Pregnancy Risk Assessment Monitoring System (PRAMS) to answer the third research question, and sub-question and fourth research question. Each of these 3 empirical chapters is structured like a journal article with an introduction, literature review, methods (referring to subsections in Chapter 2 Data and Methods, sample, and analysis), results, discussion, and conclusion sections. The topic of the 3 empirical chapters is the same, maternal health disparities, however, the unit of analysis varies across the three chapters.

In *Chapter 3 Professional Socialization of Medical Students (interviews with students)*, the unit of analysis is U.S. medical students, in particular, the professional socialization of U.S. medical students. In this chapter I examined how U.S. medical students at one allopathic, religiously affiliated private predominately White institution (PWI) make sense of and understand maternal health disparities and what they are or are not learning about maternal health disparities in the curriculum of their school. I begin with an introduction that situates the importance of doctor-patient interactions on maternal health disparities and connect this to the professional socialization of medical students. In the literature review, I define what professional socialization is, discuss key works in the field of sociology of education, bridge the connection between medical training and maternal health disparities, provide brief maternal health statistics, and conclude with a discussion on implicit bias and the role that it has on physicians' medical decision-making during doctor-patient interactions. Next, I describe the in-depth interviews with 25 U.S. medical students, my sample, and analysis for this chapter. Then, I provide the results (analytic themes) that I discovered in the interview with U.S. medical students. Lastly, I provide key takeaways, limitations, and how this empirical chapter adds to existing literature on maternal health disparities and professional socialization.

In *Chapter 4 Medical School Curriculum (content analysis and interviews with professors),* the unit of analysis is medical school curriculum. In this chapter I examined how medical schools incorporate a curriculum on maternal health disparities. First, I begin with an introduction that situates the importance of the medical school curriculum and maternal health disparities. In the literature review, I discuss how previous literature has observed that the U.S. medical school curriculum is standardized, but yet medical students manipulate and determine what is most important to know. I also discuss curricular intent and medical students of color, and the instruction of emotions and cultural competence in doctor-patient interactions. Next, I describe the two methodologies used to answer how maternal health disparities are being incorporated into the U.S. medical school's curriculum. First, I describe the quantitative content analysis conducted on 100 U.S. medical schools, focusing on my selection process of the medical schools. Then, I describe the in-depth interviews with 4 U.S. medical clerkship professors, my sample, and analysis for this chapter. Next, I provide the results (analytic themes) that I observed in the content analysis of 100 U.S. medical schools and supplement themes with interview with U.S. medical clerkship professors. Then, I provide the results (analytic themes) that I discovered in the content analysis and use the interview with medical clerkship professors to inform the ways in which the professors at a particular school (at an allopathic, religiously affiliated private Midwestern school) understand the curriculum that they are offering in terms of maternal health disparities, specifically, and health disparities more generally. These interviews with professors are used to inform, at a particular school, the ways in which the professors understand the curriculum that they are offering in terms of maternal health disparities. Lastly, I provide key takeaways, limitations, and how this empirical chapter adds to existing literature on

maternal health disparities and sociology of education, in particular the medical school curriculum.

In *Chapter 5 Doctor-Patient Interactions During Perinatal Visits (PRAMS)*, the unit of analysis is doctor-patient interactions during perinatal visits. First, I begin with an introduction that situates the importance of the medical school curriculum and relate this to maternal health disparities. In the literature review section, I begin with a discussion of the historical conditions and treatments of pregnancy, maternal mental health, and screening for depression during prenatal and postnatal visits. Then, I discuss the racist medical practices in healthcare which includes as historical overview of racial practices on black women in healthcare. Next, I discuss relevant theories like systemic racism theory, the stress process model, and the weathering hypothesis, analyzing the impact that stress has on maternal health. After the literature review, I describe the quantitative, secondary analysis that was used to examine how do interactions with healthcare professionals affect women's maternal mental health and how does this association vary across ethnoracial groups. I provide my sample and analysis used. Then, I discuss the observed results for both sets of analysis—the first set of models focuses on the association between chronic—experiences with racism and poverty— and acute stressors—satisfaction of interactions with health care professionals during pregnancy—affect maternal mental health and how that association varies by ethnoracial identity and the second set of models focuses on examining how discussion with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity. Lastly, I provide key takeaways, limitations, and how this empirical chapter adds to existing literature on maternal health disparities, mental health, and medical sociology.

Finally, Chapter 6 Conclusion summarizes the major findings of each of the 3 empirical chapters, putting each of them in conversation with one another. In this chapter, I also discuss the contributions of my dissertation to the fields of 1) medical sociology, 2) maternal health, 3) sociology of medical/health education, and 4) professional socialization. I also discuss implications for 1) deans and administrators who develop their medical school's program and curriculum, 2) medical professors, 3) current and future medical students, 4) pregnant women, and 5) non-medical personnel who are interested in maternal health disparities.

CHAPTER 2

DATA AND METHODS

Introduction

This chapter provides the four different methods used in the three empirical chapters (Chapters 3-6) of my dissertation. First, I describe the qualitative in-depth interviews that were conducted between June and October 2022 with 25 medical students at an allopathic, religiously affiliated private Midwestern school. The qualitative interviews with 25 medical students answers the first research question, 1) "How do U.S. medical students make sense of and understand maternal health disparities, and what they are or are not learning about maternal health disparities in the curriculum of their school."

Next, I describe the two methodologies—quantitative content analysis of 100 U.S. medical schools and interviews with 4 medical clerkship professors conducted between July and October 2022 at an allopathic, religiously affiliated private Midwestern school—that answer the second research question and sub-question, 2) "How do medical schools incorporate a curriculum on maternal health disparities (if at all)?" and 2a) "How do the differences in curriculum foci regarding maternal health disparities and related concepts vary across features of schools?"

Lastly, I describe the quantitative secondary data analysis that I conducted using the last 3 Phases (6-8) of the Pregnancy Risk Assessment Monitoring System (PRAMS) to answer the third and fourth research questions and sub-question, 3) "How do interactions with health

professionals affect maternal mental health?" 3a) "How does this association vary across ethnoracial identity[1]?", and 4) "How do discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity?"

Data and Methods

The 3rd chapter of this dissertation titled "Profession Socialization of Medical Students (Interview with medical students)" discusses the professional socialization of U.S. medical students. A qualitative approach is most appropriate for answering questions regarding personal accounts of how U.S. medical students make sense of and understand maternal health disparities, and what they are or are not learning about maternal health disparities in the curriculum of their school. In-depth interviews are an effective qualitative methodology for a number of reasons: 1) they provide researchers with a more rich and detailed understanding of a particular topic, 2) they allow participants to provide more detailed descriptions at their own pace compared than semi-structured interviews allow (Jamshed 2014). The participants for this study only included medical students from on private, allopathic religious affiliated medical institution in the Midwest. This study was deemed classified as human subject research and was awarded approval by the researcher's Institutional Review Board (IRB).

Data collection. To recruit medical students, I reached out to someone in administration at the medical school via email. In this email script, I introduced myself, described the study, and asked the administrator to send out the recruitment flyer to medical students at their institution via email. Then, interested students contacted me via email.

[1] I use the term "ethnoracial identity" to be more inclusive of the ways in which various people consider *themselves* on the basis of race and ethnicity. Additionally, the term race in the U.S. is a social construct that was created for racist purposes to create a binary between "White" people and "non-White" people (Bean 2018). The set of "race" categories in the U.S. continue to change, however, White supremacy remains with the use of the term.

Students in years 3 and 4 were recruited because have passed the United States Medical Licensing Examination (USMLE) Step 1, will be preparing for USMLE Step 2, and will be completing clerkships. Interviewing only students in these years is important because these students can both discuss if and how they were taught about maternal health disparities in medical school and the USMLE as well as their experiences in clinicals as well (Everitt et al. 2020). At the time of the interviews, there were 3 M3s who had no clinical experience yet.

Originally, the interviews were going to be conducted using a variety of modes—in-person, telephone, Zoom, email, and text messaging. Recent research conducted to assess the quality of response data conducted via text messages observed that text messaging, compared to voice interviews, led to higher quality data such as "fewer rounded numerical answers, more differentiated answers to a battery of questions, and more disclosure of sensitive information" (Schober et al. 2015). However, all students requested to participate via Zoom.

In-depth, semi-structured interviews were conducted by me with 25 participants between June and October 2022. The interviews occurred in two waves. The first wave was only 8 M4s and these were conducted in June and early July. The second wave of interviews included M3s and these were conducted mostly in August with two in September and 1 in October. Interviews ranged between 31 and 99 minutes, with an average of 58 minutes. Interviews were all conducted via Zoom and were recorded using Zoom's record function. Recordings were then obtained from Zoom and transcribed by a subscription software, Otter.ai. Then, all transcriptions were then checked by me and a research mentee, who checked the first 8 interviews.

Sample. The sample consisted of 25 medical students, 13 3rd year or M3 students and 12 4th year or M4 students. Participants were compensated $50 Amazon or Target e-gift cards for their participation in the study (funding was provided by Loyola University Chicago's Graduate

School and the Department of Sociology). The participants gender identity of the sample is largely women: 18 women and 7 men. This is not reflective of the U.S. medical school gender identity as women makeup 54% of medical students enrolled (AAMC 2022a). The topic, maternal health disparities, may explain the overrepresentation of women who chose to participate. Regarding racial composition, the student sample was diverse with 5 identifying as Asian, 5 as Black, 2 as Indian, 4 as Latina, 1 as Other, and 8 identifying as White. To comply with human research protection protocol, any identifying information about participants, including their institution's name and affiliated hospitals have been kept confidential. Table 1 shows the sociodemographic characteristics of the 25 participants in this study.

Table 1. Demographics of Medical Student Participants, June-October 2022.

n=25	Women (n=18)	Men (n=7)	Total (n=25)
	Mean or Count	Mean or Count	Mean or Count
Year			
M3	10	5	13
M4	8	2	12
Age	27.38	28.7	27.75
Ethnoracial Identity			
Asian	4	1	5
Black	3	2	5
Indian	2	0	2
Latina	4	0	4
Other	1	0	1
White	4	4	8
Specialty			
Obstetrics and Gynecology	3	1	4
Family Medicine	1	0	1
Pediatrics	1	0	1
Internal Medicine	2	0	2
Emergency Medicine	2	1	3
Cardiology	0	1	1
Psychiatry	1	1	2
Radiology	1	0	1
Pathology	0	1	1
Undecided	7	2	9

Note: This table presents the gender, year in school, age, ethnoracial identity, and specialty, of medical students at an allopathic, religiously affiliated private Midwestern school conducted between June and October 2022.

Participants in this study were asked to provide some demographic information, describe their medical school application process, current experiences in medical school (classroom and clinicals), their learning and understanding of health disparities, their knowledge and understanding of maternal health disparities, their perceptions of how health disparities and/or maternal health disparities are part of their medical school curriculum, their perception of how healthcare professionals and institutions play a role in the existing of maternal health disparities and how they can reduce them. For the full list of in-depth interview questions, please see Appendix A. The analytic strategy for this dataset was thematically coding responses in an inductive, iterative, and systematic process to produce the 3 analytic themes and subthemes.

The 4th chapter of this dissertation, titled "Medical School Curriculum (Content Analysis and Interviews with Medical Professors)" discusses the medical school curriculum at 100 U.S. medical schools. To assess the research question, "How do medical schools incorporate a curriculum on maternal health disparities (if at all)", two methodologies were used: mixed methodology and qualitative. The mixed methodology is quantitative content analysis[2]. Data collection for the quantitative content analysis includes a total of 100 U.S. medical schools. The only school that was intentionally selected was the medical school (randomizer number 109) where the in-depth interviews took place. Given that I am interested in examining how medical schools vary by characteristics (practice/degree type, academic sector, religious affiliation, ethnoracial composition, and location), the list includes a variety of each. Studying different types of medical institutions allows me to examine whether features of the curriculum vary by type of institution. I expect that there will be differences in curriculum across institutions with

[2] Quantitative content analysis is a type of content analysis that allows the researcher to "systematically review some kind of maternal (for example, legal opinions, news, stories, novels, movies, or blogs) to test hypotheses" (Carr et al. 2020: 402).

religious affiliations compared to not being religiously affiliated and institutions that are private compared to public, Predominately White Institutions (PWIs) compared to Historically Black Colleges and Universities (HBCUs) and Hispanic-Serving Health Professions Schools (HSHPS). To protect the names of the schools, the schools were given a number as the name.

According to the American Association of Colleges of Osteopathic Medicine (AACOM) there are 38 accredited osteopathic medical institutions across 34 states in the U.S. with 58 total teaching locations (AACOM 2021). According to Association of American Medical Colleges (AAMC) there are 157 accredited allopathic medical institutions across 46 states in the U.S (AAMCb 2022). To reduce the sample size of medical institutions, I selected the first teaching location of each medical school. This reduced the total number from 215 to 188 medical schools. Then, I selected schools based off of the following 6 characteristics: 1) degree type (MD or DO), 2) ethnoracial identity (Predominately White institutions, Historically Black Colleges and Universities, and Hispanic Serving Professional Schools), 3) public or private, 4) religious affiliation, 5) region, and 6) ranking. Osteopathic institutions accounted for 38% of the analytic sample. These medical institutions are all PWIs. There are 4 HBCUs that have medical schools and 14 HSHPS that have medical schools; therefore 18% of the analytic sample is comprised of Non-Predominately White Institutions (NPWIs).

The remaining 44% of the analytic sample is allopathic PWIs. The total number of allopathic PWIs is 140, for the analytic sample this number was reduced down to 44 medical schools, which was divided in half so that there are 22 public allopathic PWIs and 22 private, allopathic PWIs. There are a total of 89 public PWIs. Because gynecologists and obstetricians (OBGYN) are considered primary care doctors and this study seeks to describe and explore whether, when, and how much medical schools are incorporating curriculum on maternal health

disparities, I used the 2022 U.S. News Best Medical Schools (Primary Care). For comparison 11 schools ranked in the top 123 Best Medical Schools in Primary Care were selected and 11 schools that are not ranked in the top 123 were selected. U.S. News ranked the schools from 1-92. After 92, U.S. News did not rank schools individually, but instead did a bock ranking of 93-123. The 11 ranked 123 schools were selected further by region where I used a randomizer on Microsoft Excel to randomly select at least two schools in each of the four regions. First, I assigned all schools a number: 1-196. Next, after using the filter tool on Excel to filter for MD, PWI, public, a ranked 1-123 schools, I then created another column. In this column I typed "=RAND()" into the first cell of that column to randomize or shuffle the list on Excel. Then, I clicked on the lower right corner of that cell and dragged it down so that all allopathic, Predominately White Institutions that were public and ranked in the top 123 of the 2022 U.S. News Best Medical School in Primary Care schools had this randomize function. Lastly, I selected on a random cell in that same column and sorted them in descending order, by clocking ZA on the Data tab, in the Sort & Filter group on excel. I clicked this until I had at least two schools in each of the four regions. Similar steps were repeated for the schools that were not ranked in the top 123 Best Medical School in Primary Care.

There is a total of 51 private PWIs (17 religiously affiliated and 34 non-religiously affiliated). For comparison, 11 non-religiously affiliated private PWIs were selected and 11 religiously affiliated private PWIs were selected. Because gynecologists and obstetricians (OBGYN) are considered primary care doctors and this study seeks to describe and explore whether, when, and how much medical schools are incorporating a curriculum on maternal health disparities, I used the 2022 U.S. News Best Medical Schools (Primary Care). Twenty-three of the 34 non-religiously affiliated schools ranked in the top 123 Best Medical Schools in

Primary Care while eleven schools did not rank in the top 123 medical schools. For comparison between the rankings and non-rankings I selected 3 schools in the top 50, 3 schools ranked 51-123, and 5 schools that did not rank in the top 123 medical schools. These schools were selected further by region where I used a randomizer on Microsoft Excel to randomly select at least two schools in each of the four regions. A similar selection strategy was used to select the 11 religiously affiliated private PWIs. Twelve of the 17 religiously affiliated schools ranked in the top 123 Best Medical Schools in Primary Care while five schools did not rank in the top 123 medical schools. For comparison between the rankings and non-rankings I used a randomizer on Microsoft Excel to select 3 schools in the top 50, 3 schools ranked 51-123, and 5 schools that did not rank in the top 123 medical schools for a total of 11 religiously affiliated private PWIs. These schools were selected further by region using the same randomizer steps as mentioned previously to randomly select at least two schools in each of the four regions. Table 2 shows the features of the 100 selected medical schools.

Table 2. Features of 100 U.S. Medical Schools Selected for Content Analysis, 2022.

Randomizer #	**Degree Type MD or DO)**	**Ethnoracial composition (PWI, HBCU, HSI)**	**Private or Public**	**Religious**	**Region**	**Rank**
1	DO	PWI	Private	No	South	N/A
2	DO	PWI	Private	No	South	N/A
3	DO	PWI	Private	No	Midwest	N/A
4	DO	PWI	Private	No	West	N/A
5	DO	PWI	Private	No	West	N/A
6	DO	PWI	Private	No	West	N/A
7	DO	PWI	Private	Yes	South	N/A
8	DO	PWI	Private	No	Midwest	N/A
9	DO	PWI	Private	No	South	93-123
10	DO	PWI	Private	No	West	N/A
11	DO	PWI	Private	No	South	N/A

12	DO	PWI	Private	No	Midwest	N/A
13	DO	PWI	Private	No	Northeast	80
14	DO	PWI	Private	Yes	South	N/A
15	DO	PWI	Private	No	South	93-123
16	DO	PWI	Private	Yes	Midwest	N/A
17	DO	PWI	Public	No	Midwest	N/A
18	DO	PWI	Private	No	West	N/A
19	DO	PWI	Private	No	Midwest	17
20	DO	PWI	Private	No	Northeast	N/A
21	DO	PWI	Private	No	West	N/A
22	DO	PWI	Private	No	South	93-123
23	DO	PWI	Private	No	Midwest	93-123
24	DO	PWI	Public	No	South	93-123
25	DO	PWI	Private	No	West	N/A
26	DO	PWI	Private	No	Northeast	N/A
27	DO	PWI	Private	No	West	N/A
28	DO	PWI	Public	No	Northeast	93-123
29	DO	PWI	Public	No	South	N/A
30	DO	PWI	Private	No	Northeast	N/A
31	DO	PWI	Private	No	West	93-123
32	DO	PWI	Private	Yes	South	N/A
33	DO	PWI	Private	No	Northeast	93-123
34	DO	PWI	Public	No	South	57
35	DO	PWI	Private	Yes	South	93-123
36	DO	PWI	Public	No	South	93-123
37	DO	PWI	Private	No	West	93-123
38	DO	PWI	Private	No	South	93-123
39	MD	HBCU	Private	Yes	South	N/A
40	MD	HBCU	Private	Yes	Northeast	84
41	MD	HBCU	Private	Yes	South	N/A
42	MD	HBCU	Private	No	West	N/A
43	MD	HSHPS	Public	No	West	11
44	MD	HSHPS	Private	No	West	28
48	MD	HSHPS	Public	No	West	25
49	MD	HSHPS	Private	No	Northeast	51
55	MD	PWI	Private	No	Midwest	34
58	MD	HSHPS	Public	No	South	79

59	MD	HSHPS	Public	No	South	N/A
62	MD	HSHPS	Private	No	Northeast	69
64	MD	HSHPS	Public	No	South	93-123
69	MD	HSHPS	Public	No	West	58
74	MD	HSHPS	Public	No	Midwest	67
75	MD	HSHPS	Private	No	South	93-123
76	MD	HSHPS	Public	No	South	46
79	MD	HSHPS	Public	No	South	N/A
82	MD	HSHPS	Private	No	Midwest	59
83	MD	PWI	Private	No	Northeast	8
87	MD	PWI	Private	No	West	24
89	MD	PWI	Private	Yes	South	36
95	MD	PWI	Private	Yes	Midwest	46
97	MD	PWI	Private	Yes	South	51
99	MD	PWI	Private	Yes	Northeast	59
100	MD	PWI	Private	No	Midwest	74
102	MD	PWI	Private	No	South	80
103	MD	PWI	Private	No	Northeast	93-123
107	MD	PWI	Private	Yes	Northeast	93-123
109	MD	PWI	Private	Yes	Midwest	N/A
110	MD	PWI	Private	Yes	Midwest	N/A
111	MD	PWI	Private	No	Midwest	N/A
112	MD	PWI	Private	No	Midwest	N/A
113	MD	PWI	Private	No	Northeast	N/A
114	MD	PWI	Private	Yes	South	N/A
119	MD	PWI	Private	Yes	West	N/A
120	MD	PWI	Private	No	West	N/A
122	MD	PWI	Private	No	West	N/A
126	MD	PWI	Private	Yes	Northeast	44
131	MD	PWI	Private	Yes	South	N/A
137	MD	PWI	Public	No	West	1
141	MD	PWI	Public	No	South	12
142	MD	PWI	Public	No	South	16
143	MD	PWI	Public	No	West	28
144	MD	PWI	Public	No	West	44
145	MD	PWI	Public	No	Northeast	69
146	MD	PWI	Public	No	Midwest	84
148	MD	PWI	Public	No	Northeast	84
151	MD	PWI	Public	No	Midwest	93-123
155	MD	PWI	Public	No	Midwest	93-123

156	MD	PWI	Public	No	Northeast	93-123
161	MD	PWI	Public	No	West	N/A
166	MD	PWI	Public	No	Midwest	N/A
167	MD	PWI	Public	No	Midwest	N/A
171	MD	PWI	Public	No	Northeast	N/A
176	MD	PWI	Public	No	South	N/A
178	MD	PWI	Public	No	South	N/A
179	MD	PWI	Public	No	South	N/A
180	MD	PWI	Public	No	West	N/A
185	MD	PWI	Public	No	Northeast	93-123
188	MD	PWI	Public	No	Midwest	N/A
202	MD	PWI	Public	No	West	N/A

Note: The institution highlighted in yellow is the institution where the participants in the interviews attend or work.

Data collection. Data collection for the content analysis occurred between March and August 2022. On each medical school's website, I searched through the curriculum, departments, student handbooks, and other pages to examine how U.S. medical schools in my sample incorporate a curriculum on maternal health disparities if at all, and whether the differences in curriculum focus vary across features of schools. I thematically coded information from the school's websites inductively and deductively. After browsing through each medical school's website, I would search for terms related to each of the 6 themes. All data collection from the medical schools' websites was recorded into an Excel spreadsheet.

To operationalize concepts that I observed on the medical schools' websites I engaged in coding, which is "the process of translating written or visual material into standardized categories suitable for quantitative analysis" (Carr et al. 2020:406). First, I inductively coded information from the medical school's website where I created codes that derived from the information on the medical schools' websites. Each school was coded individually based on the following 4 inductive codes (#a) and 7 inductive sub-codes (#b-c): 1a) student handbook-whether or not the school has a student handbook publicly available (yes/no)—the student

handbooks are not part of the analysis but provided more detailed information about each course, clerkship, and standards or objectives of medical schools, 2a) whether the school's website mentions maternal health, perinatal health, prenatal health, pregnancy, childbirth, labor and childbirth, or postpartum (yes/no), 2b) description of discussion of maternal health, 3a) whether the school mentions health disparities, health equity, health inequity, health for all, health justice, or health equality (yes/no), 3b) description of discussion of health disparities, and 3c) definition of health disparities, 4a) mission statement (copy and paste).

After coding for about 20 schools, I created five deductive thematic codes (#a) and 5 sub-codes (#b) were also developed based on medical education and medical student professionalization literature (Jenkins et al. 2021; Olsen Underman 2015; Underman and Hirshfield 2016; Vinson 2019; Vinson and Underman 2020). The deductive thematic codes are as follows 1a) whether the school's website determinants of health, health determinants, or social determinants of health were mentioned (yes/no), 1b) description of discussion of determinants of health, 2a) whether the school's website mentioned implicit bias, unconscious bias, unintentional bias, racism, systemic racism, institutional racism, or structural racism, 2b) description of discussion of bias or racism, 3a) whether the school's website discusses cultural competence, cultural sensitivity, or cultural awareness, 3b) description of discussion of cultural competence, 4a) whether the school's website discusses simulations, 4b) description of discussion of simulations, 5a) whether the school's website discusses empathy, compassion, or emotion , and 5b) description of discussion of emotion. May through August I had a research mentee who assisted me with retrieving information from 20 medical schools' websites.

In addition to the content analysis, a qualitative approach is most appropriate for assessing how U.S. medical professors at 1 medical school are incorporating information about maternal

health disparities into their curriculum. In-depth interviews are an effective qualitative methodology for a number of reasons: 1) they provide researchers with a more rich and detailed understanding of a particular topic, 2) they allow participants to provide more detailed descriptions at their own pace compared than semi-structured interviews allow (Jamshed 2014). The participants for this study only included medical clerkship professors from a private, allopathic religious affiliated medical institution in the Midwest. This study was deemed classified as human subject research and was awarded approval by the researcher's Institutional Review Board (IRB).

Data collection for interviews with medical professors. Similar to the recruitment of medical students, I reached out to someone in administration at the medical school via email. In this email script, I introduced myself, described the study, and asked the administrator to send out the recruitment flyers to medical clerkship professors at their institution via email. Then, interested professors contacted me via email. Originally, the interviews were going to be conducted using a variety of modes—in-person, telephone, Zoom, email, and text messaging. Recent research conducted to assess the quality of response data conducted via text messages observed that text messaging, compared to voice interviews, led to higher quality data such as "fewer rounded numerical answers, more differentiated answers to a battery of questions, and more disclosure of sensitive information" (Schober et al. 2015). However, all professor participants with the exception of 1 wanted to participate in the interview view Zoom. Due to an emergency at work, the in-person interview was rescheduled to a later date and took place via Zoom.

In-depth interviews were conducted by me with 4 medical professors between July and October 2022, with one occurring each month. Interviews ranged between 34 and 48 minutes, with an average of 44 minutes. Interviews were all conducted via Zoom and were recorded using

Zoom's record function. Recordings were then obtained from Zoom and transcribed by a subscription software, Otter.ai. Then, transcriptions were checked for quality control by me.

Sample. The sample consisted of 4 medical professors, 2 OBGYN clerkship professors and 2 Family Medicine clerkship professors. OBGYN and Family Medicine were the only two departments who had professors that expressed interest in participating. Another OBGYN professor expressed interest, but I was unsuccessful in interviewing them due to lack of response. All of the medical professor participants identified as women, 3 self-identified as White and 1 self-identified as Middle Eastern. Table 3 shows the sociodemographic characteristics of the 4 participants in this study.

Table 3. Ethnoracial and Gender Demographics of Medical Professor Participants, 2022

N=4	Mean or Count
Woman	4
Specialty	
OBGYN	2
Family Medicine	2
Age	43
Ethnoracial Identity	
White	3
Middle Eastern	1

Note: This table presents the gender, specialty, age, and ethnoracial identity of medical professors at an allopathic, religiously affiliated private Midwestern school conducted between July and October 2022.

Participants in this study were asked to provide some demographic information, describe their experiences as being a medical professor, the classes that they teach, their understanding of health disparities, their understanding of maternal health disparities, how they incorporate maternal health disparities into their curriculum, their perception of how healthcare professionals and institutions play a role in the existing of maternal health disparities and how they can reduce them. For the full list of in-depth interview questions, please see Appendix B. The analytic strategy for this dataset was thematically coding responses inductive, iterative, and systematic

process to identify whether or not clerkship professors are incorporating a curriculum on maternal health disparities.

The last empirical chapter of my dissertation is chapter 5 titled "*Doctor-Patient Interactions During Perinatal Visits (PRAMS)".* This chapter discusses doctor-patient interactions during perinatal visits. A quantitative approach is most appropriate for analyzing results of a larger sample of people that is more representative of the U.S population (Giddens et al. 2013). Additionally, this type of methodology allowed me to utilize the stress process model to examine the effect that stressors have on maternal mental health. This study builds on existing research in medical sociology by utilizing the stress process model to investigate how chronic—experiences with racism and poverty— and acute stressors—interactions with health care professionals during pregnancy—affect maternal mental health and how that association varies by ethnoracial identity. This study also builds on existing literature in maternal health by examining how discussion with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial groups. These associations were explored using a nationally representative sample available from the Centers for Disease Control and Prevention's Pregnancy Risk Assessment Monitoring System (PRAMS).

Data collection. PRAMS was originally developed in 1987 to influence healthy maternal health behaviors in order to reduce infant morbidity and mortality. This ongoing questionnaire is for women who have recently delivered a live-born baby and it monitors the self-reported maternal conditions, experiences, and behaviors that occur before, during, and after pregnancy This is a state-specific, population-based surveillance system that utilized a mixed-mode data collection methodology that included self-administered mailed questionnaires and telephone interviews. Mothers who did not respond to the mailed questionnaires were contacted via phone

to conduct survey (Shulman et al. 2018). There are 8 total Phases of PRAMS. The first phase was a pilot study conducted from fall 1988 through 1989. The CDC evaluated the Phase 1 questionnaire, made revisions and then implemented the Phase 2 questionnaire in 1990-1995. In 1994, the CDC collaborated with PRAMS states to develop the Phase 3 questionnaires which included over 200 standard questions that states could choose to include on their surveys. Phase 3 was implemented from 1996-1999. Revisions for Phase 4 focused on the aesthetics of the questionnaire to assist participants with differentiating the questions. This involved changing the format form a single column to a two-column layout with shading. Phase 4 was implemented in 2000-2003 and the CDC noted that there have been no major changes after this phase (CDC 2021b). Phase 5 occurred from 2004-2009, Phase 6 (2009-2011), Phase 7 (2012-2015), and Phase 8 (2016-2020). Currently, there are 47 states, Puerto Rico, New York City, and the District of Columbia (D.C.) that participate in PRAMS and each site has an annual sample between 1,300 and 3,400 women per year which represents approximately 83% of all U.S. live births (CDC 2021c). Women generally receive the first questionnaire within 2-3 months after the birth of a live-born infant. Survey data are linked to selected birth certificate data and weighted for sample design, nonresponse, and noncoverage. The current study used data from Phases 6-8.

Measures. This secondary study has two outcomes of interest: postpartum depressive symptoms and healthcare providers talking about postpartum depression during prenatal visits. The first set of models focuses on the association between chronic—experiences with racism and poverty— and acute stressors—interactions with health care professionals during pregnancy—affect maternal mental health and how that association varies by ethnoracial identity. Postpartum depressive symptoms were assessed differently in Phase 6 than in Phases 7 and 8. In Phase 6, PRAMS posed this question:

> Below is a list of feelings and experiences that women sometimes have after childbirth. Read each item to determine how well it describes your feelings and experiences. Then write on the line the number of the choice that best describes how often you have felt or experienced things this way since your new baby was born: (A) I felt down, depressed, or sad. (B) I felt hopeless. (C) I felt slowed down.

The response options for these questions were never, rarely, sometimes, often, or always. In Phases 7 and 8. women were asked if they have experienced in any of the following symptoms after childbirth felt down, depressed, or hopeless. The response options for these questions were never, rarely, sometimes, often, or always. For consistency, and per previous research, postpartum depressive symptoms was defined as "yes" for mothers who reported that they always or often felt down, depressed, sad, or hopeless (Ward, Kanu, and Robb 2017; Segre, Mehner, and Brock 2021; Stone et al. 2015).

The three variables used as predictors of postpartum depressive symptoms are stressful life events and interactions with healthcare professionals. In Phases 6-8, PRAMS asked women whether or not they had experienced any of the following during the 12 months before their baby was born: (1) a close family member was very sick and had to go to the hospital, (2) I got separated or divorced from my husband or partner, (3) I moved to a new address, (4) I was homeless, (5) my husband or partner lost his job, (6) I lost my job even though I wanted to go on working, (7) I argued with my husband or partner more than usual, (8) My husband or partner said he didn't want me to be pregnant, (9) I had problems paying the rent, (10) My husband or partner or I went to jail, (11) Someone very close to me had a problem with drinking or drugs, and (12) Someone very close to me died. Phase 6 also included "I was in a physical fight". Phases 7 and 8 also included "My husband, partner, or I had a cut in work hours or pay" and "I was apart from my husband or partner due to military deployment" For consistency across phases, I was in a physical fight (Phase 6), my husband, partner, or I had a cut in work hours or

pay (Phases 7 and 8), and I was apart from my husband or partner due to military deployment or extended work-related travel (Phases 7 and 8) were included in the combined variable. Previous research has grouped these stressors into 4 domains partner related—(7) argued more than usual with husband/partner, (2) separated/divorced, or (8) husband/partner did want pregnancy—financial—(9) unable to pay bills, (3) moved to a new address, (6) lost job, or (5) husband/partner lost job—emotional—(1) family member was ill and hospitalized or (12) someone very close died— and traumatic— (4) homeless, (10) husband/partner or I went to jail, or 11) someone very close had drinking or drugs problem (Morgan et al. 2020; Qobadi, Collier, and Zhang 2016; Stone et al. 2015).

Feeling Emotionally upset about experiencing racial discrimination is another type of stressor that was examined. Unfortunately, PRAMS did not ask whether and how many times women experienced racial discrimination. Instead, participants were asked "During the 12 months before your new baby was born, did you feel emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on your race?", which they responded either yes or no. Previous research suggested that perceived racial discrimination is an independent stress component as it did not load onto any of the stressor domains (Segre, Mehner, and Brock 2021).

Interactions with healthcare professionals were assessed using questions that PRAMS asked relating to satisfaction with healthcare professionals. Women were asked to reflect back on their prenatal care and indicate whether or not they were satisfied or dissatisfied with the following: "amount of time I had to wait, amount of time the doctor, nurse, or midwife spent with me, the advice I got on how to take care of myself, and the understanding and respect shown toward me as a person." Responses to these questions are yes or no. These four variables

were coded as 0=dissatisfied and 1=satisfied. Then they were combined into one satisfaction variable with scores ranging from 0-4, in which higher scores indicate more satisfaction with their healthcare professional.

This study examines ethnoracial identity as a moderating variable in the association between interactions with healthcare professionals and postpartum depressive symptoms. There were 11 possible selections for this question: other Asian, White, Black, American Indian, Chinese, Japanese, Filipino, Hawaiian, other Non-White, Alaska Native, and mixed race. Other Asian, Chinese, Japanese, and Filipino were grouped together into one Asian ethnoracial identity category. American Indian and Alaska Native were grouped together into one American Indian or Alaska Native (AI/AN) category. Due to small percentages other non-White and Hawaiian were grouped together into one other non-White ethnoracial category. To include Latina respondents, the question that asked respondents if their ethnicity is Hispanic was also used. Anyone who chose yes for the Hispanic ethnicity question was coded as Latina. This included respondents who also chose White or other non-White in the race question. Anyone who chose Black for the race question was coded as Black. This included respondents who reported yes to the Latina origin question. We coded as White anyone who chose White in the race question. The ethnoracial identities in this study are Asian, White, Black, AI/AN, other Non-White, more than one ethnoracial group, and Latina. This means that only A and B from Phase 6 was used and combined into one variable. In this analytic sample, there were only 3 sites, Louisiana, Michigan, and Wisconsin that asked about postpartum depressive symptoms, satisfaction of interactions with healthcare professionals, stressful life events, racial discrimination, and ethnoracial identity (n=11,485). The state of Michigan asked all 5 variables in Phase 6 (2009-2011), Louisiana asked

all 5 variables in Phase 7 (2012-2015), and Wisconsin asked all 5 variables in Phase 8 (2016-2020).

Potential confounders include marital status, age, level of education, annual household income, and health insurance. PRAMS assessed marital status as married or other. PRAMS asked women to select between 7 age ranges. For this study there are 5 age groups: 1=less than 20, 2=20-24, 3=25-29, 4=30-34, and 5=35 or older. Education was assessed by asking women to report the number of years that they had in school. PRAMS had 5 categories that women could select from 0=0-8 years, 2=9-11 years, 3=12 years, 4=13-15 years, and 5=16 or more years. The education variable was collapsed to have 4 categories: less than high school, high school, some college, and bachelor's degree or more. In each Phase, women were asked "During the 12 months before your new baby was born, what was your yearly total household income before taxes?" Each Phase had a different range. Yearly total household income before taxes in ranged from less than $10,000 to $50,000 or more in Phase 6, $0 to $79,001 or more in Phase 7, and $0 to $85,001 or more in Phase 8. Based on the distribution of each variable income in Phase 6 was categorized as 1=less than $15,000, 2=$15,000 to $24,999, 3=$25,000 to $49,999, and 4=$50,000 or more. Income in Phase 7 was categorized as 1=less than $15,000, 2=$15,000 to $29,999, 3=$30,000 to $67,000, and 4=$79,001 or more. Income in Phase 8 was categorized as 1=less than $16,000, 2=$16,000 to $32,000, 3=$32,001 to $85,000, and 4=$85,001 or more.

Health insurance in Phase 6 was asked "Did any of these health insurance plans help you pay for your prenatal care? Check all that apply". The response options were (1) Medicaid, (2) private insurance, (3) self-pay, (4) Indian health insurance, (5) Champus/Tricare, (6) other governmental insurance, and (7) other non-government insurance. Across all 3 phases, I collapsed the insurance variable into 3 categories due to 93% of the sample having government

or private insurance: Medicaid, private, and other (self-pay, Indian health insurance, Champus/Tricare, other government insurance, and other non-government).

In addition to observing the association between interactions with healthcare professionals and postpartum depressive symptoms, this study also examines how discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial groups. Discussion with healthcare providers was assessed using the question:

> During your most recent pregnancy, did a doctor, nurse, or other health worker talk with you about any of the things listed below? Please count only discussions, not reading materials or videos. For each one, check No if no one talked with you about it or yes if someone did. What to do if I feel depressed during my pregnancy or after my baby is born.

Responses to this question are yes or no. Ethnoracial identity (described above) is the only predictor variable for this analysis and the same 5 control variables— marital status, age, level of education, annual household income, and health insurance—were used. In this analytic sample, there were 35 sites, Arkansas, Alabama, Arizona, Colorado, Connecticut, Delaware, Georgia, Hawaii, Iowa, Illinois, Louisiana, Massachusetts, Maryland, Maine, Michigan, Minnesota, Montana, Mississippi, Nebraska, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, Virginia, Washington, Wisconsin, West Virginia, and Wyoming and the city of New York City that asked about discussions with healthcare professionals about postpartum depressions during prenatal visits and ethnoracial identity (n=273,516). Only 6 states, Arizona, Colorado, Illinois, Pennsylvania, Tennessee, and West Virginia, asked about both variables in all 3 Phases.

Analytic strategy. Analyses for this secondary study occurred in two parts using Stata17. The first part of the analysis examined how the independent variables, chronic—experiences with racism and poverty— and acute stressors—satisfaction of interactions with health care

professionals during pregnancy, are associated with postpartum depression. Thirteen different logistic regression models were run using postpartum depressive symptoms as the dependent variable. There were 8 multivariable models and 5 interaction models. The second part of this secondary data study was to examine which ethnoracial identity healthcare professionals are more likely to discuss postpartum depression during prenatal visits. Similar to the associations between stressors and PPDS. There was a total of 2 logistic regression models, 1 bivariate model and 1 multivariable model, for this association.

Across the three empirical chapters, the topic—maternal health disparities—remains the same and the unit of analysis changes to examine the issue of maternal health disparities from multiple angles and foci. The various methodologies were used to examine the role of health professionals in maternal health disparities at 2 types of medical institutions: hospitals (where physicians work and interact with patients) and medical schools (where students learn how to care for and interact with patients). It is important to study maternal health disparities at these two levels of medical institutions as there is a lack of research that bridges the two seemingly disparate literature together. Maternal health outcomes are greatly influenced by doctor-patient interactions. During medical school, medical students learn what it means to be a physician and how to interact with patients. A key component of the professional socialization of medical students is the medical school curriculum, including both pre-clinical courses and clerkships. It is through the curriculum where students transition from layperson to a practicing physician who interacts with patients.

CHAPTER 3

PROFESSION SOCIALIZATION OF MEDICAL STUDENTS (INTERVIEW WITH MEDICAL STUDENTS)

Introduction

Doctor-patient interactions have a positive relationship with patient health outcomes, as effective doctor-patient interactions are associated with better patient health outcomes (Olaisen et al. 2020). The ability of physicians to effectively communicate information with patients in an empathetic and culturally sensitive way is central to a positive doctor-patient interaction. During medical school, medical students learn what it means to be a physician and how to interact with patients; this is known as the professional socialization of medical students (Becker et al. 1961; Conrad 1988; Everitt et al. 2020; Jenkins et al. 2021; Underman 2015; Underman and Hirshfield 2016; Vinson 2019). The medical school curriculum, including both pre-clinical courses and clerkships, is a key component of the professional socialization of medical students. It is through the curriculum that students transition from layperson to a practicing physician who interacts with patients.

Maternal health disparities are impacted by doctor-patient interactions (Howell and Ahmed 2019). During pregnancy, most women depend on the expertise of the medical professionals to assist them in ensuring that they have a healthy pregnancy, labor and childbirth, and postpartum; this includes both the health of the mother and the baby. A 2017 study observed that practicing healthy behaviors during pregnancy and a reduction in anxiety were associated with better collaboration, communication, and empowerment from healthcare providers

(Nicoloro-SantaBarbara et al. 2017). Despite this, during prenatal care, Black women experience less adequate care (Green 2018) and perceive their communication—shared decision making— with healthcare professionals more negatively than White women[1] (Attanasio, Kozhimannil, and Kjerulff 2008).

Research has focused on the role that implicit bias has on maternal health disparities (Green et al. 2021; Omeish and Kiernan 2020; Saluja and Bryant 2021). This is apparent in maternal physical and mental health research that has shown that Black women, compared to White women, have higher rates of maternal morbidity and mortality (CDC 2019; Amnesty International 2010; Petersen et al. 2019; Roth and Henley 2012; Tangel et al. 2018), have more cesarean deliveries as a result of more subjectively defined indications (Barber et al. 2011), and are less likely to be screened for postpartum depression (Sidebottom et al. 2020). Implicit biases shape physicians' behavior towards patients and medical decision-making, which relates to unequal treatment of patients (Chapman, Kaatz, and Carnes 2013). Black women are twice as likely to report being mistreated by healthcare professionals than White women (Vedam et al. 2019). Research examining Black women's narratives of their encounters with healthcare professionals during perinatal care revealed several types of racism that Black women have encountered and how they perceive these types of racism as a threat to positive birth outcomes (Davis 2019). To mitigate this, Black women are increasing opting to avoid hospitals and prefer birth centers and home births for their labor and birth (Davis 2019)

[1]I capitalize the word White when referring to people who are racialized as White people or people of European decent just as I capitalize people from all other ethnoracial identities because opting to not capitalize the word White but capitalizing all other ethnoracial identities affirms Whiteness and White racial dominance and disregards accountability of White people in racism (Mack and Palfrey 2023)..

In addition to studying the implicit biases of medical professionals, scholars have also examined the implicit biases of medical students. The implicit biases of medical students are heavily influenced by their formal curricular, informal curricular, and interracial contact during medical school (Van Ryn et al. 2015), emphasizing the influence that medical school training has on the professional socialization of future medical professionals. Although research has examined the role of implicit bias and the professional socialization of medical students, we know little about whether and how maternal health disparities are being incorporated into the U.S. medical school curriculum. This is important to study as medical educators and medical professionals have a strong influence on the professional socialization of medical students, who will be treating people in the perinatal period. This study is the first, to my knowledge, that examines medical students' perceptions of what they are or are not learning about maternal health disparities in the curriculum of their school.

Literature Review

Professional Socialization of U.S. Medical Students

Medical education curriculum. Given that there is no universal or global standard of what it means to be a doctor (Wyatt et al. 2020), medical educators and the medical school curriculum have a strong influence on the professional socialization of medical students and the ways in which they interact with patients. Professional socialization in medical education has a long history in the field of medical sociology (Becker et al. 1961; Conrad 1988; Everitt et al. 2020; Jenkins et al. 2021; Underman 2015; Underman and Hirshfield 2016; Vinson 2019). Socialization is the process that people go through to obtain the values, knowledge, and norms of their community. Similarly, professional socialization is the process that people go through to obtain the values, knowledge, and norms of their profession. In medical school, professional

socialization is the process where medical students learn what it means to be a doctor (Becker et al. 1961; Conrad 1988; Everitt et al. 2020; Jenkins et al. 2021; Underman 2015; Underman and Hirshfield 2016; Vinson 2019).

Researchers have concluded that training in medical school curriculum is standardized, yet what medical students learn is not (Becker et al. 1961; Everitt et al. 2020). In-depth interviews and ethnographic fieldwork are the most common types of methodology that have been used to examine the training of medical students. Becker et al.'s (1961) *Boys in White: Student Culture in Medical School* is the foundational work in the professional socialization literature as they were interested in studying medical education not from the objective or curriculum viewpoint but researching the culture and experiences of medical students. At the time of their study in the late 1950's, only about 5% of the medical student population were women, hence the name *Boys in White.* Becker et al. (1961) observed that in the late 1950s, training in medical schools was not a standardized top-down process, but rather was a social process that was heavily influenced by medical students' interactions and perceptions of what is important to know to pass each class.

Presently, the medical school curriculum remains standardized, but what students get out of medical school is not. Everitt et al. (2020) reexamined the text and study, about 60 years later, by using in-depth qualitative interviews with current medical students, which included both women and men—almost 60% of their sample were women. Everitt et al. (2020) observed that when preparing for class exams, the medical students in their sample engaged in similar strategies as the participants in Becker et al.'s (1961) study, which is to develop their own definitions of what is and what is not important to learn from classes. Additionally, they observed results that were not present in the *Boys in White* study, as the participants in this study

were more concerned with preparing for their required United States Medical Licensing Exam (USMLE) than excelling in their classes. This indicates that medical students in the 21st century are less concerned now with determining what their professors want them to know and are more concerned with what will be tested on the boards. Everitt et al. (2020) indicated that these differences were due to the creation of USMLE which was developed decades after the *Boys in White* fieldwork. Today, medical students must pass the USMLE exams after their second year, the last pre-clinical year, in order to continue in medical school and begin their clinical rotations. This indicates that the medical education of students is now more standardized than decades prior due to the boards. The medical school curriculum, including both pre-clinical courses and clerkships, is designed to prepare students to pass the exams. The medical school curriculum is also the main factor in the professional socialization of medical students, i.e., the transition from lay person to medical professional.

Medical Education Training

Clinical work. Sociologists of medical education have also studied the ways in which medical students learn to do clinical work, namely navigating the doctor-patient relationship (Underman and Hirshfield 2016; Vinson and Underman 2020). The expression or suppression of emotions is one aspects of the doctor-patient relationship that scholars have examined. Vinson and Underman (2020) indicated that when it comes to the emotional labor of medical professionals, there has been a shift in the norms. Previous work has noted that the suppression of undesirable emotions was not taught explicitly. *Detached concern* was used by sociologist Renee Fox in the late 1950s to describe the management of both patient and physicians' emotions that medical students and professionals had to do (Underman and Hirshfield 2016). Fox stated that detached concerns were the "counterattitudes of detachment and concern to attain the

balance between objectivity and empathy expected of mature physicians in the various kinds of professional situations they encounter" (cited by Underman and Hirshfield 2016:95). Fox suggested that autopsies teach students detached concerns, as emotional responses are increased at the sight of a naked, dead body while focusing on the scientific aspects of performing an autopsy created detachment, where students learn to restrain their emotions (Underman and Hirshfield 2016). More recently, there has been a shift in what is taught in medical schools about the physicians' expression of emotions, where standards of emotional conduct are emphasized and taught in medical school. Now that the second part of the USMLE has a portion that assesses how well the physician managed patient's emotion in simulated medical encounters (Hoppe et al. 2013), emotion should become a topic that medical students deem as important to know for their exams.

In the clinical years, students are informally and formally being taught how to care for patients and manage and express emotions. Similar to performing autopsies, medical students also participate in simulations, which are when a layperson role-plays the part of a patient. It is through simulations where medical students express and manage emotions during doctor-patient interactions. Underman (2015:181) argued that in understanding how medical students "come to embody medical culture", the concept of habitus is most useful. The concept of habitus which was developed by Bourdieu (1997) discusses how an individual is intuitively oriented to a particular field. In an attempt to create a framework for thinking about the association between institutional procedures in medicine and student practices, scholars have extended the work of Bourdieu using what they call the *medical habitus*. Underman posited that the use of the medical habitus allows scholars to think about the transformation of feelings, perceptions, and embodiment of medical culture for medical students (2015). Simulations in the clinical years

provides medical students with firsthand experience of doctor-patient interactions, where students "come to embody medical culture" (Underman 2015: 181). Indeed, Larson and Yao (2005) argued that if medical students receive training on how to act empathetically, this will lead to authentic empathy as medical professionals.

Ethnoracial Identity[2] in medical school. Understanding how medical students are taught about race and inequalities can assist researchers in better understanding the role those medical professionals have in maternal health disparities. Medical schools often ignore sociological understandings of race as a social and political construct and reify biological understandings of race. They teach that race is a biological risk factor for particular diseases (Andersen 2008). The Liaison Committee on Medical Education (LCME) standard requires medical educators at allopathic institutions to teach students "about the manifestations and underpinnings of social inequalities in the first four years of medical school" (Olsen 2019:59). If schools fail to do so, they can risk losing their accreditation. Research has shown that when teaching about social inequalities, educators prefer not to lecture, but to teach this in small groups (Olsen 2019). Olsen referred to the use of students of color's experiences to teach about social inequalities as the *conscripted curriculum.* Oftentimes, this results in educators placing the responsibility of instructing students about social inequalities on students, by allowing students to share their individual experiences with race. Olsen argued that "the use of the conscripted curriculum devalues the lessons about the social underpinnings of race" (2019:63). The lack of instruction on race by educators may contribute to health inequalities, as it increases variation in the quality

[2]In the literature review, I use the term race and ethnicity because that is what is used in the literature. In my work, I use the term "ethnoracial identity" to be more inclusive of the ways in which various people consider *themselves* on the basis of race and ethnicity. Additionally, the term race in the U.S. is a social construct that was created for racist purposes to create a binary between "white" people and "non-white" people (Bean 2018). The set of "race" categories in the U.S. continue to change, however, white supremacy remains with the use of the term.

of care that patients receive. With an understanding of how medical students are taught about race, inequalities, and maternal health, researchers can examine the impact that medical education has in addressing maternal health disparities. However, educators might be the source of amplifying biases among medical students. Research shows that physicians' biases toward patients during clerkships have a positive effect on medical students' perception of and treatment of patients from various backgrounds. A quantitative study examining the relationship between change in medical student's implicit racial bias and reports of experience with 3 domains: formal curricular, informal curricular, and interracial contact found that every medical school had at least one experience with each of the three domains (Van Ryn et al. 2015). Negative comments from role models in clerkships were associated with increased levels of implicit bias: students who have heard an attending physician or resident make negative comments about Black patients had increased implicit bias compared to students who did not hear negative comments (Van Ryn et al. 2015). The results from this study emphasize the influence that negative role model behavior has on the professional socialization of medical students. Open and honest discussions about individual and structural biases, implicit bias training and education (how to be aware of one's biases) need to be part of the medical school curriculum so that when medical students become practicing physicians who interact with pregnant women who are disproportionately affected by systemic oppression[3], they will not only be aware of their own biases but know how to mitigate them to provide the best quality of care.

[3]I use the term "women who are disproportionately affected by systemic oppression" to emphasize the notion that it is not one's ethnoracial identity that puts them at greater risk for adverse life and health outcomes, but that it is due to systemic oppression—i.e., racism and discrimination.

Current Study

Overall, we know little about whether and how maternal health disparities are being incorporated into the U.S. medical school curriculum This study adds to existing literature in medical sociology, maternal health, and the sociology of education by examining how medical students perceive what they are taught, or not, about maternal health disparities in medical schools. This study explores the following research question:

1. How do U.S. medical students make sense of and understand maternal health disparities, and what they are or are not learning about maternal health disparities in the curriculum of their school?

Methods

To answer this research question, a qualitative methodology was used. In-depth interviews were conducted with 25 medical students (13 3rd year, M3, and 12 4th year, M4) at an allopathic, religiously affiliated private Midwestern school. For more information about the methods and sample for this study, please refer to Chapter 2 Data and Methods section titled "Professional Socialization (Interviews with Medical Students)". To adhere to the human research protection guidelines, I have ensured the confidentiality of participants' identities by using pseudonyms[4] and generalized language when presenting the data. The student participants' pseudonyms are Courtney, Stacy, Tracy, Shannon, Alex, Charlie, Erin, Skylar, Kennedy, Terry, Jessie, Taylor, Avery, Aubrey, Riley, Payton, Cameron, Kendall, Sidney, Shai, Larenz, Kai, Ash, Jackie, Cleo. When reporting quotes of participants, I only include their name and year in

[4] I only report pseudonyms and year in school for participants and not their ethnoracial identity and gender because the goal of my study is not to assess differences in perceptions across ethnoracial identity and gender but to understand how U.S. medical students regardless of their identity perceive the curriculum that is being taught to them. I do not include any demographic information—their ethnoracial identity, gender, and age—when citing participants because I am focused more on students' perception of their curriculum rather than their identities.

medical school (i.e., an M3, Courtney; Kai, a 4th year; or Ash, an M3). I inductively, iteratively, and systematically engaged in thematic coding to produce the 4 analytic themes and subthemes reported in the results section below.

Results

Ethnoracial Health Disparities[5]

Knowledge of ethnoracial health disparities. To assess medical students' understanding of ethnoracial health disparities, they were asked "Now, I want to ask you some questions about racial health disparities. There has been a lot of recent attention to issues about racial disparities in health. What is your understanding of some of the issues concerning this topic?" The majority of participants (21/25) indicated that they thought they had at least some knowledge of ethnoracial health disparities; the other four said that their understanding of ethnoracial health disparities was limited. Through conversation, however, all participants demonstrated at least some understanding of ethnoracial health disparities.

When providing an answer to this question, some participations mentioned specific health conditions, others discussed social determinants of health, and others discussed the role that racism has in the existence of health disparities. A little over 50% (13/25) of participants mentioned at least 1 health condition, such as diabetes, asthma, life expectancy, schizophrenia, sickle cell, and Factor V Leiden, when discussing ethnoracial health disparities.

[5]I use the term "ethnoracial health disparities" instead of racial health disparities to be more inclusive of the ways in which various people consider *themselves* on the basis of race and ethnicity. This terminology was not used in the interviews to prevent confusion. However, when asked about racial health disparities, the participants in my study discussed disparities across ethnoracial identity groups (i.e., Latine people). Additionally, the term race in the U.S. is a social construct that was created for racist purposes to create a binary between "white" people and "non-white" people (Bean 2018). The set of "race" categories in the U.S. continue to change, however, white supremacy remains with the use of the term.

When looking at social determinants of health, overall, all participants (25/25) provided a discussion on social determinants of health, such as lifestyle behaviors, access to care, quality of care, socioeconomic status (SES), geographic location, health literacy, and language. Access to care was the most common social determinant of health mentioned by participants when discussing ethnoracial health disparities. This was mentioned by 64% (16/25) of participants and M4s (10/12) were much more likely to mention access than M3S (6/13). Alex, an M4, explained,

> Oh, gosh, um, I think big picture it has that a lot of the conversation is centered on access to care and quality of care, right? So which communities have for example, rural medicine, a lot of conversation about how that impacts access, or urban medicine, even in which the population density and geographic location don't line up access to competent care and having access to, for example, level one or two, or whatever trauma centers is really important.

Similarly, 3rd-year student Terry stated that "Like so many of the racial disparities deal with, I feel like it all comes back to, to income and access to care... when you look at the racial breakdown, it's these distinct categories based on a person's race." As indicated by these two participants, patients' access to care, more specifically the lack thereof, is a key contributor to health disparities, and as Terry pointed out, access to care varies based on ethnoracial identity. Of the 16 participants that mentioned access to care as an influencing factor in health disparities, 10 (5 M3s and 5 M4s) of them discussed specific types of access like insurance status/affordability and transportation. Shai, an M3 stated,

> Access can, can, can mean anything from the language barrier to travel, being able reach a clinic or hospital, to, you know, being able to pay for the cost of, of like the travel and the medicine and the office visit to, you know, even the zip code where you grew up in what's around your neighborhood? Or do you have access to a pharmacy? Do you have access to healthy foods? Do you have access to clean water? Because not even water is safe everywhere. And, you know, it's I think there's a lot of different things that encompasses or that affects health disparities. And it's just such a broad topic, and some specific like minority groups or people of color tend to be the ones who fare the worst within those different realms.

As this participant indicated, there are various barriers to access to care. Their discussion about location is the next most common determinant of health that 13 participants (7 M4s and 6 M3s) mentioned. These participants discussed the role that geographic location plays in health outcomes, as some people either live in food deserts or reside in areas that are not in close proximity to other health-promoting resources like pharmacies or hospitals. When discussing location, participants also described socioeconomic status or income, as demonstrated in the quote below from a third year, Ash:

> The most jarring thing I've ever heard is that a lot of you know, health can be determined by zip code. And there's, you know, it's, it's a really big, intertwined thing where, you know, zip code, health, their related zip code, and, you know, ability to be in a good school system is related, you know, how much funding is that school can get, so that also plays an aspect to health.

This participant, like most of the participants, described a correlation between two or more social determinants of health. For these participants, it is not one individual factor that causes ethnoracial health disparities, but it is an accumulation of several factors, like social determinants of health.

When discussing social determinants of health, 44% (11/25) of participants included ethnoracial identity and/or racism as a determinant of health. For example, Shannon an M4 articulated that

> Yeah, so um, I think that there's, I mean, these disparities come up for several reasons, and they're all like so interwoven. So you know, I think that race affects the quality of care that people have access to. And then I think there's a lot of overlap between, you know, race and socioeconomic status and race, and, you know, geographic availability of resources. But then also, you know, when somebody let's say, comes to the emergency room, right, there's also the idea of just no matter where in the country you are, how you'll be perceived by that provider. And that also affects the quality of care you can receive. So I, I think it not only boils down to access, but also you know, provider perception, and then the implicit biases that providers have. And so it translates then not just in disparity in access to care, but disparity of outcome as well.

This participant described the correlation between ethnoracial identity, SES, and geographic location. This was also demonstrated by Ash, previously cited, who stated "And then you have environmental racism to where underserved, low-income communities, they're likely to have, you know, poor water quality, we've sometimes no water like you've seen across the states." In this quote, this participant attributed income and living conditions to environmental racism. Racism was explicitly described as a main contributor to ethnoracial health disparities by 2 other participants (1 M3 and 1 M4). For these participants, it is not one's race that puts them at greater risk for a particular disease, but it is social determinants of health like access, health education, location, health behaviors (exercise, diet), and insurance that are impacted but structural racism. Taylor (M3) noted,

> A lot of factors you know, like um, like, for example, like, I know, Hispanics and, and African Americans have a higher rate of obesity. Is that their fault? No, it's because like if you live in <city>, there's no grocery stores, you know. Like, it's not, they go, they can go down to the gas station and get chips and a soda. They can't go to, you know, <grocery store> even, you know, if they don't have a car. So, it's like, it's not their fault.

Similar to this participant, another 3rd year, Sidney, reported that

> And so that because of racism in the United States is closely tied to race, right? And again, we won't call it out, but myself and other people like I'm sure you've heard of Dr. <name> like she used to work at CDC actually. But, you know, she talks about that racism is a social determinant of health. And I completely agree with that, especially when we look at the data, not only that's done by CDC, but also by WHO, okay, and United Nations. And so, we know for a fact that racism, both structural and interpersonal, affects someone's health, and wellbeing, as well as their health outcomes.

The quotes from these two participants demonstrate that they do not conceptualize race as a risk factor, but due to structural and interpersonal racism, ethnoracial minoritized groups face several barriers to obtaining optimal health.

The majority (8) of the 11 participants that included a discussion about ethnoracial identity and health mentioned ethnoracial identity, and not racism as a determinant of health

where one's ethnoracial identity is a risk factor for certain diseases. Kendall, a 3rd year, noted that

> We would talk about just like social determinants of health and how most of the, those determinants they came from, they were mostly seen in people of color again, because they usually have higher rates of poverty. Of, you know, they have less education. They have less access to healthcare. Most of them are not insured. If you look at like immigrants, immigrants do not qualify for like medical insurance so just all of these other things where race and society are very intertwined and the people that are much more vulnerable are the people of color.

Although this participant indicated the correlation between various barriers to health, they noted later in the interview that race is a risk factor for health conditions. One participant, Kendall (M3), stated, "You can only assess risk factors and race. And race does happen to be one of the risk factors, then they will mention it in context of that disease." Despite the fact that this participant provided one of the most knowledgeable discussions about ethnoracial health disparities, they strongly believed that race is a risk factor for certain diseases and that one's race should be heavily considered when treating a patient because,

> Like how I said before, if there is a specific disease, that is, you know just based on the literature, it just comes up multiple times, again and again that that having this particular race puts you at a higher risk of developing this specific disease.

Six other participants (4 M3s and 2 M4s) also described race as a risk factor

Lastly, when asked about their knowledge about ethnoracial health disparities, 4 participants (3 M3s and 1 M4) provided discussions that conveyed a very limited knowledge of ethnoracial health disparities. For example, when asked this question, 3rd year, Courtney replied:

> Really not good, I think, I think, in reality, the main theme that I take away a lot is, for example, like African Americans, for example, have like worse outcomes in a lot of these, for a lot of diseases than, for example, like Caucasians. And actually, some than, some Asian people fare better.

This participant admitted that they're understanding is "not good" but was able to convey that they know that ethnoracial health disparities exist. Overall, 84% of participants (21/25) were able to convey some knowledge about ethnoracial health disparities where they discussed contributors such as social determinants of health like access, geographic location, socioeconomic status, racism, and race (that is, as a risk factor not tied to racism but to identity).

Ethnoracial health disparities in the medical school curriculum. After describing their understanding of ethnoracial health disparities, participants were asked where they learned this information from. Almost 90% (22/25) of participants reported that they learned about ethnoracial health disparities to some extent in medical school. Two M4s and one M3s reported that they had not learned about ethnoracial health disparities at all while in medical school. Twenty-two participants indicated that they learned about it in preclinical years and 9 reported that they learned about ethnoracial health disparities in their clerkships (keep in mind that at the time of their interview, 3 participants had not taken any clerkships yet). The three classes in which students indicated that they learned about ethnoracial health disparities are the patient medicine course, health and human development course, and the behavioral development course.

Of the 22 (12 M3s and 10 M4s) participants who reported that they learned about ethnoracial health disparities in medical school, 16 (8 M3s and 8 M4) indicated that the learning was not extensive at all. Jackie explained that their school

> [does] an okay job. Like, they talk about it, like, in the curriculum. Like, you know, I mean, they mentioned it, you know. And so like, for some schools, I don't, I'm not sure if they do that. Like, now, I guess, like, how do I say this? I think like, you want to, you want to stray away from it being performative, right? Because it's like the, "it" thing to do now. Obviously now, like, "hey, you know, healthcare disparities", all this stuff? Yeah, yeah, yeah. But like, you know, like, it's, I feel like some people feel like, it's not enough to just mention it by name. And like, mentioned in class, because like, there's always talking points, like everyone knows that. I mean, but like, why? Why, you know, they mentioned it; but we want to know why, you know. I mean, and like I guess not to say,

> I'm not trashing <school>. Like, obviously, you know, there's so many things that we have to learn. But really focusing in on the why part is like, like, the why [is] super-duper important. And like, I think, like, for some people, it's evident. And for some people, it's not, because like, you have to understand, like, a lot of medical students come from a upper middle, you know, White, middle upper class background, you know, I mean, so like, that stuff is so foreign to them. And so, they don't even recognize it, you know, so I don't know, that's sort of like my two cents on it.

This participant not only discussed the "performative" nature of ethnoracial health disparities in the curriculum, but also highlighted how an explanation of why disparities exist is important for medical students to learn, particularly for the White, upper middle-class medicals students who are not exposed to or aware of ethnoracial health disparities.

Six participants (out of the 22 who mentioned health disparities were covered in the curriculum) indicated that the discussion of health disparities in the curriculum was more extensive. These participants discussed specific lectures that discussed health disparities. Alex (M4) recalls a lecture in the patient medicine course that discussed access to care, differences in insurance coverage across ethnoracial groups, caring for undocumented patients, and language barriers. Riley, a 3rd year, recalls in their health and human development course where the professor discussed the Tuskegee experiment and other lectures on race and medicine, stereotypes, and implicit bias. They did note that,

> I don't feel like I have a very nuanced or super informed understanding about what those disparities look like on the ground and all of the like, cause and effect little like, think factors that are going into making it play out that way.

Despite this participant being able to recall several discussions related to health disparities and determinants of health, they still indicated that the teaching was not thorough, as it did not explain the causes of health disparities. Overall, only about a third of all participants could recall specific conversations or lectures related to ethnoracial health disparities in the preclinical years.

When looking at whether and to what extent medical students perceived that they learned about ethnoracial health disparities during their clerkships, only 1 participant reported that they learned about ethnoracial health disparities in their Internal Medicine clerkship where they had discussions with residents, 2 reported that they learned about it in the OBGYN clerkship from residents and other students, 1 in the Psychology clerkship, 4 mentioned the Family Medicine social determinants of health lecture and/or project, and 1 M4 participant could not recall which clerkship but believes it was discussed in at least one of them.

In the Family Medicine clerkship during orientation, there is a lecture on social determinants of health. Additionally, there is a social determinant of health project where students have to select a patient, spend time with them, screen for social determinants of health, and provide resources to patients. The screening tool includes determinants like food insecurity, safety, in the home, access to care, and access to transportation. I do want to acknowledge that in the interviews with medical professors (Chapter 4 Medical School Curriculum (content analysis and interviews with professors), the Family Medicine professors mentioned the lecture and social determinant of health as a way to educate students on ways to mitigate patients' social determinants of health. However, only 5 participants (2 M3s and 3 M4s) discussed the Family Medicine social determinants of health lecture and/or project. Thus, despite the efforts of the Family Medicine clerkship director and physicians, the majority of medical students did not recall the lecture and/or the project on social determinants of health. This finding demonstrates the distinction between what medical include in their curriculum versus how students perceive what is taught to them.

The 16 participants who indicated that the learning was not extensive were then asked their thoughts about the lack of extensive instruction on ethnoracial health disparities in medical school. Shai (M3) responded by stating that,

> I feel like it is a big problem. A lot of the class, just speaking from my personal experience in my class, there are a lot of people who are very privileged, or who grew up very privileged. And I don't think they realize that there are a lot of the majority of the patient population that they will interact with in their future careers, do not come from that same background. And I think that it's really unfortunate and almost a hindrance to our education that we are not taught or we're not discussing the reality of the lives of so many people in this country. And these communities that to a point, are the ones that need the most help, or the need, the ones that need the most care. I think that in order to be more competent physicians in the future, we need to learn early on all of the different facets that affect someone's life, their livelihood and their health. From what, what job they work in every day. How many jobs they may work? How many hours they're able to sleep? What their daily diet is like. Their stressors or, you know, family history. Their access to, to food to healthcare, to shelter. I think there's there are a lot of, like I said facets that affect someone and who they are in their health, that we just don't really, we're not taught to think about. And I feel like if someone hasn't experienced that or know of it already, they will think they will, like think to think about it.

Like this participant highlighted, the lack of incorporation of health disparities in medical school is a hindrance, or disservice as 7 other participants referred to it, to medical students. As Kai (M4) powerfully articulated,

> I feel like not talking about it and having it be like a formal part of our curriculum does not solve anything, it just perpetuates more physicians, particularly those that are not of color. Kind of being oblivious to these things, and they aren't going anywhere; it's a form of disservice to the communities.

For these participants, the surface level or “performative” instruction of ethnoracial health disparities in medical school is hindering their abilities to be effective physicians that can treat patients from all backgrounds. Overall, the medical students in this sample have indicated some working knowledge of ethnoracial health disparities and social determinants of health. However, they perceive these concepts as not incorporated throughout the medical school curriculum, despite there being a Family Medicine orientation and clerkship on social determinants of health.

Many participants reported that they feel that ethnoracial health disparities should be incorporated more extensively into their curriculum and feel that the lack of incorporation is contributing to the existence of health disparities.

Maternal Health Disparities

Knowledge of maternal health disparities. To examine how students describe their understanding of maternal health disparities, they were asked "I want to ask you about maternal health in particular. How would you describe the racial disparity issues concerning maternal health?" Twenty-four out of 25 (96%) participants provided descriptions of maternal health disparities, in which they noted that White women have better health outcomes than women from ethnoracial minoritized groups. None of them talked about maternal mental health. Nineteen of these 24 (79%) participants mentioned a specific ethnoracial group when discussing maternal health disparities. Eight of them (24) only mentioned Black women, stating that they had worse maternal morbidity and mortality outcomes; while 6 other participants compared maternal morbidity and mortality rates of Black women compared to White women.

Three participants (2 M3s and 1 M4) noted that White mothers have better maternal morbidity and mortality outcomes than "women of color" or "minorities." When asked about maternal health disparities, one of these participants, Terry (M3) explained that

> Um, I mean, the United States is completely polar. It's, it's like we have two different health systems as far as maternal health, from, from all of the statistics that I've seen. It's like, there's one health system for White mothers, and there's a completely separate health system for everyone else. You look at the, the mortality rates, the rates of complication, infant and maternal mortality, it's, it's like night and day, it's actually just like, shocking to me[6]

[6]When asked where they learned this from, this participant noted that they learned this externally, from reading, not from medical school (this participant did not take their OBGYN rotation yet). I wanted to emphasize the fact that this medical student did not learn about maternal health disparities in medical school.

This participant, like others when discussing maternal health disparities, noted that there are stark differences between maternal health outcomes for White women compared to women belonging to minoritized ethnoracial groups. Only two participants, 1 M3 and 1 M4, specifically mentioned other ethnoracial groups such as Latina and Asian women. Erin (M4) reported that "there's like much higher rates of maternal and fetal complications, including death. I believe, highest in Black and African American women. Second is like, people who self-identify as Hispanic or Latina. Then for Whites and Asians about the same." Jessie, a 3rd year, stated, "So, like, always considering, like, okay, like, there are definitely disparity where people of color, especially Black and Hispanic people are kind of at the brunt of everything." Overall, these 24 participants all discussed how Black, Asian, and Latina women in the U.S. have worse maternal health outcomes than White women.

Looking at specific maternal health outcomes discussed, 15 out of 24 (63%) participants discussed maternal mortality, reporting that Black women have higher maternal mortality rates than White women. Third year medical students (9/13) were more likely to discuss maternal mortality than fourth year students (6/12). Three participants provided statistics that Black mothers are more likely to die from childbirth than White mothers. The rates varied across the 3 participants: one stated 2-3, another 3-4, and the last 5 times higher. In addition to maternal mortality, participants also discussed other health outcomes related to pregnancy such as infant mortality, pre-eclampsia, cesarean sections (c-sections), and pulmonary embolisms. The next most common physical health outcome that was discussed was infant mortality, as 5 participants discussed this. Fourth year medical students (4/12) were much more likely to discuss infant mortality than 3rd year medical students (1/13). Participants did not provide any statistics on infant mortality, but one participant, Alex (M4), noted that "child fetal demise, are much higher

in women of color." Three participants (2 M3s and 1 M4) mentioned pre-eclampsia and how Black women have higher rates of pre-eclampsia. Next, two participants, both M4s, noted how Black women have higher rates of c-section deliveries. Lastly, one 3rd year medical student, Kendall, discussed pulmonary embolisms. This participant began by discussing what happened to Serena Williams, who suffered from a pulmonary embolism after the birth of her daughter, postpartum back in 2017 and how "African American women are at higher risk of developing pulmonary embolisms postpartum.". In general, when discussing specific maternal health outcomes, the majority of participants noted how Black women have worse maternal health outcomes than women from other ethnoracial groups. As indicated above, the majority (96%) of participants are able to provide some discussion on maternal health disparities. Importantly, none of these students discussed maternal mental health.

One participant, Kennedy (M3) who also mentioned that there are disparities in prenatal care consistency, number of visits, and quality, also discussed the role that stress has on maternal health outcomes. They explained,

> I think and I think we're just starting to learn how chronic stress affects our health. And also then how chronic stress and like chronically elevated cortisol levels and everything that goes along with stress beyond cortisol. Yeah, like the pregnant person and the fetus that's growing like it's, of course going to affect both and yeah. But there's, I think it's more like, I personally think that like, a big part of what's going to explain the differences is going to have to do with like, just the constant stress, like constant stress of poverty, constant stress of just a harder, harder life, like, think, living, living less securely. It's just gonna cause stress. I do personally believe that a lot of a lot of differences are going to be racial based differences. Like there, it's gonna have to do with like, just constant stress. When you're stressed, you don't have the mental space or the wherewithal to, "okay, now I'm gonna, like, get salad ingredients. Make sure they don't go bad. Use them in time. Get my family to eat a salad or eat a vegetable. And, like, yeah, it's just it's hard to see people like, make making choices when they don't have as much choice as I wish that they could have.

This participant described how social determinants of health, like poverty, impact one's stress, which in turn adversely affects their maternal health. They also mentioned how there are

differences across ethnoracial groups. Similar to this participant, 5 other participants provided answers related to barriers to obtaining optimal health. Three of these 5 participants (1 M3 and 2 M4s) discussed discrimination in healthcare such as pain tolerance. One 4th year medical student, Jackie attributed maternal health disparities to physicians' perceptions of their patients' pain; they explained,

> It was like my understanding like, obviously, like, in terms of like people of color with Black women, specifically, they have high mortality, when it comes to delivery. They have people don't take their pain seriously, when they say they're in pain. I think like, obviously, some enormous amount of racial biases that people have that impact their care, long term.

Similarly, participant Avery (M4), talked about how there are differences in screening and testing. This participant noted that,

> I've heard, for example, especially in maternal health, how different it can be based on your race. Some things I've heard for example, some doctors may not necessarily take somebody's something that somebody is coming in for based on what race that person is. Like, they may not order the tests or like, work them up for it, because they'll just sort of be like, "Oh, it's nothing and ignore it." That's something that I think is part of this problem. And this topic in general, especially in maternal health, I heard that a lot, that the amount of like, x-rays or lab tests and stuff is different for some races compared to other races.

Similar to this participant, Larenz (M4) discussed how providers can serve as barriers to optimal health. They noted, "providers of when a patient presents, you know, when they make their assumptions about what's going on with the patient. You know, it's definitely influenced by race, too." These three participants discussed how physicians are contributing to maternal health disparities by not treating all patients the same by not providing them with the proper tests needed based on their symptoms. Two participants out of the 24 that provided descriptions of maternal health disparities, both M4s, gave a vague answer about maternal health disparities. One M4, Stacy, responded, "Um, a lot less than I think, in general, like what I said earlier, but I

would think that the health-related issues amongst different races also persist in maternal health. I don't think that they're vastly different", while the other, Kai (M4), stated,

> In general, they're bad. I mean, I don't know another way to put it is not new, just like the other stuff we talked about has always been there. I feel like recently, people have just been given a bigger platform to talk about them.

Even after probing, these two participants did not provide more detail about specific ethnoracial groups or maternal health conditions.

Lastly, when asked "How would you describe the racial disparity issues concerning maternal health?", only one participant—Cleo, and M3—responded saying that they have no knowledge of maternal health disparities and when probed asking "And how do you feel about that the lack of instruction about maternal health disparities in medical school?", they responded "Yeah. I'm definitely like disappointed about it, especially in the clerkship, like I just came off my OBGYN rotation, and I can't remember us really ever discussing that." Then they were probed again asking "What about social determinants of health any teaching on that?", to which they responded

> Social determinants of health honestly wasn't really even touched on. Like, we in our clinical OB GYN rotation, so we had like, a couple of lectures, but all of it was really based off like health, you know, and like medicine of like, endometriosis, you know, or, like pathology. There was never a session on social determinants of health and OBGYN. And like that there was, there was definitely a place for it. Could have been a lecture, we had plenty of lectures. In a Yeah, it was never touched on. Yeah. All right. Even like, before this zoom, I was like, what do I know about disparities? And I was like, I don't know much because I can't believe we like really didn't talk about it.

This participant emphasized their perceived lack of instruction on maternal health disparities at their medical school. This perception was echoed by the majority of participants.

Maternal health disparities in the medical school curriculum. After asking participants to discuss maternal health disparities, all participants—with the exception of the one M3 quote

above who said that they have no knowledge of maternal health disparities—were asked where they learned this information from. Almost 30% of participants (7/24) reported that they learned about maternal health disparities in medical school. However, only 2, both M3s, of them indicated that the instruction was extensive, while the other 5 noted that they only learned about maternal health disparities when discussing a particular disease or health condition in medical school. One of the participants that learned about maternal health disparities extensively in medical school—Ash, a 3rd year—, recalls a discussion in the preclinical years. They noted that there was a discussion about the history of obstetrics and gynecology where they

> Talked about, kind of that really dark history that OBGYN was started upon and how we have kind of yet to confront that. You know, we talked about it, but what does it look like to actually confront that? How are we going to kind of like repair What has been done? You know? So, that's really the gist of how much we talked about it. But I know there's a book. They told us there's a book.

This discussion about the history of OBGYN was only mentioned by one medical student. This participant noted that the professor that taught this lecture was a Black female and suggested that her ethnoracial identity may be a reason why it was taught. This was the second most descriptive example of how maternal health disparities was taught to them in medical school. I do want to note that this student has not taken their OBGYN clerkship yet. An M3 (Kendall) who has taken their OBGYN clerkship is the other participant who can recall learning about maternal health disparities. This participant learned about maternal health disparities during their OBGYN clerkship. However, this participant said that they did not learn about it from any of the attending physicians, but from the Black female residents who was at the hospital where they did their OBGYN rotation. Kendall stated that,

> We had the whole conversation with the resident. And the resident is also a Black woman, so she was just also just more educated in these racial issues. And she was doing a really good job of explaining that to us. So, we had an entire discussion about [it] which

> I thought was very helpful in just understanding things to look out for most of these patients…[Resident] likes to include race in those discussions so that has been very helpful and those are the two big topics that we've talked about because there's other patients that come in, like more common.

Kendall was then asked, “and it’s just this one resident who's doing it's not the attending physician?”, the participant responded,

> No, the attendings don't really do a lot of education, I mean they're really there to educate the residents, but the chief resident she does a really good job of answering our questions and everything. The other resident she's a second year, and she is um she's a White woman, so we haven't had any like racial discussions with her, I would say, but she educates it educates us more on just like these processes and, like the pathologies and stuff like that.

This response indicates that maternal health disparities are not part of the curriculum, in which all medical students are educated on maternal health disparities, but that they received in-depth learning about maternal health disparities in medical school from the chief resident, who is a Black woman. One 3rd year medical student, Taylor, said that they believed that they learned about maternal health disparities in their Patient Medicine course but cannot recall.

Next, 23 participants were asked their thoughts about the lack of instruction on maternal health disparities in medical school[7]. For the 23 participants that were asked the follow-up question about their perceptions of having received limited instruction on maternal health disparities in medical school, the wording of this question varied, as some were asked “Do you have any thoughts or feelings on the limited knowledge?”, others were asked “How do you feel about the lack of maternal health disparities being taught to you in medical school?” Two participants, 1 M3 and 1 M4, indicated that the lack of instruction of maternal health disparities

[7]The 3rd year medical student, Ash, who learned about maternal health disparities was not asked this follow-up question, because they indicated that they only learned about maternal health disparities in medical school and that the discussion on maternal health disparities with the resident was extensive. The other student that was not asked was the M3, Taylor, who could not recall if they learned about maternal health disparities in classes or not; they stated, “I don't want to say that they didn't do it if they did”.

are not a reflection of their medical school in particular but is due to medical students own interest or it is due to the medical school curriculum overall. Stacy, an M4, stated that, “I think the accessibility to the knowledge is there, I think it's my own lack of pursuit that's limited my knowledge again, because I'm not going to OB, so I haven't taken an interest in maternal health.” Following this statement, the participant did note that “In retrospect, I think it's something that's important for everyone to know, because everyone's probably gonna know somebody whose pregnant. And even more important for people in health care to know.” For this participant, medical students should do external reading about topics related to their field of interest. However, all people in healthcare should know about maternal health disparities, because they will know someone who is pregnant. The other participant, Courtney (M3), who indicated that the lack of instruction on maternal health disparities are not a reflection of their medical school stated that “In the first place, maternal health is not well taught in medical school. Um, I think this is common. Again, it's reflective of the board's like, I don't think I got asked, if any questions on maternal [health disparities].” For this student, the fact that their medical school does not include an instruction of maternal health disparities are reflective of the medical school curriculum overall. The reference to boards, exams, or being tested on health disparities was common among participants, especially in the case of recall. Many students could not recall specific topics and lectures if they were not on the boards.

The remaining 21 participants indicated that the lack of instruction of maternal health disparities are a detriment to not only to them as future physicians but to reducing maternal health disparities overall. The most common detriment that participants discussed was that the lack of instruction on maternal health disparities impacts the care that future physicians will provide to patients, which in turn does not help reduce the prevalence of maternal health

disparities. This was mentioned by 10 participants (5 M3s and 5 M4s). When asked their feelings about the lack of instruction on maternal health disparities at their medical school, Erin (M4) stated, “Yeah, I think that obviously, it's unfortunate. Especially considering it's, you know, it's not it's not a problem that's like an, you know, another country's problem or a developing countries problem. It's like very much prevalent in, in America.” This participant is hinting at the fact that the U.S., a developed country, has maternal health disparities 2-3 times higher than most other high-income countries (Gunja, Dumas, and Williams 2022), however, U.S. medical schools are not incorporating a curriculum on maternal health disparities (see Chapter 4 Medical School Curriculum (content analysis and interviews with professors). Similarly, another M4, Kai, noted that the lack of instruction “doesn't make the problem go away. It’s still there. It perpetuates more physicians being oblivious or not knowing about these maternal health disparities, and then at the end of the day, it's a form of disservice to like the communities.” Similar to this participant, three other participants (1 M3 and 2 M4s) indicated that this was extremely problematic given the demographics of the community that their school serves, Tracy (M4) explained

> But again, there you know, we did a lot of teaching about you know, preterm labor and things like that. But again, not a lot of demographics, which is kind of funny because a lot of the patients we did see were not Caucasian, you know. We saw a lot of Latina patients. A lot of African American patients, because these women were mostly struggling with things like gestational diabetes, and that made their pregnancies high risk or obesity. But I mean, given the very clear, like demographics of the patients who we're seeing day by day, we really didn't do any like teaching about it.

This participant described the maternal health conditions that they have observed during their OBGYN clerkship and how despite the fact that the majority of the patients that they serve are not White, there is no teaching on maternal health disparities. Participants are describing a desire

to learn about maternal health disparities so that they can properly treat the patients that their schools' hospital and affiliate healthcare centers serve.

Additionally, 10 participants (5 M3s and 5 M4s) mentioned that because OBGYN is a required clerkship for all medical students, not just at their school, maternal health disparities should be part of the curriculum, as Riley, a 3rd year, explained

> Yeah, I think it is disappointing because I think it is something that you could so easily just integrate kind of seamlessly into that setting because what's great about the setting is that you get one-on-one time with these people who are residents or attendings. Either way, they're doctors who have more experience than someone like me has. And you know, if you're seeing such and such in a patient where those disparities might apply, you could bring it up, or just sort of during downtime, which sometimes happens. And it's important. And those people would be able to draw, draw on those like niche, specific examples.

Similarly, Alex (M4) stated,

> I mean, it's a critical component of healthcare. I think at the very least it should be in, intertwined in the OB curriculum, because we all have to go through OB. We'll have to do a section on the labor and delivery floor. And they all have to work with at some point in our, our time we have worked with, with mothers, we have to work with their children. So, I think it would be the very, very least or the lowest common denominator, I think there, yeah.

The quotes from these participants demonstrate their disappointment with the lack of maternal health disparities being incorporated into their curriculum as they see it as a hindrance to their ability to adequately provide the best care for all women during the perinatal period.

Ten out of 13 of the M3s have not completed their OBGYN rotation yet. Out of those 10 M3s, 4 participants were hopeful that they will learn about maternal health disparities in their OBGYN clerkship. One stated "I wish this was, you know, maybe this is incorporated in the clerkship? I don't know because I haven't gotten the clerkship yet." Unfortunately, only 1 participant out of the 12 that have taken the OBGYN clerkship, noted that they learned about maternal health disparities in the clerkship and this student only learned about maternal health disparities from the chief resident, a Black woman; it was not taught by an attending professor.

Despite this medical school have an OBGYN department and being located in an ethnoracially diverse community.

Actions to Reduce Maternal Health Disparities

After discussing maternal health disparities, participants were specifically asked, "What do you think healthcare professionals, as well as healthcare institutions could be doing to reduce these disparities in maternal health?" Their responses discussed actions that the medical school, healthcare professionals, and healthcare institutions (hospitals) could do.

Efforts needed by medical schools. Twenty-one (9 M3s and 12 M4s) out of 25 participants described ways in which medical schools can reduce maternal health disparities. They noted that maternal health disparities need to be part of the medical school pre-clinical and clinical curriculum. A third year, Jessie, answered the question saying,

> The biggest thing is kind of having a dedicated lecture or actually incorporating most of it and have every, like a sit down. I feel like for me, like, even uh, with like, during our preclinical years, it was very disjointed. Like, it was almost always like a tidbit of information as we were learning about other things and never really the focus of the talk. So having like a perfect focus talk, and incorporating that into our curriculum

As demonstrated from this quote, most participants indicated that including maternal health disparities into the curriculum is a start to addressing maternal health disparities. Medical professionals need to first have conversations with medical students about maternal health disparities in the preclinical years so that when they begin clerkships, they are aware of ethnoracial health disparities and the barriers to care that some women experience during the perinatal period. As an M3, Riley, explained, "We need to make more of an effort to do it during the preclinical years…[to] really augment their knowledge prior to the clinical practice with something that's more foundational, and that they can carry with them throughout their training."

For these participants, incorporating a curriculum on maternal health disparities are the first step to producing physicians who can actively work to reduce maternal health disparities.

However, as a few participants explained the type of teaching matters as Riley explained,

> I think it starts with the awareness and making sure that everyone is educated on not just the notion that there are maternal health disparities, but you have to do better than that. And talk like getting into the nitty gritty and the specifics. Why do we think that there are disparities? Where can we step in what is within our control?

As indicated above, the overwhelming majority of participants conveyed that the discussion of maternal health disparities is very surface level, where in the very few instances where it is discussed, medical professors mention that they exist but do not go into detail about the reasons why nor how to address them. Additionally, seven participants mentioned that implicit bias training and lectures on the topic are essential to reducing maternal health disparities. Charlie, a 4th year, stated in order to reduce maternal health disparities medical schools need to,

> talk about implicit biases as well that exist for all these things? Because I think sometimes people don't realize their implicit biases, or institutional biases as well. And if those are mentioned, and maybe people would be like, "Oh, wow, this is like, so this is how I've always thought of something." But I didn't even realize it's a bias, you know, especially institutional biases, because institutional biases are all of its country based on race, right. And that exists in health in the healthcare sector as well.

For these participants, implicit and structural biases impact health outcomes. In order to address and prevent these biases, medical schools need to provide implicit bias training and lectures. Participants explained that it is the job of medical schools "to mitigate the biases of students" (Alex) and that their professors need to bluntly admit that the medical system has racist foundations and that everyone has implicit biases that they need to be aware of when interacting with patients. Ash (M3) stated,

> Oh, first of all, like, just teach it, we need to teach this but not in kind of like a really good dancing around a topic type of teaching it. Like we do with stuff like some implicit bias trainings, it's kind of like dancing around the topic, you know, try to make it as

> palatable as, as possible, which sure, sometimes palatable is kind of how it gets to people's heads. But sometimes, we really need to kind of, bluntly confront the problem in that our system was built on racism, and confronting that, you know, physicians can be racist, and most of us have implicit biases, all of us have implicit biases, really.

This participant highlighted the importance of having in-depth, not surface-level, conversations about health disparities, racism, and biases.

As discussed above, the overwhelming majority of students reported that maternal health disparities are not taught to them and the few teachings on ethnoracial health disparities are performative as they merely mention that there are disparities and barriers to care exist. However, medical professors are not having in-depth lectures and discussions with students explaining why barriers to care exist and what healthcare professionals can do to reduce health disparities. The M3 participant (Ash) quoted above explained that in order for medical schools to effectively teach students about maternal health disparities, the culture/environment of medical schools needs to be changed. They explained,

> I think creating an environment where these topics are talked about. Creating an environment where discomfort is okay. And kind of, you know, teaching medical students that you are meant to feel discomforted by this because it is uncomfortable, and that is okay. Really promoting self-growth and not kind of like, you know, it's really hard to kind of confront yourself on things like psychologically, it's just difficult. We're not really meant to do that. So, to kind of like, psychologically train ourselves to really be open to talking about these things. Confronting our biases. Confronting the things that we have done to harm others. And I just, that's a really hard thing to do. Because the automatic thing that people turn to is getting defensive, saying “I'm not racist. I've never done that.” Things like that. And ultimately, that needs to be fixed because until people can look themselves in the mirror and pick out what they have said [and] what they have done that has harmed other people or that could harm other people, there's no way to make that change. And I think, well until, we kind of creating that culture, you know, creating that culture where these things are talked about where people can feel comfortable talking about, and reflecting on the things they've said and done in the past that have been harmful. And then moving forward from that.

This participant, as well as 2 others, mentioned how discussions about ethnoracial health disparities may make some students, and even professors feel uncomfortable. Another

participant, Sidney (M3), discussed comfort in medical school when it comes to discussions on race, by noting how the students did the Harvard University Implicit Association Test during their patient medicine course and were supposed to share their results with the group and how,

> But we take um, the Harvard University, you know, implicit bias thing. We do that and then we discuss our results. However, again, we're discussing our results only to the level of comfort that you have. Now, some people didn't even talk, right? So, some, and then some people were like, I'm biased towards fat people. Nobody wants to say they're biased towards Black people, because there's two Black, I'm black, and I'm sitting in the room. They're not gonna say that, you know. I mean, so they're sitting there saying, you know, I'm biased towards Black people, or I mean, fat people or like, Arabs or something, you know, someone that no one exists at the table, you know what I mean? It's just like, and then we never talk about, okay, "Well, if you are, what are you going to do about that?' Because the physicians themselves that are facilitating this, they have bias too. And everyone's like, everyone has bias as if it's okay. And like what do we do next? What's the next step? So, and they continue to keep, again, like, just continue to keep doing this shit? It's like, do you evaluate your, they need to evaluate what they're doing.

As these two participants highlighted, they perceive the culture or environment in which medical students learn in as not welcoming of conversations that make students and/or professors feel uncomfortable, conversations like ethnoracial health disparities. I do want to note that this student (Sidney, a 3rd year)—has an MPH, has worked in the field of public health for a few years, and is an advocate for the for the dismantle of racism in medicine and the fight for the health of Black people. Several other participants have a Master of Public Health (MPH) or work experience in governmental public health, as an Emergency Medical Technician (EMT), or volunteer work with "underserved communities". These students were more likely to have a more expansive response as to what their medical school could do to reduce the prevalence of maternal health disparities. Sidney's first response to the question "What do you think healthcare professionals as well as healthcare institutions could be doing to reduce disparities in health?" says,

> "Okay, we need to first acknowledge that racism is a public health crisis. And again, my school hasn't done that. <another school> has, but <school> hasn't publicly made a statement. Um, that's the first problem, you can't solve a problem unless you acknowledge the problem, right?

Racism as public health crisis was also mentioned by another 3rd year, Cameron, and several other students indicated that an incorporation of public health and sociology in the medical school curriculum is beneficial to the incorporation of a discussion of maternal health disparities. Overall, the participants in my study suggested that medical schools need to incorporate maternal health disparities into the curriculum and change the culture of medical school to an "environment where discomfort is okay."

Efforts needed by medical professionals. In addition to describing ways that medical schools could reduce maternal health disparities, 11 participants (7 M3s and 4 M4s) discussed two key ways that healthcare professionals could do to reduce these disparities. The first is through education and awareness. Six participants described how physicians need to educate themselves on maternal health disparities and raise awareness of them. The participant (Sidney, M3) cited above who mentioned the implicit bias of physicians explained,

> But what they can do is they can educate themselves. So, they can read *Medical Apartheid*. They can read *The Death Gap*. They can read, there's tons of books that they can read. And they can learn the history about how Black people specific, especially in OB GYN, Black women's bodies were experimented on and tested. That same philosophy of analyzing a body as if it were property, is still in the subconscious of the field of medicine. And once you put a light on that, then you can see that you're treating people like their property and not like their people. And then you can start adjusting yourself and being held accountable.

For this participant, education is imperative to reducing maternal health disparities, not just for medical students but also for practicing physicians. Physicians need to be properly educated on maternal health disparities first, and then they can raise awareness about the existence of them. Riley (M3) noted that in addition to educating oneself on maternal health disparities, healthcare

professionals also need to have open conversations among each other and also with patients about them; they stated,

> Hmm, I think it starts with the awareness and making sure that everyone is educated on not just the notion that there are maternal health disparities, but you have to do better than that. And talk like getting into the nitty gritty and the specifics. Why do we think that there are disparities? Where can we step in what is within our control? Um, and then not being shy about bringing up those issues with each other. As you know, in the context of sort of talking shop. And also, with patients. I would assume that anecdotally talking to a patient who's had some sort of, you know, who has felt that the system has hasn't done right by them. I assume that they would be a great source of, you know, how can I make your experience a little better this time around or something if you have like terrible labor, with your first child say.

This participant discussed how physicians can actively work to change the maternal health outcomes by being aware of their existence and having open conversations about them with patients. Similar to this participant, most of the participants also discussed the importance of doctor-patient interactions by mentioning that physicians need to be aware of their biases, spend more time with patients, listen to patients more during visits, and care about outcomes. One participant, Sidney, goes into great detail about caring for patients and indicated that,

> I'm like, it is a privilege to take care of somebody, but only if you're doing it from a loving place, right? Only if you're doing it, you know, exactly, just honestly, just from a loving place. You know, if people would just love their patients as if they were their, their relatives, we wouldn't have any of these health disparities, because the data shows and the data has shown, and data will continue to show that Black providers provide better care to Black patients than any other provider. That Black patients amongst every other ethnic group receive different quality of care, normally lower quality of care. They're less likely to have preventative measures. Less likely to get pain meds. They're less likely for everything. And it's because there's so many racist people in the field of medicine. And the other thing is, a lot of them don't even realize that they're racist”

Implicit bias plays an integral role in the way that physicians interact with patients. As this participant indicated above, doctor-patient interactions have a huge impact on maternal health outcomes. As Sidney noted, physicians need to treat patients with compassion and love. However, a few participants emphasized that individual actions of physicians are not enough to

reduce maternal health disparities as they are confined to the policies and culture of the healthcare institution.

Efforts needed by medical institutions. Sixty percent (15/25) of participants described ways in which medical institutions (hospitals) can reduce maternal health disparities. Alex (M4) noted that the religious affiliations "shy aware from reproductive and contraceptive care." This was the only participant who discussed the impact that religion has on maternal health disparities as some hospitals cannot provide or do not discuss contraceptive care. They noted that contraceptives are "a very important component of women's health and maternal health especially". Similar to policies about contraceptive care that prevent hospitals from reducing maternal health disparities, 3 other participants mentioned that policies or protocol on specifically addressing maternal health disparities are ways that healthcare institutions can reduce maternal health disparities. These participants argued that institutions need to implement policy or protocols specifically geared towards reducing maternal health disparities.

In addition to healthcare institution specific attributes and lack of policy, participants also described the work environment at hospitals. In particular, 4 participants described the overworked culture of OBGYNs and how this limits the amount of time that they can spend with patients during perinatal visits. Two of these participants stated that healthcare institutions desperately need to hire more staff so that physicians can spend more time caring for less patients and finding resources for them. One 3rd year, Cameron, noted that hospitals need to hire more physicians of color that reflect the population that they serve, as they

> I think institutions can be actively trying to recruit healthcare professionals of color. I think that having people who look like the patients that they're serving makes a lot of difference. And I think it just brings different perspective to the table. Um, so I think as, and that could be, you know, gender or race, but I think it's important for people who are being served to have people that they can relate to in terms of talking about their needs,

> and what they're feeling, [and] what they're experiencing. To also have like an advocate on the side of the of the provider, I think that would be really important.

For this participant recruiting more healthcare professionals of color is one way that medical institutions, namely hospitals, can reduce maternal health disparities. A little under half of these participants, 7, emphasized the need for hospitals to have a focus on reducing maternal health disparities. The participants mentioned offering free community clinics, making prenatal testing more accessible, and other services that address the specific health challenges that the community that they serve face. One 3rd year participant, Taylor, highlighted how some maternal health complications do not arise during labor but are due to pre-existing health conditions; they stated,

> The thing that jumps out to me, and the beginning is to address you know, the morbidity in that population. Because, like I was kind of alluding to earlier, if somebody, if a mother comes in, in labor and they already have X, Y, and Z health risks, there's not that much you can do in that moment. And from my knowledge, you know, to make things go smoother in labor, it's leading up to that point um, will improve maternal, maternal mortality, is if you address those things, years in advance, you know. Like their, quote, like I was kind of talking about with like adult medicine, like, it's an accumulation of health problems throughout somebody's entire life.

As emphasized in this quote, reducing maternal health disparities does not take place during labor, birth, and the postpartum period but should be occurring all throughout life. Hospitals need to ensure that they are mitigating barriers to care that the people in the community that they serve are facing. The participants in this study indicate that this does not occur at the individual physican level but needs to be the culture of the institution as a whole. When answering the question “What do you think healthcare professionals, as well as healthcare institutions, could be doing to reduce these disparities in maternal health?” another M3, Ash, responded by saying,

> So, I think that that's really the biggest way to change it as you gotta change the culture. All the physicians have to be on board with this. Because if there's some physicians that aren't on board, and how are medical students supposed to kind of like, model, because

> we look up to our physicians. We do what they do. And institutions need to be on board with this. Hospitals need to confront it. And again, it ultimately, if the system problem is not solved, individual solutions can only do so much, because ultimately, even the most caring physicians, even the most aware of physicians, they can only do so much. But if we're constantly battling against insurance systems, hospital boundaries, things like that. So, it's really it's a big problem.

Another participant, Payton (M4), also discussed the culture of healthcare institutions and the impact that it has on maternal health disparities.

> It has to be, people have to care, first and foremost, you know. Like, people have to care about these things, you know. People have to care about outcomes. People have to care about equity. People have to care about, you know, disparity. People have to, people have to care about these things. If the institution is purely just profit driven, they're not going to care. They're going to care about billing, you know. Okay, "Well, does she have insurance or not? Or she's on Medicaid." You know, you have, we have to foster a generation of clinicians and educators who care about outcomes, and who care about disparity and from care about equity.

For these participants, healthcare institutions, hospitals, need to have a focus on reducing maternal health disparities. Having a focus at the institutional level will trickle down to the physicians and then medical students. One 4th year, Kai, eloquently summarized this association by stating,

> I think again a lot. I mean, I think, you know, training students better. So that they're mindful of implicit biases, and that they can address those in their practices. I think that's one thing. I think, you know, spending a lot of time with the community that they serve, and learning, like what challenges the community faces, specifically, in regards to like maternal health. I think taking a look at their own, like their own statistics, like quality improvement projects. I think all those things could kind of just really help hone in on like the issues that exist and the challenges that patients face and the challenges that providers have when addressing those, those issues and what they could be doing better.

Fifteen participants provided suggestions for how hospitals can reduce maternal health disparities. These include having specific maternal health policies and protocols in place like hiring more OBYNs, specifically OBGYNs of color, so that they are not overworked and can spend more time with their patients. They suggest that reducing maternal health disparities needs

to occur on a systems-level focus so that it is not the individual efforts of physicians but all healthcare professionals.

Healthcare institutions' Role in Health Disparities

Lastly, participants were asked, "Do you think healthcare professionals and institutions may be playing a role in the existence of racial health disparities?" Twenty-three (11 M3s and 12 M4s) participants out of 25 said yes, while 2 said that healthcare professionals do not play a role. Both participants, one an M3 and the other an M4, noted that based on their experience at their medical school, they do not feel like the medical institution plays a role in the existence of ethnoracial health disparities. Then, these two participants were probed and asked, "If healthcare professionals and healthcare institutions do not play a role in the existence of ethnoracial health disparities, then who does?" One of the participants, Stacy, said that it is due to the government stating,

> And so, I think, [medical school] at least specifically, seems to do a lot as far as community outreach. And as far as education goes to help people of all kinds of shapes, sizes, and colors. So, I don't think it's necessarily the institution of health care, but it might more so be the institution of government or the institution of just whoever decides living situations and community. Things like that, which are kind of outside of health care's domain. I think once upon a time, probably, but I think nowadays, at least from my own bias point of view, I don't, I don't think they play a large role in that now.

The other participant, Taylor, stated that it is due to social determinants of health,

> it's because like if you live in [city], there's no grocery stores, you know. Like, it's not, they go, they can go down to the gas station and get chips and a soda. They can't go to, you know, a healthy store even, you know, if they don't have a car.

For these participants, it is not the healthcare institution (medical school and/or hospitals) or even the patient, but structural and societal factors that prevent those who are disproportionately affected by systemic oppression from attaining their full potential for health and well-being.

Among the 23 participants who said that healthcare professionals and institutions are playing a role in the existence of ethnoracial health disparities, 13 participants (6 M3s and 7 M4s) reported that the lack of instruction at their medical school about health disparities is contributing to the existence of them. For these participants, acknowledging and learning about health disparities in medical school is imperative to creating medical professionals who seek to reduce them. A third year, Cleo stated,

> I mean, probably, if we're not like talking about it, and if we're not really acknowledging it, you know, then we're not actively like addressing it. And then if we're not addressing it, then we can't really be like, helping to fix it.

Similarly, fourth year, Tracy, stated that "the things we learned formally and informally we're gonna carry through our whole career. It's those, you know, thought processes, and the biases we pick up along the way." These participants stressed the importance that the curriculum has in the professional socialization of medical students.

The second most common explanation for the role that healthcare professionals and institutions play in health disparities is the behavior of physicians. Ten participants (5 M3s and 5 M4s) reported that physicians play a role in the existence of health disparities as they are the ones who provide care to patients. Most of these participants mentioned that physicians need to be aware of their biases, spend more time with their patients, listen to their patients more during visits, and provide individualized care to their patients. Many of these participants discussed the impact that implicit bias and race-based medicine have on the behavior of physicians. One fourth year, Jackie, answered,

> Oh, absolutely. No question. You know like, race-based medicine, and like, a lot of people believe that. And I think it's well intentioned, you know. Like, hey, like, I am talking about race. I understand, like, these people may have quote, unquote, these risk factors, right? But like, it requires people to dig much deeper. And like, if there's any field to do it, it's, you know, people in health care, because, like, at the end of the day,

> like, inherently, we're like scientists, and like, scientists always ask questions, why, why, why, why, why, why? And so, I think that's what we need to keep on doing ask these questions. Why, why, why, why, why? I think that sometimes people are afraid of what they'll uncover, you know. I mean, and what that tells us about ourselves. Like, we have to continually ask why, why, why. So, but I do think healthcare institutions are propagated you know. I mean, I think there's a lot of factors as well. Things like that, historically speaking, the way our [is] economy structured.

This participant discussed how although physicians may acknowledge that social determinants of health impact patients' health, physicians need to do more than merely acknowledge that they exist, but they need to investigate why they exist. Another participant, Shannon (M4), provided a list of ways that healthcare professionals contribute to health disparities; they stated that physicians need to understand the barriers that exist, need to know how to practice medicine outside of the default, White privileged male body, provide individualized patient care by "listening to your patients, listening to people's medical experiences and believing them. And listening when people tell you that what you're doing is wrong or is hurtful, or harm their care, and having a way that patients can tell you that instead of just walking out the door." Participants underlined the notion that if physicians are not actively working to reduce disparities, they are indeed contributing to the existence of them.

In addition to the behaviors of physicians, participants also discussed the lack of diversity among physicians, medical student, and medical resident populations. Three participants (2 M3s and 1 M4) discussed the ethnoracial composition of medical personnel and how at their school in particular, the number of Black medical students has greatly decreased from 7 or 8 students who identified as Black in 2020 to 6, to 5. One third year, Cameron, noted how the reduction in Black medical students contributes to a reduction of Black medical doctors. They stated,

> Okay, so that's less physicians of color coming out of our school. Which means less physicians of color potentially going into residencies, and being, you know, providers. So, it's like, I see that as, like, you're not addressing the issue. So therefore, you're kind of

> keeping it status quo. So, I think, again, like the lack of effort in terms of retaining, you know, students of color is an issue.

As indicated in a previous quote from Cameron (M3) who described the importance that healthcare professionals of color have on the health outcomes of people of color, some participants in my sample perceived the lack of actively recruiting more students, residents, and doctors as a way in which healthcare institutions are playing a role in the existence of ethnoracial health disparities.

Lastly, 7 participants (2 M3s and 5 M4s) reported that the healthcare system plays a role in the existence of ethnoracial health disparities. For these participants, the burden of reducing health disparities are not at the micro-level (patients and physicians) but at the macro-level (state, federal, or national). As M3, Shai indicated,

> "I think by not putting more or enough attention to it. I feel like there are some physicians and like people in, in healthcare who are attempting to combat health disparities, but I feel like if it's not done by large institutions, or even at the level of state or federal law to combat it, there's not a lot that can be done on a more nationwide scale."

For these participants, the individual actions of physicians are not enough to reduce health disparities. Additionally, participants mentioned that the focus of healthcare on being profit-driven—capitalistic—, instead of health-oriented and the lack of policy for reprimanded mistreatment of patients contributes to the existence of health disparities. Two participants mentioned the need for some type of formal policy or model that is needed in hospitals that prioritize equitable care for patients and punishment for physicians who mistreat patients. Payton (M4) stated,

> Unfortunately, our medical system is a capitalist, profit driven medical system that doesn't care about equity or outcomes, um except when it effects the bottom line. There are certain models that maybe we can adopt, you know, in the future that has built in mechanisms that force you to care about outcomes within certain population groups. But until that happens, it's going to be purely profit driven.

Similarly, the other participant, Avery (M4), who mentioned a need for formal policy explained that,

> Well, I think there needs to be some sort of, like, formal way of addressing this when it is brought up. Like, I think a lot of times when people do things that they should not be doing, it can often just be, "Okay, whatever." Or, you know, not handled in a way that's, I think, really addressing the problem. Like, I think there needs to be some sort of, I don't know what the correct, like, way to handle it, but I don't think it should be swept under the rug. Absolutely not, which I think it often is. I think that's just propagating this sort of behavior in this field, and that's not okay. Like, if someone has physical assault or, like, does something violent, for example, or does something like, like steals from the hospital or something like that, those are things that would be reprimanded really badly. And I think there needs to be some sort of way that this is addressed as well.

As these participants articulate, addressing health disparities is a top-down process that begins at the macro-level, i.e., the healthcare system and government (state, federal, national). The individual efforts of physicians are not enough to reduce health disparities. Policies need to be put in place to focus more on equitable care for all patients.

Discussion

In this chapter, I have shown how medical students at an allopathic, religiously affiliated private Midwestern school describe, understand, and make sense of what they know about maternal health disparities and how this manifests in their curriculum. These participants perceive the lack of instruction on maternal health disparities and ethnoracial health disparities in general as a hindrance to them being medical professionals who care about the outcomes of their patients and who provide culturally competent and empathetic care. This study adds to existing literature in medical sociology, maternal health, and the sociology of education by examining how medical students perceive what they are taught, or not, about maternal health disparities in medical schools. This is important to study as medical educators and medical professionals have a strong influence on the professional socialization of medical students, who will be treating

people in the perinatal period. One participant, Kennedy (M3), emphasized this influence by stating “there's some physicians that aren't on board, and how are medical students supposed to kind of like, model, because we look up to our physicians. We do what they do.”

Despite the fact that 96% of participants were able to provide a description of their understanding of maternal health disparities, the overwhelming majority of participants (72%) reported that they had not learned about maternal health disparities in any capacity at their medical school. Among the other 7 participants who indicated that they learned about it in school, only two of them described the instruction as extensive and the result of labor from a Black female professor and resident, indicating an extra burden placed on students of color. Olsen refers to the use of medical students of color’s experiences to teach about social inequalities as the *conscripted curriculum.* Oftentimes, this results in educators placing the responsibility of instructing students about social inequalities on students, by allowing students to share their individual experiences with race. Instead, the discussion about race is dependent on the students of color that are present in a particular class. This extra burden on people of color has been referred to as the “minority tax” by scholars (Cyrus 2017; Campbell and Rodriguez 2019); that is, “the additional responsibilities placed on minority faculty to achieve diversity” (Cyrus 2017; 1833). The only two instances where the participants of this study could recall an extensive teaching about maternal health disparities were by a Black female resident and a Black female professor. This does not create a homogenous professional socialization process, as few of these medical students are learning, or can recall learning, about maternal health disparities in medical school.

Similar to the lack of instruction on maternal health disparities, the majority of participants reported that their learning of health disparities overall in medical school was not

extensive. Many of these students referred to this as performative or surface level as the topic of health disparities was broached, but there was no explanation of why disparities exist or what can be done to reduce them. This is not surprising given the findings of Olsen (2019) which observed that medical professors are not providing formal lectures on race and social inequalities but are placing the burden on students of color to share their individual experiences with race and social inequalities. Olsen contended that "the use of the conscripted curriculum devalues the lessons about the social underpinnings of race" (2019:63). The medical school curriculum, including both pre-clinical courses and clerkships, is designed to prepare students to pass the exams. According to participants, there is no question related to health disparities or even social determinants of health on the boards. One participant cited above noted that the lack of these topics is not just reflective of their medical school but is common in most medical schools because the [curriculum is] "reflective of the board's like, I don't think I got asked really, if any questions on maternal [health disparities]." This finding was echoed by the findings from Olsen that highlighted how understanding race in medicine is not as important as passing tests in medical school (2019:63). Participants in my study, similar to Olsen's (2019) study, indicated that the class in which health disparities or social determinants of health are discussed is in their patient medicine course, which is the course where students learn to be doctors. There is little to no discussion about health disparities in the fundamental science preclinical courses and clerkships underscores the lack of importance that health disparities has in the medical school curriculum.

My study adds to literature on maternal health disparities and medical education by assessing medical students' perceptions of the role that healthcare institutions and professionals have in the existence of health disparities generally, and what healthcare institutions and

professionals can do to reduce the existence of maternal health disparities, in particular. Only two participants out of 25 reported that based on their experiences in medical school, healthcare institutions do not play a role in the existence of health disparities but societal and structural factors, and social determinants of health. As the participants expressed, social determinants of health play a central role in the existence of health disparities. The Center for Disease Control and Prevention (CDC) has a National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) that states "To build a healthier America for all, we must confront the systems and policies that have resulted in the generational injustices, leading to racial and ethnic health inequities" (CDC 2021). Almost 60% of the remaining 23 participants reported that the lack of instruction at their medical school about health disparities is contributing to the existence of them. These participants, without using the term explicitly, stressed the importance that the curriculum has in the professional socialization of medical students, as one of them stated "the things we learned formally and informally, we're gonna carry through our whole career. It's those, you know, thought processes, and the biases we pick up along the way" (Tracy, M4).

Doctor-patient interactions and the type of care that providers give was also mentioned as a way in which medical students in my sample perceived healthcare professionals contributing to the existence of ethnoracial health disparities. These participants mentioned the role that implicit bias has on doctor-patient interactions as they have observed physicians perceive patients' pain differently based on their ethnoracial identity, make assumptions about what's going on with patients, and yell at patients. What medical students formally and informally observe during their clerkships is their first hands-on experience of what it means to be a doctor and how to conduct oneself accordingly. Dissimilar to the results observed by Van Ryn et al. (2015)— students who have heard an attending physician or resident make negative comments about Black patients had

increased implicit bias compared to students who did not hear negative comments—participants in this study noted that they do not want to emulate the negative behaviors that they observed from attending physicians, but instead wanted to provide empathetic care to patients. Participants in my sample argued that it is the role of medical schools "to mitigate the biases of students" and that their professors need to openly and honestly admit that and that everyone has implicit biases that they need to be aware of when interacting with patients and that the medical system has racist foundations. Both a focus on individual implicit bias and structural and institutional racism that affects the quality of care that perinatal women receive have been argued by scholars as a necessary effort to reduce ethnoracial disparities in maternal health (Howell and Zeitlin 2017).

In my study, the majority of participants described ethnoracial identity, and not racism as a determinant of health where one's ethnoracial identity is a risk factor for certain diseases. Only 3 participants attributed racism, and not race, to the prevalence of ethnoracial health disparities. Having the notion that one's race affects their health is problematic for two reasons. The first is that it ignores the historical and systematic policies and beliefs that are in place that oppress certain ethnoracial groups. Second, this belief perpetuates historical eugenic racial beliefs, affect doctor-patient interactions, and can lead to misdiagnosis and disrupt physicians' ability to identify causes of health disparities (Sheets et al. 2011). We need to reframe the discourse of race in ethnoracial health disparities to situate structural racism, not one's ethnoracial identity, as a fundamental cause (Silverman-Lloyd et al. 2021).

Empirically, this chapter adds to the existing literature in the field of sociology of medical/health education and professional socialization and the field of medical sociology by examining how medical students are taught about maternal health disparities in medical institutions. A key component of the professional socialization of medical students is the medical

school curriculum, including both pre-clinical courses and clerkships. It is through the curriculum where students transition from layperson to a practicing physician who interacts with patients. As indicated by the participants in my study, medical students are not 1) being professionally socialized in medical school to reduce the existence of maternal health disparities specifically, nor ethnoracial health disparities more generally, 2) being socialized to be aware of their implicit biases, 3) taught how to provide empathetic and culturally sensitive care, and 4) how to mitigate external barriers, i.e., social determinants of health, to care that their patients' experience. Doctor-patient interactions have a strong impact on maternal health disparities. The institutional or structural racial views influence the doctor-patient interactions and the quality of care that patients receive. Physician's biases toward patients during clerkships have a positive effect on medical students' perception of and treatment toward patients from various backgrounds. U.S. medical schools need to incorporate a curriculum in both the preclinical and clinical years that teaches students about social determinants of health, implicit bias, ways to mitigate implicit bias, ethnoracial health disparities, and maternal health disparities to create humane, compassionate physicians that actively seek to reduce the existence of maternal health disparities

Limitations

While this chapter makes important contributions to sociology of education literature on professional socialization and to the field of medical sociology, a few limitations must be mentioned when interpreting the findings. First, my positionality as a Black woman may have influenced participants to feel that they needed to convey that they cared about maternal health disparities specifically and ethnoracial health disparities more generally. Furthermore, this may have also influenced participants' discussions about the role that healthcare institutions and

professionals have on ethnoracial health disparities. Second, participants were asked to recall lectures and discussions that may have taken place 2-3 years prior to the interview. Some medical students were preparing for their United States Medical Licensing Exam (USMLE), others were finishing a clerkship and were focused on passing their clerkship final exam, while others were concerned about residency placement. This may explain why only 4 participants recalled the social determinants of health lecture and project in their Family Medicine clerkship and why only 1 participant recalls discussing the "dark history of OBGYN". Third, given that I was only able to interview students at 1 medical school, the observed findings may not be representative of how other U.S. medical students are learning about maternal health disparities in the curriculum of their school. Future research should explore how U.S. medical students make sense of and understand maternal health disparities, and what they are or are not learning about maternal health disparities in the curriculum of their school in other medical schools.

Conclusion

Maternal health disparities in the U.S. are not caused by one's ethnoracial identity but are systematic at their core. Maternal health disparities are impacted by doctor-patient interactions. Prior research has attributed implicit bias and institutional or structural racial views as influencers in the doctor-patient interactions and the quality of care that women receive during the perinatal period. Tangentially, sociologists of education have examined the profession socialization of U.S. medical students. This study is the first to my knowledge, that bridges the two seemingly disparate literatures together. In this chapter, I assessed U.S. medical students', at an allopathic, religiously affiliated private Midwestern medical school, knowledge on ethnoracial health disparities and maternal health disparities, whether their medical school has a curriculum on maternal health disparities, ways in which healthcare institutions and professionals can reduce

maternal health disparities, and their perceptions of healthcare institutions' and professionals' role in the existence of ethnoracial health disparities overall. I observed that U.S. medical students in my sample are not being professionally socialized into future doctors who actively seek to reduce maternal health disparities.

CHAPTER 4

MEDICAL SCHOOL CURRICULUM (CONTENT ANALYSIS AND INTERVIEWS WITH PROFESSORS)

Introduction

The professional socialization of medical students is heavily influenced by the medical school curriculum, including both pre-clinical courses and clerkships. It is through the curriculum where students transition from layperson to a practicing physician who interacts with patients. Sociologists of education that study medical school curriculum have focused on the fact that although the U.S. medical school curriculum is standardized, U.S. medical students' culture plays a significant role in the ways in which they navigate medical school (Becker et al. 1961; Everitt et al. 2020; Everitt, Johnson, and Burr 2022). U.S. medical students manipulate the curriculum as they determine what is and what is not important to know in medical school. Granted that there is substantial literature on the medical school curriculum and the professional socialization of medical students, little is known about whether and how maternal health disparities are being incorporated into the U.S. medical school curriculum.

Research has, however, examined how race is instructed in medical schools and observed an extra burden placed on medical students of color as medical professors do not lecture on race but hold small group discussions among students (Olsen 2019). This creates an unstandardized instruction of race in medical school where the importance of social underpinnings of race diminishes as they are perceived as the individual experiences of students, rather than the necessary academic knowledge for being a competent clinician. The lack of formal instruction on

race by medical professors may contribute to health inequalities, as it increases variation in the quality of care that patients receive. Disparities in patients' health outcomes is also influenced by the doctor-patient interactions. Patients' who have better communication with their patients are more satisfied (Brunett and Shingles 2018) and have better health outcomes (Olaisen et al. 2020). Expression of emotion and cultural competence are integral to positive communication during doctor-patient interactions (Kaihlanen, Hietapakka, and Heponiemi 2019). Medical schools need to incorporate expression of emotion and cultural competence into their curriculum to produce medical professionals who seek to reduce and not contribute to health disparities.

The medical school curriculum is important to study as medical educators and medical professionals have a strong influence on the professional socialization of medical students who will be treating women during the perinatal period. Although research has examined the professional socialization of medical students, standardization of the medical school curriculum, and the instruction of race, empathy, and cultural competency, we know little about whether and to what extent maternal health disparities are being incorporated into the U.S. medical school curriculum and which U.S medical schools are more likely to do so. This study is the first study, to my knowledge, that examines the instruction of maternal health disparities in the U.S. medical school curriculum.

Literature Review

Standardized Medical School Curriculum and How Medical Students Engage

U.S. medical students learn what it means to be a doctor from medical professors and the medical school curriculum. This transition from lay person to a medical professional is a process known in the field of sociology of education as professional socialization (Becker et al. 1961;

Everitt et al. 2020; Jenkins et al. 2021; Underman 2015; Underman and Hirshfield 2016; Vinson 2019). Through socialization, one undergoes a process in which they obtain the values, knowledge, and norms of their community. For medical students, professional socialization is the process in which they learn the values, knowledge, and norms of the medical profession; where they learn what it means to be a doctor (Becker et al. 1961;Everitt et al. 2020; Jenkins et al. 2021; Underman 2015; Underman and Hirshfield 2016; Vinson 2019).

Sociologists of education that have examined the medical school curriculum have observed that although the medical school curriculum is standardized, the U.S. medical students' culture plays a significant role in the ways in which they navigate medical school (Becker et al. 1961; Everitt et al. 2020; Everitt, Johnson, and Burr 2022). It is the students who determine what is and what is not important to cover in the curriculum. The foundational study in the field of sociology of education that observed how students engage with the medical school curriculum is Becker et al.'s (1961) *Boys in White: Student Culture in Medical School.* Becker and colleagues studied the culture and experiences of U.S. White[1], male medical students at the University of Kansas in the late 1950s. Becker et al. (1961) observed that there was a social process that the medical students in their sample engaged in that was heavily influenced by their interactions with other students and their perceptions of what is important to know to pass each class. More recent work has observed that this pattern observed is still present today (Everitt et al. 2020; Everitt et al. 2022). In 2020, almost 60 years later, Everitt et al. (2020) reexamined the *Boys in White: Student Culture in Medical School* with U.S. medical students, both men and women, and

[1]I capitalize the word White when referring to people who are racialized as White people or people of European decent just as I capitalize people from all other ethnoracial identities because opting to not capitalize the word White but capitalizing all other ethnoracial identities affirms Whiteness and White racial dominance and disregards accountability of White people in racism (Mack and Palfrey 2023).

observed that medical students presently engage in similar behaviors to the medical students in Becker et al.'s (1961) study. However, medical students in Everitt et al. (2020) study were more focused on passing their required United States Medical Licensing Exam (USMLE) than excelling in their classes. Additionally, a 2022 study observed that with the growing use of digital recordings of their course content, medical students stopped attending their preclinical classes and focused more on preparing for their Step 1 of the USMLE (Everitt et al. 2022). In both of these recent studies, passing Step 1 of the USML is more important to medical students than attending class. Medical students must pass the USMLE Step 1—which assesses their knowledge of basic sciences—and Step 2—which assess their clinical knowledge and clinical skills (exam and diagnose patients)—in order to continue medical school (USMLE.org). This finding emphasizes that despite medial schools having a standardized curriculum, medical students determine how best to cover the curriculum.

Curricular Intent and Medical Students of Color

The ways in which medical students learn about race in medical school affects how they use race during medical decision making. When it comes to the use of race in medical decision making, researchers have observed how physicians who viewed race as a genetic or biological group used race in their decision making more than physicians who understood race to be a sociocultural group (Cunningham et al. 2014; Ripp and Braun 2017); while others observed that physicians actually express uncertainty of how to use race in in medical decision making (Bonham et al. 2009; Frank, Gallagher, and Seller 2010). Uncertainty is more common in

situations where the patient's ethnoracial[2] background differs from the ethnoracial background of the physician (Cunningham et al. 2014) and it set in motion implicit biases (van Ryn et al. 2011). Scholars have found a positive association between anxiety due to uncertainty (ADU) and the use of race in medical decision making which may contribute to healthcare disparities (Balsa and McGuire 2003); which raises the question, how are medical students taught to use race in medical school?

The utilization of race in medical practice remains contested. This is a result of the dispute over the belief that race is an appropriate proxy for grouping of human genetic difference. There is a plethora of scholarship that examines the instruction of race in medical education (Anderson 2008; Olsen 2019; Ripp and Braun 2017; Saunders and Braun 2017; Tsai et al. 2016). Some social scientists and humanities scholars argue that race is not a biological concept, but it is an essential social classification that has social and biological effects as it disrupts physicians understanding of differences in disease prevalence, severity, and risk-factor profiles (Anderson 2008); while others have critiqued medical schools that reinforce biological understandings of race and argued that this reinforcement does little to combat racial disparities in health and healthcare but views racial disparities as inherent due to genetic differences (Tsai et al. 2016). The ways in which students learn about race in medical school affects the ways in which they use race in medical decision making which in turn affect patient health outcomes.

More recent work on the instruction of race in medical schools has noted that medical schools are now required by the Liaison Committee on Medical Education (LCME) standard to

[2] I use the term "ethnoracial" to be more inclusive of the ways in which various people consider *themselves* on the basis of race and ethnicity. Additionally, the term race in the U.S. is a social construct that was created for racist purposes to create a binary between "White" people and "non-White" people (Bean 2018). The set of "race" categories in the U.S. continue to change, however, White supremacy remains with the use of the term.

teach students "about the manifestations and underpinnings of social inequalities in the first four years of medical school" (Olsen 2019:59). Medical schools who fail to do so can risk losing their accreditation. Olsen (2019) conducted interviews with medical educators and students at 37 U.S. medical schools to examine the instruction of race in medical education and observed that medical educators often ignore social understandings of race and reify biological understandings of race. Medical professors in her sample preferred to discuss race and social inequalities in small groups as opposed to lecture. In her study, she observed what she calls the *conscripted curriculum,* "a concept that captures when medical educators place students in positions of instruction by asking them to share their lived experiences as members of particular social groups" (Olsen 2019:59). The use of students of color affects the standardization of the instruction of race, as the discussions about it vary by the class and the ethnoracial demographics of the students present. The responsibility of this small group discussion is placed on the students, in which students share their individual experiences with race. This extra burden on students of color has been referred to as the "minority tax" by scholars (Cyrus 2017; Campbell and Rodriguez 2019). Cyrus defined the minority tax as "the additional responsibilities placed on minority faculty to achieve diversity" (2017; 1833). Although this terminology was used to describe the extra burden placed on medical faculty of color, it can also be used to explain the burden that Olsen (2019) observed among medical students. The minority tax for medical students of color has been a critical source of inequality in medical education, as this extra burden is not experienced by White medical students, professors, and physicians.

Overall, these findings of how the instruction of race in medical school is not standardized and how medical students from ethnoracial minoritized groups are overburdened, demonstrates the ways in which the social underpinnings of race are devalued; meaning the importance of

social understandings of race diminishes as they are perceived as the personal experiences of students, rather than the necessary academic knowledge for being a competent clinician (Olsen 2019). The findings also show how medical students are not learning how to care for patients who are underserved and/or ethnoracial identities are not White.

Inhabited Institutionalism

Research has shown that efforts at standardization in medicine, on the surface, appears to be a macro-level reform; however, the implementation of the reform rests on the compliance of micro, or what Kellogg (2011) refers to as "face-to-face collective combat processes occurring on the ground inside organizations" (Kellogg, 2011, p. 170). This indicates that the intra-organization (medical professors) have a strong influence on what is taught to medical students, and this is evident in Olsen's work that shows despite schools being required to teach students about social inequalities, the ways in which that instruction occurs rests on the medical professors.

The inhabited institutionalism approach can be used to explain this relationship between macro-level mandates, such as teaching students about social inequalities, and what is actually taught. This approach has been used by scholars to examine how teachers in primary education interpret institutional rules (Everitt 2012; Everitt 2018; Hallett 2010). This research suggests that teachers inhabit institutions in which they are constantly expected to adapt to changes in their teaching as a result of the institutional pressures that they experience in the education system. From this perspective, both individuals and institutions influence each other, and institutions function from both the top down and ground up (Everitt 2018). Meyer and Rowan posited that there are tight couplings between instructional practices and institutional myths. They suggested that myths provide rational theory of how organizations should function. Meyer and Rowan

(1977) hypothesized that loose coupling would persist in schools because tight coupling--in particular, the surveillance that comes with it--would threaten and potentially destabilize the entire school system. The phrase "loose coupling" has been used by sociologists of education to explain the structure of schools. An organization is considered loosely coupled if the activities of one person have little effect on the performance of the other person (Weick 1976). In education, a school is considered a loosely coupled organization if the authority system has little impact on the core of instruction. In loosely coupled schools, teachers and administrators are attached through the school, however, they each maintain "their own identity and separateness and that their attachment may be weak in its mutual effects" (Weick 1976: 3). Conversely, in tightly coupled schools, individual teachers do not have the autonomy to determine what they teach but are confined to teach according to policies. The findings from scholars (Olsen 2019) on the instruction of race demonstrate loose coupling between the LCME standard to teach students about the underpinnings and manifestations of social inequalities and how professors choose to instruct students. The lack of instruction on race by medical professors may contribute to health inequalities, as it increases variation in the quality of care that patients receive. With an understanding of how medical students are taught about race, inequalities, and maternal health, researchers can examine the impact that the medical school curriculum has in addressing maternal health disparities.

Instruction Of Emotions and Cultural Competence in Doctor-Patient Interactions

Medical students need to be educated on the role that their communication, expressing emotion and cultural competency, have on patient health outcomes. Research has shown that patients' health outcomes are greatly influenced by doctor-patient interactions (Olaisen et al. 2020) and that Black women experience less adequate care (Green 2018) and perceive their

communication—shared decision making— with healthcare professionals more negatively than White women (Attanasio, Kozhimannil, and Kjerulff 2008). Understanding the ways in which medical student learn to do clinical work, namely navigating doctor-patient relationships has also been studied by sociologists of medical education (Underman and Hirshfield 2016; Vinson and Underman 2020). During doctor-patient interactions, physicians either suppress or express their emotions. Early work in this field observed how suppression of undesirable emotions was informally taught to medical students through the use of simulations. Renee Fox used the term detached concern to describe the management of both patients' and healthcare providers' emotions during doctor-patient interactions that medical professionals and students had to do (Underman and Hirshfield 2016). Detached concerns, according to Fox are "counterattitudes of detachment and concern to attain the balance between objectivity and empathy expected of mature physicians in the various kinds of professional situations they encounter" (cited by Underman and Hirshfield 2016:95). Autopsies teach students detached concerns, as they are expected to focus on the scientific aspects of performing an autopsy while suppressing their emotions to seeing and handling a naked, dead body. Simulations also have this affect as student practice providing care to a layperson who role-plays the part of the patient. During these simulated doctor-patient interactions, medical students manage and express emotions and this is where medical professors can instruct medical students on the importance of expressing emotions during doctor-patient interactions and correct the behaviors that they observe in simulated interactions. Medical students can incorporate what they learn during simulations into interactions with real patients and be mindful of their communication with patients.

Cultural competence is an essential component of successful communication as it equips physicians with the ability to provide quality healthcare to patients from various backgrounds

(Kaihlanen, Hietapakka, and Heponiemi 2019) and it is directly associated with patient satisfaction (Brunett and Shingles 2018). The Association of American Medical Colleges (AAMC) includes cultural competence as one of its pre-professional 15 core competencies that medical schools assess for medical school applicants. The AAMC defines cultural competence as

> a set of congruent behaviors, knowledge, attitudes, and policies that come together in a system, organization, or among professionals that enables effective work in cross-cultural situations. "Culture" refers to integrated patterns of human behavior that include the language, thoughts, actions, customs, beliefs, and institutions of racial, ethnic, social, or religious groups. "Competence" implies having the capacity to function effectively as an individual or an organization within the context of the cultural beliefs, practices, and needs presented by patients and their communities.

After the LCME administered a standard to teach students about the underpinnings and manifestations of social inequalities, and medical schools that do not comply risk losing accreditation. As noted earlier, many schools are not instructing students in a lecture on social inequities but place the burden on medical students from the ethnoracial minoritized groups to instruct on race and topics related to race (Olsen 2019). Dissimilar to the instruction of race, research reviewing cultural competency literature and the ways in which medical schools were instructing on it reveal that lectures were the most common teaching modality (Deliz et al. 2019). However, scholars have argued that cultural competence should not be taught as a single lecture but should be incorporated throughout the medical curriculum (Kripalani et al. 2006; Deliz et al. 2019; Sorensen et al. 2017). With an understanding of how medical students are taught about race, inequalities, and maternal health, researchers can examine the impact that the medical school curriculum has in addressing maternal health disparities. By gaining insight into the education of medical students regarding emotion and cultural competence, researchers can assess the effect that the medical school curriculum has on addressing disparities in maternal health.

Current Study

This study adds to existing literature in medical sociology, maternal health, and the sociology of medical education by examining the ways in which medical schools incorporate and discuss maternal health disparities into their curriculum and on their websites. This study answers the following research question:

1. How do medical schools incorporate a curriculum on maternal health disparities (if at all)? How do the differences in curriculum foci regarding maternal health disparities and related concepts vary across features of schools?

To explore this research question, two sets of data were used—content analysis of the public-facing websites of 100 medical schools, and interviews with U.S. medical clerkship professors at an allopathic, religiously affiliated private Midwestern school. conceptual content analysis. The 100 U.S. medical schools were given a randomizer number 0-215—i.e., R5, R73, R154—and participants in the interviews)". To adhere to the human research protection guidelines, I have ensured the confidentiality of participants' identities by using pseudonyms[3] and generalized language when presenting the data. The professor participants' pseudonyms are Dr. Shields, Dr. Lane, Dr. Norris, and Dr. Johnson. For more information about the methods and sample for this study, please refer to Chapter 2 Data and Methods section titled "Medical School Curriculum (content analysis and interviews with professors)".

[3] I only report pseudonyms for participants and not their ethnoracial identity and gender because the goal of my study is not to assess differences in perceptions across ethnoracial identity and gender but to understand how U.S. medical students regardless of their identity perceive the curriculum that is being taught to them. I do not include any demographic information—their ethnoracial identity, gender, and age—when citing participants because I am focused more on students' perception of their curriculum rather their identities.

Coding Strategy of Content Analysis

I selected schools based on the following features: degree type, ethnoracial composition, public or private, religious affiliation, region, state, year founded, and 123 Best Medical Schools in Primary Care ranking (described in Chapter 2 Data and Methods section titled "Medical School Curriculum (content analysis and interviews with professors). I created a single "features" variable that combines the degree type, ethnoracial composition, public or private, and religious affiliation. This features variable contains 7 categories 1) DO Public, 2) DO Private, 3) HBCU, 4) HSPS, 5) Public PWI, 6) Non-religiously Affiliated PWI, and 7) Religiously Affiliated PWI (Table 4). I do want to note that HBCUs and HSPS are allopathic medical schools. Additionally, all four of the HBCUs are private and three of them are religiously affiliated. Five of the HSPS are private and none of them are religiously affiliated. Five of the private DO schools are religiously affiliated. So, in total, there are 62 private institutions (31 DO and 31 MD) and 19 religiously affiliated institutions.

Table 4. Content Analysis Sample 100 U.S. Medical Schools Breakdown by 7 Features, March-August 2022.

Feature	Frequency	Percent
Public Osteopathic (DO) Medical School	7	7%
Private Osteopathic (DO) Medical School	31	31%
Historically Black Colleges and University (HBCU)	4	4%
Hispanic Serving Professional School (HSPS)	14	14%
Public Predominately White Institution (PWI)	22	22%
Non-religiously Affiliated Private PWI	11	11%
Religiously Affiliated Private PWI	11	11%
Total	100	100%

Note: HBCUs HSPS, and PWIs in this sample are all Allopathic (MD) schools. All four of the HBCUs are private and three of them are religiously affiliated. Five of the HSPS are private and none of them are religiously affiliated. Five of the private DO schools are religiously affiliated.

In addition to coding for features (that is, indexing the cases across key features of interest), I thematically coded information from the school's websites inductively and iteratively.

First, I coded information from the medical school's website where I created codes that derived from the information on the medical schools' websites. Each school was coded individually based on the following 4 inductive codes (#a) and 7 inductive sub-codes (#b): 1) student handbook-whether or not the school has a student handbook publicly available (yes/no)—the student handbooks were not part of the analysis but provided more detailed information about each course, clerkship, and standards or objectives of medical schools—, 2) whether the school's website mentions maternal health, perinatal health, prenatal health, pregnancy, childbirth, labor, and childbirth, or postpartum (yes/no), 2b) description of discussion of maternal health, 3a) whether the school mentions health disparities, health equity, health inequity, health for all, health justice, or health equality (yes/no), 3b) description of discussion of health disparities, and 3c) definition of health disparities, 4) mission statement (copy and paste). After coding for about 20 schools, thematic codes (#a) and 5 sub-codes (#b) were also developed based on medical education and medical student professionalization literature (Jenkins et al. 2021; Olsen Underman 2015; Underman and Hirshfield 2016; Vinson 2019; Vinson and Underman 2020). These codes are as follows 1a) whether the school's website determinants of health, health determinants, or social determinants of health were mentioned (yes/no), 1b) description of discussion of determinants of health, 2a) whether the school's website mentioned implicit bias, unconscious bias, unintentional bias, racism, systemic racism, institutional racism, or structural racism, 2b) description of discussion of bias or racism, 3a) whether the school's website discusses cultural competence, cultural sensitivity, or cultural awareness, 3b) description of discussion of cultural competence, 4a) whether the school's website discusses simulations, 4b) description of discussion of simulations, 5a) whether the school's website discusses empathy, compassion, or emotion, and 5b) description of discussion of emotion.

Data Analysis

After conducting the content analysis, I created a dataset from the content analysis coding excel spreadsheet in Stata 17 using the import function on Stata. The first row, randomizer identification name, was imported as variable names. The only variable that was created that was not in the excel spreadsheet is the features variable described above in Table 4. First, I enumerate the presence, or lack thereof, of maternal health being mentioned on medical schools' websites using descriptive statistics, crosstabulation of the maternal health variable. Then, I ran individual descriptive statistics with each of the maternal health thematic codes and subcodes. After coding the schools individually for thematic codes and subcodes for maternal health and mission statement, thematic codes and thematic subcodes were analyzed collectively to acquire the aggregate presence, or lack thereof, of maternal health. Whether and how schools discussed maternal health was analyzed across the 7 category features variable— 1=DO public (38), 2=DO private, 3=HBCU (n=4), 4=HSPS (n=14), 5=Private PWI (n=22), 6=non-religiously affiliated Private PWI (n=11), and 7= Religiously affiliated Private PWI (n=11). In addition to analyzing how maternal health and mission statement thematic codes and thematic subcodes varied across features of school, I enumerated the number of schools that discussed health disparities, implicit bias or racism, cultural competency, and empathy, compassion, and/or emotion. The interviews with the medical professors will also be incorporated in the results below to supplement the themes observed from the content analysis. These interviews with professors were used to inform, at a particular school, the ways in which the professors understand the curriculum that they are offering in terms of maternal health disparities.

Results

Thematic Codes and Subcodes

To assess how U.S. medical schools incorporate a curriculum on maternal health disparities, I thematically coded for the ways in which maternal health disparities was discussed on U.S. medical schools' websites. For maternal health disparities, I created thematic codes based on the U.S. medical schools' whose websites had some information related to maternal health. For maternal health disparities I created 2 inductive maternal health thematic codes: SpecificTopicMH and AcademicMH (Figure 1). SpecificTopicMH has 4 thematic subcodes which includes specific terms such as maternal health disparities or health inequity among perinatal women (MHD), maternal health disparities statistics or general comparisons (MHDStat), postpartum care (PPC), postpartum depression (PPD), and specific maternal health conditions (SpecificCondMH). AcademicMH has 4 thematic subcodes which includes instances where maternal health is discussed in relation to the academics such as medical school curriculum track (TrackMH), medical student education (EducationMH), fellowships (FellowshipMH), and specific department (DepartmentMH) that focus on maternal health. Figure 1 shows depiction of the 2 thematic maternal health codes and their respective thematic subcodes. The 2 maternal health thematic codes and their respective thematic subcodes, along with definitions and examples are presented in Table 5. A codebook was created for these maternal health themes (see Appendix C).

Figure 1. Mentioning of Maternal Health Thematic codes and subcodes on U.S. Medical Schools Websites.

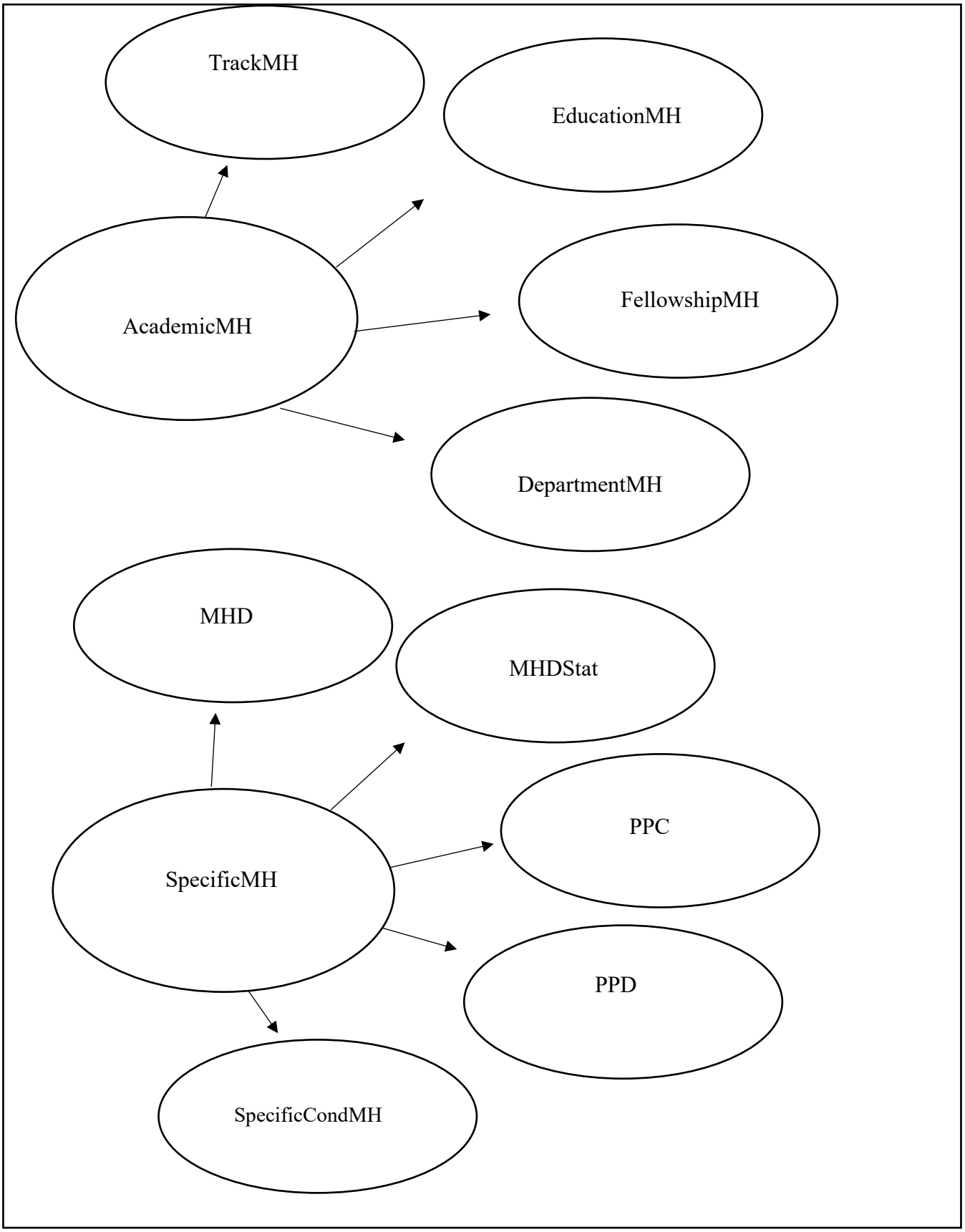


Table 5. Maternal Health 2 Thematic Codes, 9 Thematic Subcodes Definitions, and Examples, March-August 2022.

Thematic Codes	Thematic Subcodes	Definition
AcademicMH (n=25)	TrackMH (n=1)	Any mention of a track that the school offers that discusses maternal health
	EducationMH (n=9)	Any mention of lectures, sessions, cases, workshops, series, symposium, webinar, or panel on maternal health
	FellowshipMH (n=4)	Any specific mention of resident fellowship related to maternal health
	DepartmentMH (n=13)	Any mention of their being a specific department, committee, or division at the school that discusses maternal health
SpecificTopicMH (n=25)	MHD (n=18)	Any specific mention of the word maternal health disparities or inequities/differences in maternal health care or outcomes
	MHDStat (n=2)	Any mention of maternal health disparities (statistics, general comparisons):
	PPC (n=7)	Any specific mention of postpartum care
	PPD (n=3)	Any specific mention of postpartum depression or perinatal depression
	SpecificCondMH (n=16)	Any mention of specific maternal health conditions

Note: These 4 thematic codes and 17 thematic subcodes were created by me inductively from the data obtained from the content analysis of my sample of 100 U.S. medical schools' websites. Thematic codes were based on publicly available information on each medical schools' website from March-August 2022

Similar to maternal health disparities, I created inductive themes based on the U.S. medical schools' mission statements. I created 5 mission statement health thematic codes: school type (SchoolTypeMS), education (EducationMS), type of care (CareMS), community served (CommunityMS), and diversity (DiverseMS). School type includes any mention of school features such as being a religiously affiliated schools (ReligionMS) or an osteopathic school (OsteoMS) in the mission statement. EducationMS has 5 thematic subcodes which include educating students (StudentsMS), educating residents (ResidentsMS), educating physicians (PhysiciansMS), research (ResearchMS), and explicit use of the term health or healthcare disparities (HealthDispMS) in the mission statement. CareMS has 8 thematic subcodes which include providing quality care (QualityMS), ethical care (EthicsMS), patient centered care (PatientCenteredMS), primary care (PrimaryCareMS), global-minded or global community care

(GlobalMS), compassion, empathy, and/or emotion (CompassionMS), cultural humility, sensitivity, awareness, competency, or respect (CultCompMS), and advancing or promoting health equity (HealthEquityMS) in the mission statement. CommunityMS has 6 thematic subcodes which include mentioning of community service, engagement, or volunteer work (CommServeMS), serving underserved, urban, minority, marginalized, or disadvantaged communities (UnderservedMS), serving rural communities (RuralMS), and serving the city (CityMS), state (StateMS), and region (RegionsMS) that the medical school is located in. DiverseMS has 2 thematic subcodes which include diversifying student, residents, physician, or people in medicine population (DiversePhysMS) and diversity or diverse patient population served in the mission statement (DiversityMS). Table 6

Table 6. Mission Statement 2 Thematic Codes, 10 Thematic Subcodes Definitions, and Examples, March-August 2022.

Thematic Code	Thematic Subcode	Definition
SchoolTypeMS	OsteoMS	Any mention of osteopathic principles, values, style of care (wholistic) in the mission statement
	RegionMS	Any mention of religion in the mission statement
EducationMS	StudentsMS	Any mention of educating students or future physicians in the mission statement
	ResidentsMS	Any mention of educating residents in the mission statement
	PhysiciansMS	Any mention of educating physicians in the mission statement
	ResearchMS	Any mention of research in the mission statement
	HealthDispMS	Any explicit use of the terms health disparities or healthcare disparities in relation to education in the mission statement
CareMS	QualityMS	Any mention of providing quality care to patients in the mission statement
	EthicMS	Any mention of providing ethical care in the mission statement
	PatientCenteredMS	Any mention of providing patient centered care in the mission statement

	PrimaryCareMS	Any mention of providing primary care in the mission statement
	GlobalMS	Any mention of global-minded or global community care in the mission statement
	CompassionMS	Any mention of compassion, empathy, emotion in the mission statement
	CultCompMS	Any mention of cultural humility, sensitivity, awareness, competence(y), or respect of culture in the mission statement
	HealthEquityMS	Any mention of advancing or promoting health equity (optimal health for all) in the mission statement
CommunityMS	CommServeMS	Any mention of community service, engagement, or volunteer work in the mission statement
	UnderservedMS	Any mention of serving underserved, urban, minority, marginalized, or disadvantaged community in the mission statement
	RuralMS	Any mention of serving rural community in the mission statement
	StateMS	Any mention of serving the state in the U.S. where the school is located in the mission statement
	RegionMS	Any mention of serving a region in the U.S. where the school is located in the mission statement
DiverseMS	DiversePhysMS	Any mentioning of diversifying student, resident, physician, or people in medicine population in the mission statement
	DiversityMS	Any explicit mention of the word diversity or diverse patient population served in the mission statement

Note: These 5 thematic codes and 22 thematic subcodes were created by me inductively from the data obtained from the content analysis of my sample of 100 U.S. medical schools' websites.

Enumeration and Discussion of Codes

Here I provide an overview of my results. The goal of the content analysis was to examine how U.S. medical schools in my sample incorporate a curriculum on maternal health disparities if at all, and whether the differences in curriculum focus varies across features of schools, and the goal of the interviews was to understand how U.S. medical clerkship professors at one particular school incorporate a curriculum on maternal health disparities. However, out of 100 schools in the sample, only 9 medical schools had information related to maternal health as part of their curriculum. These schools had information that I coded as thematic subcodes

TrackMH or EducationMH. One private DO school (R27) has a two-semester urban underserved medicine enrichment track for medical students where maternal and child health is one of the focus topics (TrackMH). I also coded this schools as thematic subcode EducationMH. Additionally, only 8 other schools had information on their website that I coded as academic that related to educating medical students about maternal health (EducationMH) and only 5 of these schools' information was about maternal health disparities in particular. This information ranged from single instances such as webinars or series to ongoing didactic lectures, case studies, and simulations required for all students (only three schools). Due to there being a small percentage of schools that had information on their websites related to a curriculum on maternal health disparities in particular and maternal health overall, the results discussed below also expanded beyond what is explicitly stated about the curriculum on each school's website to the features of curriculum that include concepts related to quality of and access to care: implicit bias or racism, cultural competency, emotion, and simulations.

I do want to note that women's health is not a required pre-clinical course at any of the 100 U.S. medical schools in the sample and that not all medical schools have an Obstetrics and Gynecology or Women's Health department; in my sample, 42 schools did not have an OBGYN department. This may account for the fact that a relatively small number of schools that have information on their websites related to maternal health disparities overall, and in particular, an even smaller percentage of schools that incorporate maternal health disparities in their curriculum. The subsections below discuss whether and to what extent U.S. medical schools 1) discuss maternal health disparities on their websites, 2) incorporate maternal health disparities into the curriculum, 3) discuss maternal health on their websites, 4) incorporate maternal health into the curriculum. Each subsection will also discuss how the incorporation of maternal health

disparities and maternal health varies across features of school. Additionally, I will discuss how practices we think of as helping to improve maternal health outcomes and reduce maternal health disparities varies across schools.

Maternal Health Disparities in Medical Schools

Only 18 schools in my sample mentioned maternal health disparities. This is the thematic subcode (MHD) that is under the thematic code SpecificTopicMH (n=25). Private schools (10/18) were more likely to explicitly discuss maternal health disparities on their websites than public schools (8/18). Overall, HSPS were the most likely (6/14) to have information coded as maternal health (thematic code SpecificTopicMH), while DO schools (4/38) were the least likely. Among the schools that schools that explicitly used the term maternal health disparities or equity issues in maternity care on their website (thematic subcode MHD) private DO schools (1/31) had the lowest percentage (3%); followed by only 14%, 18%, and 25% of public DO (1/7), non-religiously affiliated PWIs (2/11), and HBCUs (1/4). Private, religiously affiliated PWIs (4/11) had the highest percentage (36%) of schools that explicitly used the term maternal health disparities on their website (thematic subcode MHD), followed by HSPS (4/14, 29%). The 1 HBCU that did mention maternal health disparities explicitly (thematic subcode MHD) is religiously affiliated. In my sample across all features there were 31 private MD schools. These findings indicate that private MD schools (10/31), were more likely to explicitly discuss maternal health disparities (thematic subcode MHD) on their websites than public MD schools (8/38).

These schools either explicitly used the term maternal health disparities or equity issues in maternity care. Half of these schools (8/17) at the time of data collection had research focused on reducing maternal health disparities, 2 (14%) had programs aimed at reducing maternal morbidity and mortality, 1 (7%) has a medical center dedicated to maternal health disparities, 5

(21%) held a discussion, panel, or series on maternal health disparities, 1 (7%) provided a free educational event to community members and healthcare providers, and only 1 school (R75, a private HSPS) has a required teaching on maternal mortality and the disparities that exist in terms of access to maternal care that all medical students take. Table 7 shows the presence of U.S. medical schools' websites mentioning specific topics related to maternal health disparities.

Table 7. The Presence of U.S. Medical Schools' Websites Mentioning Specific Topics Related to Maternal Health Disparities, March-August 2022

	Features of School							
	DO Pub.	DO Priv.	HBCU	HSPS	Pub. PWI	NR PWI	R. PWI	Total
SpecificTopicMH	2	2	2	6	6	3	4	25
MHD	1	1	1	4	5	2	4	18
MHDStat	0	0	0	1	1	0	0	2
n	7	31	4	14	22	11	11	

Note: Thematic codes and subcodes were based on publicly available information on each medical schools' website from March-August 2022. Thematic codes are bolded and thematic subcodes are intended to signify which thematic code they are linked to. DO Pub. indicates Osteopathic (DO) Public Medical School. DO Priv. indicates Osteopathic (DO) Private Medical School. HBCU indicates Historically Black Colleges and Universities. HSPS indicates Hispanic Serving Professional School. Pub. PWI indicates Public Predominately White Institutions. NR PWI indicates Non-religiously Affiliated Private PWIs. R. PWI indicates Religious Affiliated Private PWI. HBCUs HSPS, and PWIs in this sample are all Allopathic (MD) schools.

Looking specifically at how the discussion of maternal health disparities (thematic subcode MHD) varies across features of schools, we see that all 7 of the types of schools explicitly mentioned maternal health disparities or inequities in maternal health. Out of the 5 DO schools that mentioned the maternal health, only 2 explicitly mentioned maternal health disparities, private DO (R26) and public DO (R36). Medical school R26 mentioned that they were part of a collaborative pilot program that seeks to address maternal morbidity and mortality and medical school R36 has a webinar that discusses maternal health needs and how structural racism and implicit bias contribute to inequities during the postpartum period.

Out of the 2 HBCUs that mentioned maternal health, only 1 (R41) has a research center dedicated to maternal health disparities. There were four HSPS (R43, R64, R75, and R82) out of

7 (57%) explicitly mentioned the term maternal health disparities or equity issues in maternity care. One (R43) has a medical center dedicated to maternal health disparities. Another, (R75) has a required instructional for all medical students about maternal mortality and the disparities that exist in access to care. The last two HSPS (R64 and R82) received multimillion-dollar research grants aimed at combating racial bias in maternal health and reducing maternal and infant health disparities.

There were four (R137, R143, R144, and R146) public PWIs out of 11 (36%) that explicitly mentioned the term maternal health disparities or equity issues in maternity care. One public PWI (143) held a discussion on maternal health disparities, 1 public PWI (R137) has research focused disparities in family planning, public PWI R146 has focused research on racism and health equity in OBGYN, and public PWI R144 had research focused on maternal mental health disparities (postpartum depression), and. A third of the non-religiously affiliated PWIs (2/6) explicitly mentioned maternal health disparities. One (R83) hosted a series on maternal health disparities and barriers to care while the other (R103) held a panel discussion on maternal health disparities.

Lastly, half of the private religiously affiliated PWIs that mentioned maternal health (4/8) explicitly mentioned maternal health disparities (thematic subcode MHD). Two of the private religiously affiliated PWIs (R89 and R97) had research focused on maternal health disparities, 1 (R109) received a grant to reduce maternal complications like preterm birth and lessen disparities in preterm birth and maternal mortality and the other private religiously affiliated PWI (R114) office of Diversity and Inclusion provided a free event to educate the community and health care providers about racial disparities and inequities in maternal health care, as well as discuss solutions. Among the 17 schools that mentioned maternal health disparities, only two

schools, 1 HSPS (R43) and 1 public PWI (R144) provided statistics or general comparisons across ethnoracial groups when discussing maternal health disparities (code MHDStat).

Health disparities in medical schools. In addition to coding for maternal health disparities in particular, I also assessed whether and to what extent U.S. medical schools discuss health disparities and social determinants of health on their websites (Table 8). Almost two-thirds (74/100) of medical schools in my sample discussed health disparities or similar terms. All 4 of the HBCUs and private religiously affiliated PWIs and all but 1 of the of the private non-religiously affiliated PWIs (10/11) and HSPS (13/14) had information relating to health disparities on their websites. Private DO schools (16/31) were the least likely to discuss health disparities on their websites (52%) followed by public PWIs (15/22) and public DO schools (5/7). As indicated earlier, only 17 schools had information related to maternal health disparities on their websites, which means that only 23% of medical schools in my sample that had information about health disparities focused on maternal health. The mention of health disparities varied from just mentioning health disparities, to DEI statements on acknowledging and addressing health disparities, to receiving research grants, to webinar and seminars, to program objectives and learning outcomes for medical students. Only 18 schools provided some definition or examples of health disparities such as "a higher burden of illness, injury, disability, or mortality experienced by one population group relative to another group" and "differences in measurable cancer health outcomes) exist by age, gender, race/ethnicity, income, education, access to care, and other factors." School's who's ethnoracial identities are large Black (HBCUs) and who identify as serving Latine communities (HSPS) are much more likely (94%) to have information related to health disparities on their website than school's who are predominately White (70%). As noted earlier, 3 of the HBCUs are private schools and 5 out of the 14 HSPS are

private. Four out of 5 of the private HSPS (R44, R49, R75, and R82) mentioned health disparities. These findings show that private schools' websites in my sample were more likely than public schools' websites to discuss health disparities and allopathic schools were more likely (36/44) than Osteopathic (DO) schools (21/38) to mention health disparities on their websites.

Table 8. Presence of U.S. Medical Schools' Websites Mentioning Information Related to Health Disparities and Determinants of Health, March-August 2022

	Features of School							
	DO Pub.	DO Priv.	HBCU	HSPS	Pub. PWI	NR PWI	R. PWI	Total
Health Disparities	5	16	4	13	15	10	11	74
Determinants of Health	5	17	3	10	18	10	10	73
n	7	31	4	14	22	11	11	

Note: Thematic codes and subcodes were based on publicly available information on each medical schools' website from March-August 2022. Thematic codes are bolded and thematic subcodes are intended to signify which thematic code they are linked to. DO Pub. indicates Osteopathic (DO) Public Medical School. DO Priv. indicates Osteopathic (DO) Private Medical School. HBCU indicates Historically Black Colleges and Universities. HSPS indicates Hispanic Serving Professional School. Pub. PWI indicates Public Predominately White Institutions. NR PWI indicates Non-religiously Affiliated Private PWIs. R. PWI indicates Religious Affiliated Private PWI. HBCUs HSPS, and PWIs in this sample are all Allopathic (MD) schools.

Similar results were observed for determinants of health as 73 medical schools in my sample discussed determinants of health. Compared to health disparities, there was 1 less HBCU (3/4), 1 less private, religiously affiliated PWIs (10/11), and 3 less HSPS had information on their websites related to determinants of health. The number of medical schools mentioning this remained the same for public DO schools (5/7) and private, non-religiously affiliated PWIs (10/11). Seventeen out 31 private DO schools and 18 out of 22 public PWIs mentioned determinants of health. The mention of determinants of health varied from program or clerkship learning objectives, to series and webinars, to messages from the Dean of DEI, to research. Almost 60% of the sample (59 medical schools) had both information on health disparities and information on determinants of health on their website. Similar to health disparities, allopathic schools were more likely (36/44) than Osteopathic (DO) schools (21/38) to mention determinants

of health on their websites and private schools' websites in my sample were more likely than public schools' websites to discuss determinants of health. Despite the fact that almost two thirds of the medical schools in my sample mentioned health disparities and determinants of health, only 23% of medical schools in my sample that had information about health disparities focused on maternal health. These findings demonstrate how maternal health disparities are underemphasized by U.S. medical schools.

Maternal Health Disparities in the Medical School Curriculum

To assess whether and to what extent maternal health disparities was part of the curriculum, I classified information under the thematic code AcademicMH (n=25) as EducationMH if the information on the websites discussed maternal health disparities (thematic subcode MHD under thematic code SpecificTopicMH) in relation to the medical school educating medical student. The thematic subcode EducationMH, under AcademicMH, is for any mention of lectures, sessions, cases, workshops, series, symposium, webinar, or panel on maternal health disparities. To identify the number of schools that have maternal health disparities as part of educating medical students, I ran a crosstabulation in Stata17 with thematic subcodes MHD and EducationMH. Only 6 medical schools (R36, R75, R83, R114, R143, and R185) had maternal health disparities (MHD) information on their website that was coded as educating students (EducationMH). Three of these schools held webinars or series about maternal health disparities (R36, R83, and R143). These webinars and series were one-time events that were voluntary and not dedicated only to medical students, meaning that the targeted audience was not only medical students as the registration or attendance for these were not limited to medical students.

There were only three medical schools (R75, R114, and R185) that solely focused on educating medical students about maternal health disparities. Medical school R75, a private HSPS, has a required teaching on maternal mortality and the disparities that exist in terms of access to maternal care that all medical students take. This form of education occurs through two one-hour student led sessions that discuss maternal mortality in the U.S., examines the role that disparities that exist in access to care have on the existence of maternal mortality, and emphasizes the role that all physicians, not just obstetricians and gynecologists have in being a part of the solution to reduce maternal health disparities. The other two medical schools that solely focused on educating medical students about maternal health disparities have professor led training. Medical school R114, a private, religiously affiliated PWI, started a summer experience 'observership" in 2021 which allows rising second year medical students from the entire state attend a 6-week shadowing OBGYNs and attend lectures related to maternal health. This annual summer experience is geared towards students who are interested in practicing OBGYN in medically underserved communities and seek to provide equitable care to patients. The last school that that solely focused on educating medical students about maternal health disparities are R185, a public PWI. This school has a multi-disciplinary preventive medicine program that is involved in the medical school curriculum across all four years. This program has maternal mortality case and a racial and ethnic disparity on low-birth-weight case where students can learn how to calculate the rates of maternal mortality and low birth weight, identify causes of disparities, develop intervention strategies to identity and prevent these topics, and critically appraise existing medical literature on the topics. Other medical schools can alter their curriculum to include an instruction on maternal health disparities like these schools described above.

Overall, as described above, private medical schools (10/31) were more likely to explicitly discuss maternal health disparities on their websites than public schools (8/38). This difference between private and public schools was also observed among the 3 schools that incorporated maternal health disparities into the medical student curriculum, two of them were private schools. The limited discussion of maternal health disparities on medical schools websites (18/100) and the even smaller number of medical schools that incorporated maternal health disparities into the curriculum (6/100) lead me to analyze the results beyond maternal health disparities in particular to focus on maternal health overall.

Maternal Health in Medical Schools

Specific maternal health topics. Thirty-nine percent of the sample (39/100) mentioned maternal health on their websites. Across the features, MD schools were much more likely to have mentioned maternal health than DO schools, as only 13% (5/38) of DO schools (both public and private) mentioned maternal health while 50% (2/4) of HBCUs, 50% (7/14) of HSPS, 50% (11/22) of Public PWIs, and 64% (14/22) of Private PWIs mentioned maternal health (religious affiliated private PWIs were 18% more likely to have mentioned maternal health than non-religious affiliated private PWIs). Much of the focus was on maternal physical health as only 8 of these 39 schools that mentioned maternal health on their website that had information relating to maternal health on their websites discussed maternal mental health, such as postpartum depression and anxiety. These findings mirror the view of the general public as maternal mental health is underemphasized.

In addition to the specific maternal health disparities thematic subcodes—MHD and MHDStat—I also created 3 more inductive thematic subcodes for the thematic code, SpecificTopicMH (n=25); which includes the explicit use of specific terms such as postpartum

care (PPC), postpartum depression (PPD), and specific maternal health conditions like maternal near misses, maternal mortality, cesarean sections, and preterm birth (SpecificCondMH). Table 9 shows the presence of U.S. medical schools' websites mentioning specific topics related to maternal health more generally, excluding maternal health disparities in particular.

Table 9. The Presence of U.S. Medical Schools' Websites Mentioning Specific Topics Related to Maternal Health Excluding Maternal Health Disparities, March-August 2022

	Features of School							
	DO Pub.	DO Priv.	HBCU	HSPS	Pub. PWI	NR PWI	R. PWI	Total
Maternal Health	2	3	2	7	11	6	8	39
SpecificTopicMH	2	2	2	6	6	3	4	25
PPC	1	0	2	2	1	0	1	7
PPD	0	0	0	1	1	1	0	3
SpecificCondMH	1	1	1	3	4	3	3	16
n	7	31	4	14	22	11	11	

Note: Thematic codes and subcodes were based on publicly available information on each medical schools' website from March-August 2022. Thematic codes are bolded and thematic subcodes are intended to signify which thematic code they are linked to. DO Pub. indicates Osteopathic (DO) Public Medical School. DO Priv. indicates Osteopathic (DO) Private Medical School. HBCU indicates Historically Black Colleges and Universities. HSPS indicates Hispanic Serving Professional School. Pub. PWI indicates Public Predominately White Institutions. NR PWI indicates Non-religiously Affiliated Private PWIs. R. PWI indicates Religious Affiliated Private PWI. HBCUs HSPS, and PWIs in this sample are all Allopathic (MD) schools.

There are two thematic subcodes for postpartum maternal health; postpartum care (thematic subcode PPC) and postpartum depression (thematic subcode PPD). There were only 7 medical schools in the entire sample (R36, R41, R42, R49, R74, R89, and R144) that mentioned PPC. Two of these medical schools that mentioned PPC (R49 and R144) also mentioned PPD. There was 1 private, non-religiously affiliated medical school (R83) that did not mention PPC but mentioned PPD. In total this is only 8% (8/100) of the sample that postpartum care and/or depression explicitly. Out of the 8 medical schools that mentioned PPC and PPD, 1 school was a public DO school (R36), two were HBCUs (R41 and R42), two were HSPS (R49 and R74), 1 was a private religiously affiliated PWI (R89) and 1 was a public PWI (R144). Medical school R36 held a webinar on postpartum depression where they described how structural racism and

implicit bias contribute to inequities in postpartum. Both of the HBCUs had a research study related to health inequities in maternal care. Medical school R49 had a professor who led a webinar on difficulties arising during and after pregnancy, including pregnancy loss, depression, and anxiety. Medical school R74 received a multi-million dollar grant for improving maternal outcomes including the design and implementation of a postpartum clinic and research and training center. Medical school R89 conducts population health research where postpartum visits and the barriers that exist to attend visits is explored. The last school (R144) to mention postpartum care was working on a research project, at the time of data collection, that focused on postpartum depression, the underdiagnosis of postpartum depression, and barriers to access postpartum care.

Only 3 schools mentioned postpartum depression or perinatal depression (code PPD). Two of these schools (R49 and R144) were also mentioned above. During the webinar that R49 hosted, they allowed guest panelist to provide their insight into their own personal experiences with depression and anxiety related to their pregnancy and being a new mother. The other school that mentioned PPD is a private non-religiously affiliated PWI (R83), and they held a series on maternal mental health disparities and barriers to care where they discussed the importance of screening for postpartum depression.

SpecificCondMH is the last thematic subcode that I created under the thematic code SpecificTopicMH (n=16). This includes specific maternal physical health conditions like reproductive health and abortion, high risk pregnancies, gestational hypertension, gestational diabetes, preeclampsia, cesarean sections, maternal near misses, maternal morbidity and mortality, and preterm birth (SpecificCondMH). Sixteen medical schools (R23, R26, R41, R43, R64, R75, R83, R89, R97, R100, R109, R112, R141, R143, R146, and R167) mentioned these

conditions. I do want to highlight one medical school (R64), a public HSPS, in particular. This medical school is working on an interdisciplinary research grant with medical practitioners, medical students, doulas, midwives, and women who have experienced adverse maternal health outcomes in hospitals to combat racial bias among OBGYN providers in maternal health and over the next few years they will host implicit racial bias training workshops of medical professionals and students. They view this is imperative to reducing disparities in maternal mortality. Overall, I observed that only 25 medical schools have information on their website related to specific topics in maternal health. Of these 25, only 8 of them discuss maternal mental health, while the remaining 16 discuss maternal physical health. These findings highlight how maternal mental health, including outcomes and care, are underemphasized in medical school. This reflects the view of the general public that focuses more on maternal physical health disparities than maternal mental health disparities.

Maternal health in the medical school curriculum. In addition to specific topics related to maternal health overall, thematic code SpecificTopicMH, I also coded maternal health information related to academics, thematic code AcademicMH (n=25). Two of these medical schools was a public DO (R23 and R36), 2 are private DO (R26 and R27), 4 are HSPS (R48, R49, R62, and R75), 7 are public PWIS (R137. R143, R146, R156, R167, R178, and R185) 4 are non-religiously affiliated private PWIs (R83, R100, R112 and R113), and 6 are religiously affiliated private PWIs (R89, R97, R99, R114, R126, and R131). None of the four HBCUs had information about maternal health as part of their curriculum on their websites at the time of data collection. In terms of percentages across each feature, religiously affiliated private PWIs had the highest percentage (6/11, 55%) of schools that had information about maternal health as part of what I coded as academics on their websites at the time of data collection, followed by non-

religiously affiliated private PWIs (4/11, 36%), public PWIs (7/22, 32%), HSPS (4/14, 29%), public DO schools (2/7, 28%), and private DO schools (2/31, 7%). Table 10 shows the presence of U.S. medical schools' websites mentioning information related to maternal health in in the curriculum.

Table 10. The Presence of U.S. Medical Schools' Websites Mentioning Information Related to Maternal Health in the Curriculum, March-August 2022

	Features of School							
	DO Pub.	DO Priv.	HBCU	HSPS	Pub. PWI	NR PWI	R. PWI	Total
Maternal Health	2	3	2	7	11	6	8	39
AcademicMH	2	2	0	4	7	4	6	25
TrackMH	0	1	0	0	0	0	0	1
EducationMH	1	1	0	2	2	1	2	9
FellowshipMH	0	0	0	1	1	1	1	4
DepartmentMH	0	1	0	1	5	2	4	13
n	7	31	4	14	22	11	11	

Note: Thematic codes and subcodes are based on publicly available information on each medical schools' website from March-August 2022. Thematic codes are bolded and thematic subcodes are intended to signify which thematic code they are linked to. DO Pub. indicates Osteopathic (DO) Public Medical School. DO Priv. indicates Osteopathic (DO) Private Medical School. HBCU indicates Historically Black Colleges and Universities. HSPS indicates Hispanic Serving Professional School. Pub. PWI indicates Public Predominately White Institutions. NR PWI indicates Non-religiously Affiliated Private PWIs. R. PWI indicates Religious Affiliated Private PWI. HBCUs HSPS, and PWIs in this sample are all Allopathic (MD) schools.

Among the 39 schools in my sample that had information on their websites about maternal health, maternal health was only incorporated into the medical student curriculum for 10 medical schools (R23, R27, R36, R49, R75, R83, R114, R131, R143, and R185). Only 4 of these schools are public (R23, R36, R143, and R185). To assess whether and to what extent maternal health was part of the medical student curriculum, I classified information as thematic code AcademicMH (n=25) if the information on the websites discussed maternal health in relation to a specific track (TrackMH) or educating medical students (EducationMH) (Table 7). Only 1 medical school, a private DO school (R27), has a two-semester urban underserved medicine enrichment track for medical students where maternal and child health is one of the

focus topics (TrackMH). I also coded this schools as thematic subcode EducationMH as it discuses maternal health in relation to educating medical students.

In addition to R27, there were 8 other of the schools that had information that I coded as academic had information that related to educating medical students about maternal health (EducationMH). This thematic subcode under AcademicMH is for any mention of lectures, sessions, cases, workshops, series, symposium, webinar, or panel on maternal health disparities. To identify the number of schools that have maternal health disparities as part of educating medical students, I ran a crosstabulation in Stata17 with thematic subcodes SpecificTopicMH and EducationMH. In the maternal health disparities in the medical school curriculum section above, I discussed 5 medical schools' websites (R36, R75, R83, R114, and R143) that discussed maternal health disparities, specifically in relation to the medical school educating medical student (thematic subcode EducationMH). In addition to those 5 schools, there were 4 more medical schools (R23, R49, R131, and R185) that mentioned maternal health overall in relation to educating medical students, 9 schools in total (R23, R36, R49, R75, R83, R114, R131, R143, and R185). The majority of these 9 schools were private (6/9). HBCUs and private DO medical schools did not have information on their websites that was coded as educating medical students (thematic subcode EducationMH). Private, non-religiously affiliated PWIs had only 1 medical school while public DO, HSPS, public PWIS and private, religiously affiliated PWIs each had 2 medical schools. These schools mentioned lectures, sessions, cases, workshops, series, symposiums, webinars, or panels on maternal health.

There were only 2 medical schools (R18 and R131) that solely focused on educating medical students about maternal health. Medical school R18 (a private DO school) indicated how their Department of Maternal and Child Health participates in the students' medical education

during all four years through didactic lectures and hands-on skills workshops where simulations of interactive birthing provide students with a mock labor and birth experience. Medical school R131, private, religiously affiliated PWI, has learning sessions for all 2nd year medical students (M2s) where they have discussions about pregnancy and the first trimester as well as simulations with female patients in active labor and postpartum visits. Both of these medical schools were private. This is similar to the results observed about with private medical schools were more likely to have information on their websites that show that they educate medical students about maternal health disparities.

I also observed how maternal health disparities was part of the curriculum for residents. This is the thematic subcode FellowshipMH which is under the thematic code AcademicMH (n=25) (Table 7). Similar to what I observed for medical students, for residents, there were only 4 medical schools (R48, R113, R126, and R178) that had fellowships for residents that related to maternal health. Medical school R48 is a public HSPS, R113 is a private, non-religiously affiliated PWI, R126 is a private, religiously affiliated PWI, and R178 is public PWI. The discussion of these fellowships include language such as, “advanced clinical training in maternity and newborn care” (R48) and “the application of evidence-based medicine to all aspects of maternity care” (R113). None of the DO schools had made a mention of resident fellowship related to maternal health and only 1 of these 4 schools is an HSPS (R48). Two of the remaining 3 schools that had information coded as (FellowshipMH) are private PWIs (1is religiously affiliated) and 1 is a public PWI. These results show how only 9 out of 100 U.S. medical schools had information related to maternal health on their website about what is explicitly stated about the curriculum to medical students and only 4 with residents and a little over half of them (8/13) were private institutions.

The last thematic subcode under the thematic code AcademicMH (n=25) is DepartmentMH. Thirteen out of 25 of the schools that I coded as AcademicMH mentioned a specific department, committee, or division at the school that discusses maternal health (DepartmentMH) (Table 7). DepartmentMH is a thematic subcode of AcademicMH (n=24). Thirteen schools had information relating to maternal health that was coded as DepartmentMH. Twelve out of the 13 schools that have the thematic subcode DepartmentMH also have an OBGYN department while only 1 private DO school (R18) does not have an OBGYN department (Results not shown). One private DO school R18, 1 HSPS (R62), 5 public PWIs (R137, R141, R146, R156, and R167), 2 non-religiously affiliated private PWIs (R100 and R112), and 4 religiously affiliated private PWIs (R89, R97, R99, and R114) had information that I coded as DepartmentMH which includes Maternal Fetal Medicine Division, Office of Diversity and Inclusion, OBGYN departments, and Department of Maternal and Child Health. These departments may conduct research related to maternal health (R62, R97, R137, R141, R146, and R167), participate in medical students' education (R18 and R156), and offer free education events to community members and healthcare professionals (R114).

As noted prior, only 58 medical schools in my sample—2 out of 7 of public DO schools, 7 out of 31 private DO schools, 3 out of 4 HBCUs, all 14 HSPS, 14 out of 22 public PWIs, 7 out of 11 private, non-religiously affiliated PWIs, and all 11 private, religiously affiliated PWIs—have an Obstetrics and Gynecology or Women's Health department. To assess differences in mentioning maternal health on websites across schools who have an OBGYN department compared to not, I observed that only 3 medical schools out of the 42 that did not have an OBGYN department at the time of data collection had information relating to maternal health on their website; while 22 medical schools out of the 58 that did have an OBGYN department at the

time of data collection had information relating to maternal health on their website (results not shown). Among the 3 medical schools that did not have an OBGYN department at the time of data collection, 1 was a private DO (R36), 1 public DO (R27), and 1 HBCU (R42). These findings show that maternal health is more likely to be mentioned by schools that have on OBGYN department. This may account for the fact that a relatively small number of schools mention maternal health overall.

Overall, my results show that only 39 schools have information on their websites relating to maternal health, and 18 related to maternal health disparities in particular. In terms of maternal health being incorporated into the medical school curriculum, only 9 medical school had information related to maternal health overall and 5 of these medical schools had information related to maternal health disparities in particular as part of their curriculum. These schools had information that I coded as thematic subcodes TrackMH or EducationMH, both of which are under the thematic code AcademicMH. Some of these schools held one-time webinars that were voluntary and not dedicated only to medical students while only 1 school had a track focused on maternal health and 5 solely focused on educating medical students about maternal health disparities. The findings show that among the small percentage of U.S. medical schools that incorporate a curriculum on maternal health disparities in particular (n=5) and maternal health overall (n=9), private schools were more likely to incorporate a curriculum on maternal health disparities in particular and maternal health overall that overall than public medical school. Overall, these finding indicate that U.S. medical schools do not have publicly available information on their websites that indicate that medical students are receiving education on maternal health disparities.

Interviews at One Medical School

To supplement the themes observed from the content analysis, interviews with the medical professors are incorporated in the results. Interviews with 4 clerkship professors—2 in OBGYN and 2 in family medicine—at an allopathic, religiously affiliated private Midwestern school (R109) further informs the ways in which the professors understand the curriculum that they are offering in terms of maternal health disparities. As indicated above, R109 did provide information on their website about maternal health disparities and indicate that they received a large grant to administer a personalized prenatal care program that aims to reduce maternal complications, reduce the risk of preterm birth and lessen disparities in preterm birth rates; reduce the risk of NICU admission; and reduce triage visits by increasing prenatal and postpartum care visits. However, at the time of data collection, there was no publicly available information on their website that included instances where maternal health is discussed in relation to the academics or education of medical students. This finding was echoed in *Chapter 3 Professional Socialization of Medical Students (interviews w/students)*, as only 7 out of 25 students indicated that they learned about maternal health disparities while in medical school; but only 2 of these 7 students of these students indicated that their learning was extensive (not a brief mention of statistics or differences across ethnoracial identity) (for more information of the findings from this study please go the *Chapter 3 Professional Socialization of Medical Students (interviews w/students)* results subsection "Maternal health disparities in the medical school curriculum".

Two of the clerkship professors at R109 are OBGYN clerkship professors, one specializes in maternal fetal medicine, and the other two are family medicine clerkship professors. One OBGYN professor (Dr. Sheild) stated that they formally discuss ethnoracial

health disparities and provided two specific examples of lectures during the OBGYN clerkship on topics such as maternal hemorrhage and cesarean sections (c-sections). During these lectures, the professor starts out with statistics about the topic in the U.S. and the state that the school is located in in particular. Then, they discuss how the rates vary across ethnoracial groups. The second OBGYN professor (Dr. Norris) stated that there are several discussions that they have with medical students about social determinants of health and the importance of screening for them as a way to address ethnoracial health disparities. They stated,

> So, we talk about how, you know, non-Hispanic Black women are at increased risk of morbidity and mortality, and we don't know why. And there's this huge research void where we know that these increased risks are there, but why we don't know. We can't answer it. So just by talking about it, I think that just brings acknowledgement to the problem and once you at least acknowledge the problem, then we can try to help solve it.

This sentiment of acknowledging and having discussions about maternal health disparities are an important step in reducing the prevalence of them was also expressed by a family medicine clerkship professor (Dr. Norris) who stated,

> I see the need and it's difficult to incorporate. I think that we have to think about how to teach this topic meaning meaningfully. When students come in, they often do come to me to, to propose curricular changes to include more focus on health disparities. My first question is always is a lecture really how you want this to be taught? I think that this requires discussion. It requires self-reflection. It requires people with experience to talk with some honesty and humility. When I, so, I think if you're going to catalog all the places it's taught in lectures or assignments, you know, do we need more than we have? Maybe slightly. But I think the real question is, if our learning goal of our outcome is to produce physicians who are going to start fighting to change these outcomes, we need them to do more than see it on slides. We need to talk we need them to engage is to be experiential.

The professors in my sample did acknowledge the importance of discussions as a useful way for medical students to learn about maternal health disparities. However, these discussions are not occurring. Interestingly, as conveyed in *Chapter 3 Professional Socialization of Medical Students (interviews w/students)* results subsection “Maternal health disparities in the medical

school curriculum", none of the medical 12 students that have taken their OBGYN clerkship recalled these lectures or discussions with clerkship professors during their OBGYN rotation. The one student that indicated that they did have extensive discussions about maternal health disparities during their OBGYN clerkship did not learn about it from any of the attending physicians, but from a Black female resident who was at the hospital where they did their OBGYN rotation.

Both family medicine clerkship professors, Dr. Lane and Dr. Johnson, stated that during the family medicine clerkship orientation, there is a determinant of health lecture where they discuss health disparities as it relates to ethnoracial identity, gender identity, and ability and disability in great detail. Dr. Lane noted that during this orientation, they ask

> students who are extraordinarily knowledgeable, like to come up with their own examples from their knowledge. And a lot of times they'll bring up things like the maternal morbidity and mortality like around the racial disparities, oftentimes, the pain management, stuff comes up, asthma comes up, COVID, obviously, has come up. So that's where we talked about it openly. And then usually I'll try to reinforce with, you know, whatever stuff that doesn't come up, that's where we addressed it.

During the family medicine orientation at an allopathic, religiously affiliated private Midwestern school, students are allowed the opportunity to discuss any racial health disparities that they know and there is an "open" discussion about ethnoracial health disparities, including maternal health, that is had between professors and students. When asked specifically how this professor teaches about maternal health disparities in their clerkship, they stated

> Really the only place that it kind of comes up right, is that sort of intro slide in our social determinants of health lecture. So that's definitely one that I referenced and talked about. It's not much in you know, in depth, it's more of a, an acknowledgment and a starting point for the lecture.

The acknowledgement of the teaching as "not much" is echoed by the 18, out of 25, students who did not recall any discussion or instruction of maternal health. There were four

students who recalled the family medicine social determinants of health orientation as they discussed it as one of the only instances in medical school where they learned about ethnoracial health disparities. However, none of them mentioned maternal health disparities as a topic that was discussed (see Chapter 3 for more details about the students' perceptions of this orientation). These findings demonstrate the disjuncture between what instructors include in the curriculum versus how students perceive their curriculum. Immediately after providing the answer quoted above, Dr. Lane was asked "what do you think about that? You said, it's more of an acknowledgement point. But like, do you think it should be more in-depth discussions? Or is there no room for it in the amount of time you have?" They responded,

> Yeah, I mean, my hope is that it's brought up in other places like the OBGYN clerkship. I think in all things medicine, we always wish there were more time. I think it's, yeah, I think it's really hard to like, pack everything in, in from, like, clinical skills, aspects. My hope is that like, through continued, like discussion and acknowledgement, while teaching people to be doctors, that's what we can do right now. I don't know if this taught in other places too, like the OBGYN clerkship or that kind of thing.

This sentiment of hoping that it is brought up in the OBGYN clerkship was also expressed by the other family medicine clerkship professor (Dr. Johnson) and some of the medical students that have not taken their OBGYN clerkship.

Unfortunately, these results across the two empirical chapters demonstrates a disconnect between what is taught in medical school and how medical students perceive what they are or are not learning about maternal health disparities in the curriculum of their school. Overall, only 39 of the schools had information about maternal health on their websites and only 14 schools mentioned maternal health disparities but only 1 school has a two-semester urban underserved medicine enrichment track where maternal and child health is one of the focus topics and 10 schools had information on their website that I coded as academic that related to educating

medical students about maternal health (EducationMH). The small percentage (5%) of schools that had information on their websites related to a curriculum on maternal health disparities in particular and maternal health overall (9%), the results discussed below also expanded beyond what is explicitly stated about the curriculum on each school's website to the features of curriculum that include concepts related to quality of and access to care: implicit bias or racism, cultural competency, emotion, and simulations.

Thematic Codes Related to Quality of and Access to Care

As previously mentioned, I created 4 deductive thematic codes related to medical schools incorporating the following topics on their websites on 1) implicit bias, unconscious bias, unintentional bias, racism, systemic racism, institutional racism, or structural racism, 2) cultural competence, cultural sensitivity, or cultural awareness, 3) simulations, and 4) empathy, compassion, or emotion. These deductive thematic codes were developed based on medical education and medical student professionalization literature (Jenkins et al. 2021; Olsen Underman 2015; Underman and Hirshfield 2016; Vinson 2019; Vinson and Underman 2020). Table 11 shows the presence of U.S. medical schools' websites in my sample mentioning information thought to help mitigate maternal health disparities in practice implicit: bias or racism, cultural competency, emotion, and simulations.

Table 11. Presence of U.S. Medical Schools' Websites Mentioning Information Related to Care, March-August 2022

	Features of School							
	DO Pub.	DO Priv.	HBCU	HSPS	Pub. PWI	NR PWI	R. PWI	Total
Implicit bias or racism	2	16	3	11	19	8	11	70
Cultural Competency	6	15	2	10	16	8	10	67
Emotion	4	23	4	12	13	8	11	75
Simulations	6	28	4	13	19	11	10	91
n	7	31	4	14	22	11	11	

Note: Thematic codes and subcodes were based on publicly available information on each medical schools' website from March-August 2022. Thematic codes are bolded and thematic subcodes are intended to signify which thematic code they are linked to. DO Pub. indicates Osteopathic (DO) Public Medical School. DO Priv. indicates Osteopathic (DO) Private Medical School. HBCU indicates Historically Black Colleges and Universities. HSPS indicates Hispanic Serving Professional School. Pub. PWI indicates Public Predominately White Institutions. NR PWI indicates Non-religiously Affiliated Private PWIs. R. PWI indicates Religious Affiliated Private PWI. HBCUs HSPS, and PWIs in this sample are all Allopathic (MD) schools.

Almost two-thirds of medical schools in my sample discussed terms related to quality of and access to care. Seventy medical schools mentioned implicit bias and/or racism on their website. Almost all of the 44 PWIs (38/44) mentioned these terms while less than half of the DO medical schools (18/38) mentioned these terms. The mentioning of these terms varied from forums and public discussions about institutional racism to statements made by the medical school during the summer of 2020 where they denounced racism and inequality to actual implicit bias trainings for medical students. Similar results for cultural competency, and emotion were observed and almost all schools except 1 public DO school, 3 private DO schools, 3 public PWIs, and 1 private, religiously affiliated PWI mentioned the use of simulations (Table 8). Overall, allopathic (MD) schools were more likely than DO schools to mention implicit bias or racism, cultural competency, and emotion on their websites. Additionally, schools' who identify as serving ethnoracial minoritized groups (Black and Latine people) were more likely than PWIs to mention these thematic codes. The information that medical students' post on their website is a reflection of their values and the largest representation of a school is their mission statement.

How Medical Schools' Present Themselves

Similar to maternal health disparities, I created inductive themes based on the U.S. medical schools' mission statements. I created 5 mission statement health thematic codes: school type (SchoolTypeMS), education (EducationMS), type of care (CareMS), community served (CommunityMS), and diversity (DiverseMS). These features applied mostly to DO and religiously affiliated schools. Table 12 shows the presence of thematic codes and subcodes of U.S. medical schools' mission statements. The first thematic code in Table 9 is SchoolTypeMS. There were 34 medical schools, only 2 PWIs, that mentioned the school type (thematic code SchoolTypeMS) which includes any mention of school features such as mention of religion (thematic subcode ReligionMS which is under thematic code SchoolTypeMs) or osteopathic principles, values, or holistic style of care (thematic subcode OsteoMS which is under thematic code SchoolTypeMs) in the mission statement. Thirty-one out of 38 osteopathic schools' mission statements made mention of osteopathic principles like being "dedicated to ethical and social principles of the osteopathic profession" and "the mission is to train osteopathic physicians". Three private DO schools mentioned religion, such as "to educate and prepare physicians in a Christian environment." Three private, religiously affiliated PWIs also mentioned religion in their mission statement.

Seventy medical schools in my sample included information in their mission statement that I coded as EducationMS. This thematic code has 5 thematic subcodes: educating students (StudentsMS), educating residents (ResidentsMS), educating physicians (PhysiciansMS), research (ResearchMS), and explicit use of the term health or healthcare disparities (HealthDispMS) in the mission statement. Almost half (34/70) of these schools mentioned educating students in the mission statement. Nineteen out of the 27 DO schools (3 public DOs

and 16 private DOs) 1 out of 4 HBCUs, 5 HSPS (out of 14), 4 public PWIs (out of 22), 4 private, non-religiously affiliated PWIs (out of 11), and 1 private, religiously affiliated PWIs (out of 11) that mentioned education in the mission statement mission educating medical students. DO private schools were the most likely to mention educating students and private while religiously affiliated schools were the least likely to. Only 2 schools, a public DO and a public PWI, mentioned educating residents while 7 medical schools—1 public DO school, 2 private DO schools, 2 public PWIs, 1 non-religiously affiliated PWIs, and 1 private, religiously affiliated PWIs—mentioned educating physicians. Forty-nine medical schools mentioned using research as a way to educate students, residents, or physicians: for examples “medical education levels through excellence in teaching, research, service, and scholarly activities”. Only 1 medical school, an HBCU, mentioned health disparities in their mission statement (Table 9). These findings demonstrate only a third of medical students include educating medical students in their mission statement but only 1 mentioned educating medical students with a special focus on activities that address health care disparities.

Table 12. Presence of Thematic Codes and Subcodes of U.S. Medical Schools' Mission Statements, March-August 2022

	Features of School							
	DO Pub.	DO Priv.	HBCU	HSPS	Pub. PWI	NR PWI	R. PWI	Total
SchoolTypeMS	5	27	0	0	0	0	2	34
OsteoMS	5	26	0	0	0	0	0	31
ReligionMS	0	3	0	0	0	0	3	6
EducationMS	3	24	4	9	17	7	6	70
StudentsMS	3	16	1	5	4	4	1	34
ResidentsMS	1	0	0	0	1	0	0	2
PhysiciansMS	1	2	0	0	2	1	1	7
ResearchMS	2	18	4	5	12	4	4	49
HealthDispMS	0	0	1	0	0	0	0	1
CareMS	4	24	3	12	11	5	4	63
QualityMS	0	5	0	0	1	1	1	8
EthicMS	0	0	0	1	0	0	0	1
PatientCenteredMS	2	5	0	3	3	1	0	14
PrimaryCareMS	2	4	1	0	3	0	0	10
GlobalMS	0	1	0	3	0	0	0	4
CompassionMS	1	13	2	6	3	3	3	31
CultCompMS	1	2	0	2	1	0	1	7
HealthEquityMS	0	0	1	4	1	1	0	7
CommunityMS	3	18	3	5	16	5	4	54
CommServeMS	0	2	2	0	4	2	1	11
UnderservedMS	3	9	3	2	3	0	1	21
RuralMS	0	3	1	1	0	0	0	5
StateMS	2	4	1	1	6	1	1	16
RegionMS	1	7	0	0	5	2	0	15
DiverseMS	3	10	4	7	5	5	4	38
DiversePhysMS	2	3	3	4	2	3	4	21
DiversityMS	1	7	1	3	3	2	0	17
n	7	31	4	14	22	11	11	

Note: Thematic codes and subcodes were based on publicly available information on each medical schools' website from March-August 2022. Thematic codes are bolded and thematic subcodes are intended to signify which thematic code they are linked to. DO Pub. indicates Osteopathic (DO) Public Medical School. DO Priv. indicates Osteopathic (DO) Private Medical School. HBCU indicates Historically Black Colleges and Universities. HSPS indicates Hispanic Serving Professional School. Pub. PWI indicates Public Predominately White Institutions. NR PWI indicates Non-religiously Affiliated Private PWIs. R. PWI indicates Religious Affiliated Private PWI. HBCUs HSPS, and PWIs in this sample are all Allopathic (MD) schools.

Sixty-three medical schools' mission statements included a discussion of caring for patients (thematic code CareMS). CareMS has 8 thematic subcodes which include providing quality care (QualityMS), ethical care (EthicsMS), patient centered care (PatientCenteredMS),

primary care (PrimaryCareMS), global-minded or global community care (GlobalMS), compassion, empathy, and/or emotion (CompassionMS), cultural humility, sensitivity, awareness, competency, or respect (CultCompMS), and advancing or promoting health equity (HealthEquityMS) in the mission statement. The majority of these medical schools' mission statements (31) mentioned caring for patients in a compassionate, emotional, or empathetic way (CompassionMS). Fourteen mentioned patient-centered medical care (PatientCenteredMS), 10 mentioned primary care (PrimaryCareMS), 8 mentioned providing quality care (QualityMS), 7 mentioned cultural competence (CultCompMS), 7 mentioned health equity (HealthEquityMS), 4 mentioned providing globally-minded care (GlobalMS), and 1 mentioned providing ethical care (EthicMS). Including a type of care that the medical school strives to provide to its patients in the mission statement demonstrates to future students how medical schools value patient care.

In addition to discussing the type of care that the schools' want to provide to patients, 54 schools mentioned specific communities or populations that they serve (CommunityMS) in their mission statements. HSPS (5/14) and private PWIs (9/22) were the least likely to mention specific communities, while public PWIs (16/22) and HBCUs (3/4) were the most likely. CommunityMS has 6 thematic subcodes which include mentioning of community service, engagement, or volunteer work (CommServeMS), serving underserved, urban, minority, marginalized, or disadvantaged communities (UnderservedMS), serving rural communities (RuralMS), and serving the city (CityMS), state (StateMS), and region (RegionsMS) that the medical school is located in (Table 9). Underserved urban, minority, marginalized, or disadvantaged communities (UnderservedMS) were the most likely (n=21) to be mentioned in the mission statement while rural communities (RuralMS) were the least likely (n=5). Including the type of community that the medical school serves in their mission statement signifies that the

medical school values its care that it provides to marginalized and disadvantaged communities and signifies to prospective medical students the types of communities that they will work with.

The last thematic subcode that I created based on the information that medical schools post on their website is the mentioning of diversity (DiverseMS) which include any mentioning of diversifying student, resident, physician, or people in medicine population in the mission statement (thematic subcode DiversePhysMS) and any explicit mention of the word diversity or diverse patient population served in the mission statement (thematic subcode DiversityMS). Thirty-eight medical schools in my sample included the word diverse or diversity in their mission statement. Private DO medical schools (10/31) and public PWIs (5/22) were the least likely to mention diversity in their mission statement. Half of the HSPS mentioned diversity in their mission statement and about 40% public DO medical schools (3/7), private, non-religiously affiliated PWIs (5/11), and private, religiously affiliated PWIs (4/11) included diversity in their mission statement. All four HBCUs mentioned the word diversity in their mission statement and 3 of them mentioned increasing the diversity of the health professional and scientific workforce and training physicians who are committed to transforming the health of diverse and underserved communities. Private DO medical schools (3/31) and public PWIs (2/22) were the least likely to mention diversifying the professionals in medicine. Diversifying the medical professional workforce is important in healthcare because it guarantees that all individuals from various ethnoracial backgrounds are represented in medicine which can assist with reducing ethnoracial health disparities (Jackson and Gracia 2014).

Discussion

In this chapter, I have shown how only 18 U.S. medical schools have publicly available information on their website about maternal health disparities and only 6 of these schools

incorporated a curriculum on maternal health disparities. Three of the schools that incorporated a curriculum on maternal health disparities had webinars and series were one-time events that were voluntary and not dedicated only to medical students, meaning that the targeted audience was not only medical students as the registration or attendance for these were not limited to medical students. The other three schools had instruction on maternal health disparities—two were required and one summer experience—that was solely for students, but one of these schools that has a required instruction on maternal health disparities are student led. Maternal health disparities need to be taught by medical professors. As Olsen (2019) noted with the instruction of race, by having this be a student-led discussion as opposed to taught by a professor, medical schools could perceive maternal health disparities as irrelevant academic knowledge needed for being a competent clinician (Olsen 2019).

Looking at maternal health overall, I have shown how 39% of the 100 U.S. medical schools in my sample mentioned maternal health on their websites but only 10% of the sample incorporated a curriculum on maternal health. Only one medial school, which is a private osteopathic medical school (DO), has a two-semester urban underserved medicine enrichment track for medical students where maternal and child health is one of the focus topics. Allopathic medical schools (MD) were much more likely to have mentioned maternal health than osteopathic medical schools (DO).

Additionally, I demonstrated how clerkship professors at an allopathic, religiously affiliated private Midwestern school understand the curriculum that they are offering in terms of maternal health disparities. The OBGYN clerkship professors in my sample indicated that maternal health disparities are incorporated into their clerkship curriculum; however, their schools' website does not convey this instruction and the medical students who attend this

institution did not perceive any teaching at all about maternal health disparities during their OBGYN clerkship. This study adds to existing literature in medical sociology, maternal health, and the sociology of education by examining the ways in which medical schools incorporate and discuss maternal health disparities into their curriculum and on their websites. Understanding how U.S. medical schools incorporate maternal health disparities into their curriculum and discuss maternal health and maternal health disparities in particular on their website is important to study as it through medical schools where students learn what it means to become a doctor (professional socialization) which includes treating women during the perinatal period.

As a result of the limited number of schools that provided information on their websites regarding a maternal health curriculum, the content analysis encompassed more than just what was explicitly stated about the curriculum pertaining to maternal health on each school's website to include specific departments like Maternal Fetal Medicine Division, Office of Diversity and Inclusion, OBGYN departments, and Department of Maternal and Child Health (DepartmentMH) and specific topics related to maternal health like postpartum care (PPC), postpartum depression (PPD), and other specific maternal health conditions like maternal near misses (MNM), maternal mortality, cesarean sections, and preterm birth (SpecificCondMH). Among the 39 schools that did mention maternal health, only 8 of them that had information relating to maternal health on their websites discussed maternal mental health, such as postpartum depression and anxiety. These findings reflect the view of the general public as there is a heavier focus on a heavier focus on maternal physical health and maternal mental health is underemphasized. There needs to be a shift in the discourse on maternal health disparities to also focus on maternal mental health and medical schools need to incorporate curriculum in maternal health disparities as one in every eight women experience symptoms of postpartum depression

and Black women's prevalence of postpartum depressive symptoms (18.2) is almost twice that of White women (11.4) (Bauman et al. 2020). Additionally medical schools need to focus on diversifying the medical student population to produce more medical professionals from various ethnoracial identities (Jackson and Gracia 2014) and focus on instructing students about maternal health disparities to close the gap that exists between Black women and White women for postpartum depression.

Patients who have better communication with their doctors are more satisfied (Brunett and Shingles 2018) and have better health outcomes (Olaisen et al. 2020). Expression of emotion and cultural competence are integral to positive communication during doctor-patient interactions (Kaihlanen, Hietapakka, and Heponiemi 2019). Medical schools need to incorporate expression of emotion and cultural competence into their curriculum to produce medical professionals who seek to reduce and not contribute to health disparities. Although 67 medical schools had information related to cultural humility, sensitivity, awareness, competency on their websites (Table 11) only 7 schools included cultural competency (CultCompMS) in their mission statement (Table 12). Similarly, 75 medical schools had information related to compassion, empathy, and/or emotion on their websites (Table 8) but less than half of those schools mentioned providing empathetic or compassionate care to patients (CompassionMS) in their mission statement (Table 12). One's mission statement is one of the most important reflections of an entity as it communicates its overall purpose and signifies what the medical school values. Medical schools need to place a heavier focus on educating medical students on cultural competency and the use of emotions during doctor-patient interactions to improve the communication between doctors and patients which in turns leads to better patient health

outcomes. More specifically, medical schools need to educate its students about maternal health disparities and how to reduce and not contribute to the existence of them.

Empirically, this chapter adds to the existing literature in the fields of medical sociology and the sociology of medical education, namely professional socialization by examining the medical school curriculum and whether it incorporates maternal health disparities. The medical school curriculum is a vital aspect of the professional socialization of medical students as the curriculum serves as the platform for which students evolve from laypersons to practicing physicians who engage with patients. My study indicates that

1) only 39% of medical schools have some information related to maternal health on their website,

2) only 10% of medical schools have information on their website that indicated that maternal health is incorporated into their curriculum (medical students are educated on maternal health),

3) only 18% of medical schools explicitly discuss maternal health disparities on their website,

4) maternal mental health such as postpartum depression and anxiety were only discussed by 8% of schools,

5) only 1 medical school, an HBC, mentioned educating medical students with a special focus on activities that address health care disparities in their mission statement,

6) a little over 70% of medical schools have information related to cultural competency while only 31% include providing compassion compassionate or empathic care or creating compassionate physicians in their mission statement, and

7) a little over 70% of medical schools have information related to cultural competency while only 7% include providing culturally competent care or creating culturally competent physicians in their mission statement.

Overall, these results indicate that medical students are not being professionally socialized in medical school to reduce the existence of maternal health disparities specifically. The information that medical students' post on their website is a reflection of their values and the largest representation of a school is their mission statement. However, among my sample, less than 20% of 100 U.S. medical schools include empathy/emotion and cultural competence in their mission statement and only 1% included health disparities. In order to reduce maternal health disparities and improve doctor-patient interactions, U.S. medical schools need to incorporate a curriculum on maternal health disparities and instruct medical students on how to provide compassionate and empathetic care.

Limitations

Despite the contribution of this chapter to the field of medical sociology and sociology of education, this study is not without limitations. First, content analysis are subject. The information that was obtained from the websites can be perceived differently by different people. This may lead to increased error in the enumeration of the thematic codes and observer bias. Second, medical schools do not post everything pertaining to their curriculum online. This includes descriptions of courses, learning objectives, syllabi, etc. This may explain why only 9 schools had information that I coded as educating medical students about maternal health and only 5 schools that educated medical students about maternal health in particular. There may be information that is not publicly available where medical schools are incorporating a curriculum on maternal health disparities. Third, my positionality as Black woman may have influenced

participants to feel that they needed to convey that they are incorporating a curriculum on maternal health disparity. Also, the interviews only examined 4 clerkship professors at one medical school whereas the content analysis included a sample of 100 U.S. medical schools. The school where I conducted the interviews did not have information on their website that conveyed to me that they are educating medical students about maternal health. Future research should explore how medical professors understand the curriculum that they are offering in terms of maternal health disparities at other medical schools.

Conclusion

Maternal health disparities are impacted by doctor-patient interactions. Effective communication during the doctor-patient interaction is essential to ensuring that perinatal women feel respected and hard and leads to better patient health outcomes. Medical schools produce future physicians who will interact with women during the perinatal period. Prior research has examined the importance of the medical school curriculum in the professional socialization of medical students. Sociologists of education have also investigated curricular intent and how race and social underpinning of inequalities are not formally taught to medical students. In this chapter, I examined how 100 U.S. medical schools incorporated a curriculum on maternal health disparities, discussed maternal health on their websites and used interviews with medical professors at an allopathic, religiously affiliated private Midwestern medical school to understand how clerkship professors understand the curriculum that they are offering in terms of maternal health disparities, discussed health disparities, determinants of health, cultural competency, and emotion on their website, and examined what medical schools value and focus on (mission statement). Overall, I observed that medical schools are not incorporating a curriculum on maternal health disparities, only a small few discuss maternal health in general,

and even a smaller few include health disparities, cultural competency, compassion and empathy and diversity in their mission statements.

CHAPTER 5

DOCTOR-PATIENT INTERACTIONS DURING PERINATAL VISITS (PRAMS)

Introduction

Maternal health is an important topic to study as one in every seven women is affected by anxiety and depression during the perinatal period (Davenport et al. 2020; Kending et al. 2017) and one in every eight women experience symptoms of postpartum depression (Bauman et al. 2020). There are stark differences between the prevalence of postpartum depressive symptoms across ethnoracial identity[1]. American Indian/Alaska Native, Asian/Pacific Islander, and Black women have the highest prevalence of postpartum depressive symptoms at 22%, 19.2% and 18.2%, respectively; while White[2], Latina, and women who identify as other have the lowest prevalence of postpartum depression symptoms at 11.4%, 12%, and 16.3%, respectively (Bauman et al. 2020).

Doctors' behaviors and interactions with their patients may play an important role in reducing these disparities, as effective doctor-patient interactions are associated with better patient health outcomes (Olaisen et al. 2020). Unfortunately, only 12.5% of women were asked about depression during postpartum visits and White[2] women were more likely to be screened

[1] I use the term "ethnoracial identity" to be more inclusive of the ways in which various people consider *themselves* on the basis of race and ethnicity. Additionally, the term race in the U.S. is a social construct that was created for racist purposes to create a binary between "White" people and "non-White" people (Bean 2018). The set of "race" categories in the U.S. continue to change, however, White supremacy remains with the use of the term.

[2]I capitalize the word White when referring to people who are racialized as White people or people of European decent just as I capitalize people from all other ethnoracial identities because opting to not capitalize the word White but capitalizing all other ethnoracial identities affirms Whiteness and White racial dominance and disregards accountability of White people in racism (Mack and Palfrey 2023).

for postpartum depression than women from other ethnoracial identity (Sidebottom et al. 2020). This variability of screening by ethnoracial identity indicates that future research needs to focus on the role of healthcare professionals in mitigating disparities in mental health outcomes for women. Additionally, Black women report worse communication with healthcare professionals (Attanasio, Kozhimannil, and Kjerulff 2008) and less adequate care (Green 2018) than White women. Doctor-patient interactions have a strong influence on maternal health disparities and literature has attributed implicit bias and institutional or structural racial views as influencers in the doctor-patient interactions and the quality of care that women receive during the perinatal period. Literature has focused on the role that implicit bias has on maternal health disparities (Green et al. 2021; Omeish and Kiernan 2020; Saluja and Bryant 2021). One study observed that when using the Harvard Implicit Association Test, 70% of doctors *implicitly* preferred an implicit preference for White people compared to Black people; however Black doctors, on average, did not show an implicit preference for either race (Sabin et al. 2009). Implicit bias shape physicians' behavior towards patients and medical decision-making, which relates to unequal treatment of patients (Chapman, Kaatz, and Carnes 2013). Scholars have suggested that research should focus on the forms of bias that persist at the institutional and structural levels (Green et. al. 2021).

Medical sociologist have utilized the stress process model to examine how stressors impact maternal health outcome. There are two types of stressors—acute or recent life events and chronic stress—that affect one's mental health (Lee and Turney 2013; Miller et al. 2013; Turner and Avision 2003). Racial discrimination and low socioeconomic status are common stressors that have been examined by scholars as contributors to maternal health disparities (Amnesty International 2010). While research has demonstrated the influence of doctor-patient

interactions on health outcomes and how they differ based on ethnoracial identity, there is limited understanding regarding the impact of interactions during prenatal visits on postpartum depression. This particular study is, to my knowledge, the first investigation into how negative interactions with healthcare professionals can act as an acute stressor that affects postpartum depression and how discussions about postpartum depression vary by ethnoracial identity.

Literature Review

Maternal Health Disparities

Historical conditions and treatments of pregnancy. When discussing maternal health, it is important to note the historical conditions and treatments of pregnancy and childbirth. Originally, childbirth was a private, "natural" matter between mothers and midwives. Starting in the 18th century, with the increase in training programs, specialized licensing processes (obstetricians), and surgical inventions, pregnancy, and childbirth became medical events, as the people who provided care shifted from midwives to physicians (Johanson, Newburn, and Macfarlane 2002; Riessman 1983). Currently, in the United States, childbirth in hospitals, as opposed to at home, is the norm. However, scholars such as Riessman contended that with pregnancy and birth, "there is nothing inherent in either condition that necessitates routine medical scrutiny" (1983: 50). This shift from being considered private, natural matters to medical events is a process known as medicalization. Peter Conrad defined medicalization as a "process by which nonmedical problems become defined and treated as medical problems, usually in terms of illnesses or disorders." (1992: 209). During the 1900s, women participated in the medicalization of childbirth for two reasons (Riessman 1983). The first reason was that the working- and upper-class women wanted anesthesia so that they could be relieved of the lingering incapacity, exhaustion, and pain of childbirth. Second, there was a large concern about

fetal death and fertility among the upper- and middle-class women were declining. Women sought assistance from medical professionals as opposed to midwives because of the increase in surgical instruments and techniques that were available at hospitals. Given that pregnancy and childbirth are medical entities, women depend on the expertise of the medical professionals to assist them in ensuring that they have a healthy pregnancy and childbirth, this includes both the health of the mother and the baby. Medicalization is useful in understanding not only how pregnancy and childbirth became medical entities, but also useful for emphasizing the impact that medical professionals have in maternal health.

Maternal mental health. In addition to disparities in maternal mortality (see Chapter 1 Introduction), scholar have studied maternal mental health in general and maternal mental health disparities in particular. During pregnancy and the postpartum period, the two most common psychiatric disorders are depression and anxiety (Alipour et al. 2012). Depression most commonly occurs between the ages of 20 and 40 (Marcus and Heringhausen 2009), which is considered the childbearing age. Pregnancy and childbirth increase women's risk of depression. Pregnancy is also a risk factor for poor mental health, as one in every seven women is affected by anxiety and depression during the perinatal period (Davenport et al. 2020; Kending et al. 2017) and one in every eight women experience symptoms of postpartum depression (Bauman et al. 2020). There are stark differences in the prevalence of postpartum depressive symptoms between ethnoracial identity. White, Latina, and women who racially identify as other have the lowest prevalence of postpartum depressive symptoms at 11.4%, 12%, and 16.3%, respectively. While American Indian/Alaska Native, Asian/Pacific Islander, and Black women have the highest prevalence of postpartum depressive symptoms at 22%, 19.2% and 18.2%, respectively (Bauman et al. 2020).

Screening for depression during prenatal and postnatal visits. Some researchers attribute the differences in the prevalence of postpartum depressive symptoms to screening differences (Sidebottom et al. 2020). Screening for depression is a routine effort that physicians should be administering during prenatal and postnatal visits to reduce depression in pregnant and postpartum women (Alipour, Lamyian, and Hajizadeh 2011; Bobo and Yawn 2015; Gjerdingen and Yawn 2007; Hollier 2018). Research has indicated that screening for depression during pregnancy and the postpartum period are not occurring routinely (CDC 2020a; Flynn et al. 2006; Marcus et al. 2003; Sidebottom et al. 2020). During prenatal visits, only about 20% of women were not asked by a healthcare professional about depression, while only 12.5% were not asked in postpartum visits (CDC 2020a). Screenings for depression vary by ethnoracial identity. White women are more likely to be screened for postpartum depression than women who are disproportionately affected by systemic oppression[1] (Sidebottom et al. 2020). The lack of screening from medical professionals and the variability of screenings by ethnoracial identity indicates that future research needs to focus on the impact of healthcare professionals. This research seeks to do just that by studying the impact that physicians have in the maternal mental health of Black women at the medical institution level through discussions about postpartum depression.

Racist Medical Practices in Medical Care

Historical overview of racist medical practices on black women in medical care. Racial practices on Black women in U.S. healthcare have historical origins (Roberts 1997; Taylor 2020; Washington 2006). During slavery, Black enslaved women's bodies were vital, as several laws

[1]I use the term "women who are disproportionately affected by systemic oppression" to emphasize the notion that it is not one's ethnoracial identity that puts them at greater risk for adverse life and health outcomes, but that it is due to systemic oppression—i.e., racism and discrimination.

were passed to legally label children born to enslaved women as slaves/property (Owens and Fett 2019; Roberts 1997). This became especially important after the banning of the transatlantic slave trade in 1808. Slaveowners also controlled Black enslaved women's reproductive health by engaging in systematic breeding or "forced-mating" practices, where the slaveowner interfered in the sexual relations of enslaved people (Taylor 2020). Despite the alarmingly high rate of infant mortality during this time, physicians did little to improve the maternal health of enslaved women. In fact, the mothers were blamed for their infants' death (Owens and Fett 2019; Washington 2006). Physicians were, however, interesting in unethically utilizing enslaved women for medical experiments. Dr. James Marion Sims, considered to be the "father of gynecology", conducted several experiments on Black enslaved women and their infants (Washington 2006). Many of these experiments, such as the experiments that he did with 4 Black enslaved women to test his research on vesicovaginal fistulas, were conducted without anesthesia, as Black people were thought of as having higher pain tolerance and tougher skin than Whites (Washington 2006). Although anesthesia was not used during surgery, Black enslaved women were subjected to the over-use of morphine as a tool to drug them to endure the surgeries (Taylor 2020). After finding a cure for vesicovaginal fistulas, several White women who experienced this were treated; however, Black women were not permitted access to such treatments (Roberts 1997; Washington 2006). Another surgeon, Francois Marie Prevost used Black enslaved women to experiment cesarean section surgeries (Owens and Fett 2019). Post-slavery, during the mid-1900s, Black women were subjected to hysterectomies and contraceptives as a means to control and decrease the birth rates among Black people (Roberts 1997; Washington 2006). Today, these overt medical practices no longer exist. That is not to say that racial practices in maternal healthcare do not exist currently in the U.S, as less overt racist

medical practices in medical care continue today and scholars studying disparities in maternal and infant health have focused on the role of systemic racism. Scholars have suggested that research should focus on the forms of bias that persist at the institutional and structural level (Green et. al. 2021).

Systemic Racism

Systemic racism is a theory of oppression that has been utilized by scholars to examine the effects of racism in U.S. healthcare institutions (Feagin and Bennefield 2014). Systemic racism theory, popularized by Joe Feagin (2006) suggests that there are 5 dimensions of racism in the U.S., "the (1) dominant racial hierarchy, (2) comprehensive White racial framing, (3) individual and collective discrimination, (4) social reproduction of racial-material inequalities, and (5) racist institutions integral to White domination of Americans of color" (Feagin and Bennefield 2014: 7). These dimensions of racism greatly influence the quality of care that providers give, as "their racial views are not just individualized, but are part of the shared White racial frame learned in society" (Feagin and Bennefield 2014). The institutional or structural racial views influence the doctor-patient interactions and the quality of care that patients receive. This is evident in maternal mental and physical health research that has shown that Black women, compared to White women, are less likely to be screened for postpartum depression (Sidebottom et al. 2020), have cesarean deliveries as a result of more subjectively defined indications (Barber et al. 2011), have higher rates of maternal morbidity and mortality (Amnesty International 2010; Petersen et al. 2019; Roth and Henley 2012; Tangel et al. 2018), and are less likely to be medicated during labor and the postpartum period (Badreldin, Grobman, and Yee 2019; Hoffman et al. 2016). As noted in the previous section, in the field of obstetrics and gynecology the stereotypes that Black women have higher pain tolerance remains and some

scholar suggest that this explains why disparities in care exist (Green et al. 2021). Future research needs to examine how experiences of racial discrimination influence postpartum depression. This study seeks to do just that by examining how interactions and discussions with healthcare professionals affect women's maternal mental health.

The impact of Stress on Maternal Health

Stress process model. Stress has been examined as a predictor of adverse health outcomes for maternal health (Bayrampour et al. 2015; Beck 2001; Gauthreaux et al. 2017; Robertson et al. 2004). Results from a study using data from the Pregnancy Risk Assessment Monitoring System (PRAMS) found that women who had stressors (having an ill family member; separation or divorce from partner; recent move; homelessness; participants lost a job; partner lost a job; arguing with partner more than usual; partner did not desire pregnancy; unable to pay bills; being in a physical fight; participants or partner went to jail; someone close to the participants had a problem with drugs or drinking; or someone close to the participants died) were at increased risk of postpartum depressive symptoms, and the risk increased as the number of stressors increased (Gauthreaux et al. 2017). During pregnancy, Black and American Indian/Alaska Native women reported the highest exposure to chronic stressors (Lu and Chen 2004). This may explain why American Indian/Alaska Native, and Black women have the highest prevalence of postpartum depressive symptoms (Bauman et al. 2020).

Researchers have found that high levels of stress during pregnancy have been found to affect fetal development and prematurity-related outcomes (Wadhwa, Sandman, and Garite 2001) and conditions like hypertension (Miranda et al. 2010). Stressors are important to study because it helps researchers understand the origins of mental health and mental illness. Among pregnant women, it allows researchers to examine the factors that affect their maternal health.

The stress process model has been utilized in sociological research to investigate the origins of mental health and mental illness and to analyze the process of people responding to stressors. This model was created by Leonard Pearlin and colleagues in the late 20th century. There are four components of the stress process model: the social context (sources of stress), stressors, resources (mediators of stress), and outcomes manifestation of stress. Pearlin et al. (1981) first located stressors in the social context—statuses, structural positions, and roles—that affect exposure and response. This model argues that stressors are often interconnected and dependent on an individual's social context (Aneshensel and Avison 2015; McLeod 2012). Social statuses such as gender or ethnoracial identity according to George "are exogenous variables that put individuals at greater or lesser risk of stressors, which, in turn, increase the risk of mental distress and disorder." (George 2014: 251). There are two types of stressors—acute or recent life events and chronic stress—that affect one's mental health (Lee and Turney 2013; Miller et al. 2013; Turner and Avision 2003). The mediators of stressors are behaviors, perceptions, and cognitions that people can use to confront stressors (Pearlin et al. 1981). This includes resources such as social support and coping. The manifestations of stress are the outcomes, the responses to stress. Low socioeconomic status and racial discrimination are common stressors that have been examined by scholars as contributors to maternal health disparities (Amnesty International 2010).

Socioeconomic status as a stressor. Socioeconomic status is associated with infant mortality, prematurity, and low birthweight. Women with lower SES are at greater risk of infant mortality than women with higher SES (Haider 2014; Schramm 2016). Socioeconomic status has been used as a common explanation for maternal health disparities, as White women, on average, have higher SES than Black women (Clay, Griffin, and Avehart 2018; Oliver and Shapiro 1995).

Stress during pregnancy has been examined as a predictor of depression both during and after pregnancy (Holzman et al. 2006; Lancaster et al. 2010). Socioeconomic status influences the stress that women experience during pregnancy. Pregnant women with low SES experience more stress than pregnant women with higher SES (Kingston et al. 2012). Lack of access to good quality care is a stressor that pregnant women with low SES experience (Clay, Griffin, and Avehart 2018; Edmonds and Mogul 2015). Their lack of transportation to appointments or understanding of how to obtain Medicaid insurance serves as a barrier that prevents them from attending prenatal visits. Higher income permits women with access to better clinical, behavioral, and environmental mechanisms, that will influence their health and longevity (Khullar and Chokshi 2018). Socioeconomic status is not a sufficient buffer for poor mental health outcomes for Black women. Research has found that after accounting for education, Black women with a college degree or more are more likely to die from pregnancy-related complications than White women who did not finish high school (New York City Department of Health and Mental Hygiene 2016; Petersen et al. 2019). More specifically, in 2016, the pregnancy-related mortality ratio for Black women with a college degree is 40.2; while the pregnancy-related mortality ratio for White women with less than a high school diploma is 25.0 (Petersen et al. 2019). That is 5 times higher than the ratio for White women with a college degree (7.8) and 4 times higher than the ratio for Latina women (9.3) (Petersen et al. 2019). This indicates that for Black women, there are other stressors besides income that greatly impact their maternal health outcomes.

Racism and discrimination as stressors. Racism has been viewed as a stressor to Black women's mental health (Keyes, Barnes, and Bates 2011; Villarosa 2018). Empirical evidence showed that pregnant Black women with lower education and experiences of discrimination were

associated with greater perceived stress (Stancil et al. 2000). Systemic racism creates toxic physiological stress for Black people and societal racism that exists in health care (Feagin and Bennefield 2014; Keyes et al. 2011). Compared to White people, Black people report greater exposure to discrimination (Keyes 2011; Lee and Turney 2013; Miller et al. 2013; Mouzon 2013). Some scholars have noted that within mental health, there is a race paradox that shows that Black people—despite the greater exposure to psychological stress, poverty, and discrimination—typically have better mental health than White people (Keyes et al. 2011).

On the other hand, some researchers have found that discrimination is a risk factor for poor mental health (Brown et al. 2000; Williams 2019). Examining specifically how discriminatory treatment affects levels of distress among Black people, a cross-sectional study found that Black people who were treated poorly as a result of their race in Wave 2, reported higher levels of distress at Wave 3 (Brown et al. 2000). Experiencing racial discrimination is associated with higher odds of postpartum depressive symptoms (Weeks et al. 2022). Even though Black people have lower rates of major depression than White people, once Black people are diagnosed with depression, they are more likely than White people to be chronically depressed, have higher levels of impairment, have more severe symptoms, and not receive treatment for illness (Williams 2019). Additionally, when seeking and receiving mental health support and services, Black people encounter systemic and societal barriers (Matthews et al. 2021).

These barriers are also evident during prenatal and postpartum care, as White women experience better communication with healthcare professionals (Attanasio, Kozhimannil, and Kjerulff 2008) and more adequate care (Green 2018) than Black women. The health outcomes of pregnant and postpartum women are greatly impacted by access to quality care and interactions

with healthcare providers. Research has attributed the differences in interactions with healthcare professionals across ethnoracial identity, and resulting maternal heath disparities, to implicit bias (Green et al. 2021; Omeish and Kiernan 2020; Saluja and Bryant 2021). Implicit bias is the unconscious negative attitudes that people hold about a certain group that develops as a result of stereotypes that are perpetuated by structural discrimination (Chapman, Kaatz, and Carnes 2013). Research investigating the implicit bias of healthcare professionals use the implicit association test (IAT)—which provides a picture of Black and White faces and people are supposed to link positive traits and words to the faces—and observed that almost two-thirds of a sample of 2,500 physicians sample *implicitly* preferred—linking positive traits and words to—the White faces (Sabin et al. 2009). A further examination of implicit bias among physicians observed that White physicians exhibited the most implicit preference for White faces (Sabin et al. 2009). Medical education scholars have argued that literature needs to focus on the forms of bias that exists at the institutional and structural level (Green et al. 2021) as the implicit biases of physicians are influenced by both formal and informal curricular as well as interracial contact with patients (Van Ryn et al. 2015).

Weathering hypothesis and maternal health. Among pregnant women specifically, a quantitative study found that pregnant Black women experienced more institutionalized racism compared to pregnant White women (Clay, Griffin, and Avehart 2018). In this study, the researchers found measures of institutionalized racism (e.g. employment status, education, inequalities in income) to be stressors for Black pregnant women. Scholars have used the weathering hypothesis, proposed by Geronimus (1992), to explain the effects that living in a race-conscious society has on maternal health (Geronimus 1996; Holzman et al. 2009; Kornfield 2021; Mark 2021). In the 1990s, Geronimus was interesting in understanding why age affected

maternal health outcomes, as younger Black women who gave birth had better health outcomes than younger White women who gave birth, but Black women who gave birth at older ages had worse health outcomes that White women who gave birth at older ages. Geronomius concluded that the physical consequence (early deterioration of health) that Black people experience compared to White people, is a result of the continuous experiences with economic and social adversity or the persistent active coping with stressful life events. The result of these chronic exposures leads to accelerated decline in health. Exposure to racism was also found as a risk factor for low birthweight in infants, as Black mothers who delivered preterm infants with low birthweight were more likely to report experiences of racial discrimination than Black women who delivered non-low-birthweight infants at full term (Collins et al. 2004). Given that the weathering hypothesis focuses on the accumulated experiences, age plays a central role. In a quantitative study conducted with Black and White women, researchers found that a maternal age above 15 was associated with increased odds of both low birth weight (<2500 grams) and very low birth weight (<1500 grams) only among Black women (Geronimus 1996). Other research has also supported the weathering hypothesis by observing that women with demographic characteristics such as being Black, developed accelerated aging that negatively affected pregnancy outcomes such as preterm birth (Holzman et al. 2009; Kornfield 2021; Mark 2021). This indicates that pregnant Black women experience stressors caused by institutional racism and discrimination in addition to individual contexts of stressful life events (marital status, education level, income, employment status, health coverage, and health behaviors). This proposed study examined maternal mental health by utilizing the stress process model to examine both individual stressful life events and the stressors that are caused by institutionalized racism and discrimination.

Doctor-Patient Interactions

Doctor-patient interactions have a strong influence on patients' health outcomes (Olaisen et al. 2020). Black women experience less adequate care (Green 2018) and perceive their communication—shared decision making— with healthcare professionals more negatively than White women (Attanasio, Kozhimannil, and Kjerulff 2008). Patients' who have better communication with their doctors are more satisfied (Brunett and Shingles 2018) and have better health outcomes (Olaisen et al. 2020). Maternal health disparities are impacted by doctor-patient interactions. Effective communication during the doctor-patient interaction is essential to ensuring that perinatal women feel respected and hard and leads to better patient health outcomes. Black women experience worse communication with healthcare professionals (Attanasio, Kozhimannil, and Kjerulff 2008) and less adequate care (Green 2018) than White women. Although, research has shown how doctor-patient interactions influence health outcomes and vary by ethnoracial identity, we know little about how interactions during prenatal visits impact postpartum depression. This study is the first study, to my knowledge, that examines negative interactions with healthcare professionals as an acute stressor that impacts postpartum depression.

Current Study

This study adds to the literature on maternal mental health by examining how interactions and discussions with healthcare professionals affect women's maternal mental health and which ethnoracial identity healthcare professionals are talking to about maternal mental health. This study answers the following research questions and sub-questions:

1. How do interactions with healthcare professionals affect maternal mental health?
    a. How does this association vary across ethnoracial identity?

2. How do discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity.

This quantitative study examined the following five hypothesis:

1. Being dissatisfied with interactions with healthcare professionals (acute stressors) are associated with postpartum depressive symptoms.
2. Stressful life events and feeling emotionally upset about experiencing racial discrimination (chronic stressors) are associated with postpartum depressive symptoms.
3. Being dissatisfied with healthcare professionals (acute stressors), stressful life events, and feeling emotionally upset about experiencing racial discrimination each have independent associations with postpartum depressive symptoms.
4. The association between being dissatisfied with healthcare professionals, stressful life events, and feeling emotionally upset about experiencing racial discrimination on postpartum depressive symptoms varies by ethnoracial identity.
5. Discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity.

Methods

To answer this question, a nationally representative sample available from the Centers for Disease Control and Prevention's Pregnancy Risk Assessment Monitoring System (PRAMS) was used. PRAMS was originally developed in 1987 to influence healthy maternal health behaviors in order to reduce infant morbidity and mortality. This ongoing questionnaire is for women who have recently delivered a live-born baby and it monitors the self-reported maternal conditions, experiences, and behaviors that occur before, during, and after pregnancy This is a

state-specific, population-based surveillance system that utilized a mixed-mode data collection methodology that included self-administered mailed questionnaires and telephone interviews. There are a total of 8 Phases of PRAMS. The current study used data from Phases 6-8. This secondary study has two outcomes of interest: postpartum depressive symptoms (PPDS) and discussion with healthcare providers (healthcare providers talking about postpartum depression during prenatal visits). The first set of models focuses on the association between chronic—experiences with racism and poverty— and acute stressors—satisfaction of interactions with health care professionals during pregnancy—affect maternal mental health and how that association varies by ethnoracial identity. The three variables used as predictors of postpartum depressive symptoms are stressful life events and satisfaction of interactions with healthcare professionals. This study examines ethnoracial identity as a moderating variable in the association between stressors (satisfaction of interactions with healthcare professionals, stressful life events, and feeling upset about experiencing racial discrimination) and postpartum depressive symptoms. Potential confounders include marital status, age, level of education, annual household income, and health insurance, The second set of models focuses on examining how discussion with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity. Table 1 shows the descriptive statistics of the analytic sample. For more information about this study, please refer to Chapter 2 Data and Methods section titled "Doctor Patient Interactions (PRAMS)".

Statistical Analyses

Analyses for this secondary study occurred in two parts. The first part of analysis examined how the independent variables, chronic—experiences with racism and poverty— and acute stressors—satisfaction of interactions with health care professionals during pregnancy, are

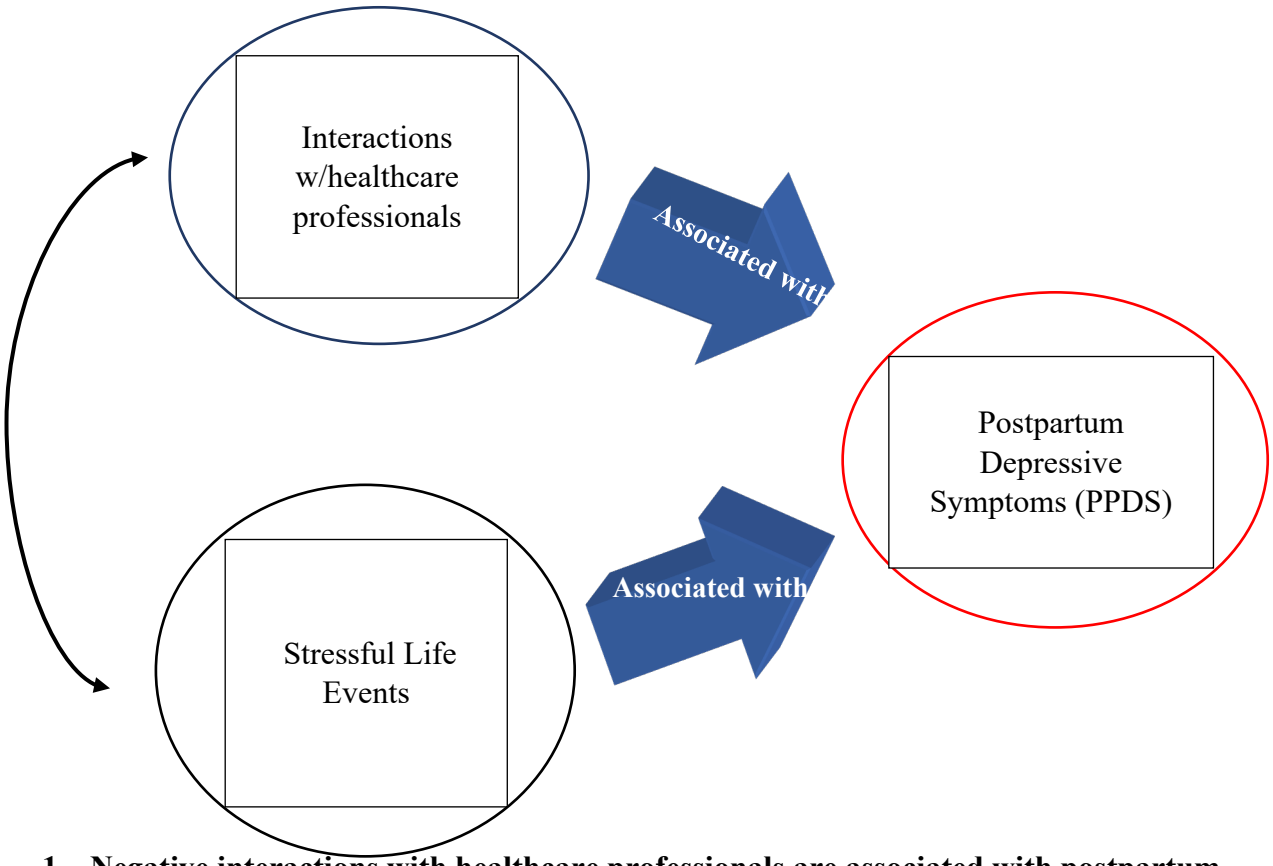
associated with postpartum depression (see Figure 2 for a depiction of the associations). For the association between satisfaction of interactions with healthcare professionals and stressors (stressful life events and feeling emotionally upset about experiencing racial discrimination) and postpartum depressive symptoms, there was a total of 13 logistic regression models: 8 multivariable models and 5 interaction models. First, a few simple regressions of the dependent variable, postpartum depressive symptoms were ran on the 3 sets of independent variables—satisfaction of interactions with healthcare professionals during prenatal visits (4-category continuous variable), stressful life events (4 binary experiences—partner-related, financial, emotional, and traumatic variables and the binary racial discrimination variable), and ethnoracial identity—individually. Then, postpartum depressive symptoms was regressed on all of the independent variables combined. After running each of the 4 individual models, a model was ran with the control variables, in order to assess whether the 5 control variables— marital status, age, level of education, annual household income, and health insurance—had any effect on the associations between the key independent and dependent variables.

The 8 logistic regressions that assessed the association between chronic—stressful life events and racial discrimination— and acute stressors—satisfaction of interactions with health care professionals during pregnancy—and postpartum depression are as follows: First, I conducted a logistic regression of PPDS on interactions with healthcare professionals (Model 1). Second, I added 5 control variables— marital status, age, level of education, annual household income, and health insurance— to model 1 (Model 2). Third, I conducted a logistic regression of PPDS on the set of 4 binary stressful life event variables, and the binary feeling emotionally from upset experiencing racial discrimination (Model 3). Fourth, I added 5 control variables to model 3 (Model 4). Fifth, I conducted a logistic regression of PPDS on chronic stressors and

interactions with healthcare professionals (Model 5). Sixth, I added 5 control variables to model 5 (Model 6). Seventh, I conducted a logistic regression of PPDS on ethnoracial identity (Model 7). Eighth, I added 5 control variables to model 8 (Model 8). This progression enables me to explain how satisfaction with healthcare professionals, stressors, and ethnoracial identity are related to postpartum depressive symptoms first without control variables and then with control variables. Due to me assessing how experiencing PPDS varies across ethnoracial identity, results from the logistic regression were reported in the metric of predicted probabilities for Models 7 and 8. Predicted probabilities were obtained individually after each model by using the "margins ethorace" command in Stata for Model 7 and "margin ethnorace, atmean" for Model 8 since it contains covariates.

Figure 2 Association Between Stressors and Postpartum Depressive Symptoms

Goal of research: Examining the association between interactions with healthcare professionals and stressful live events and postpartum depressive symptoms

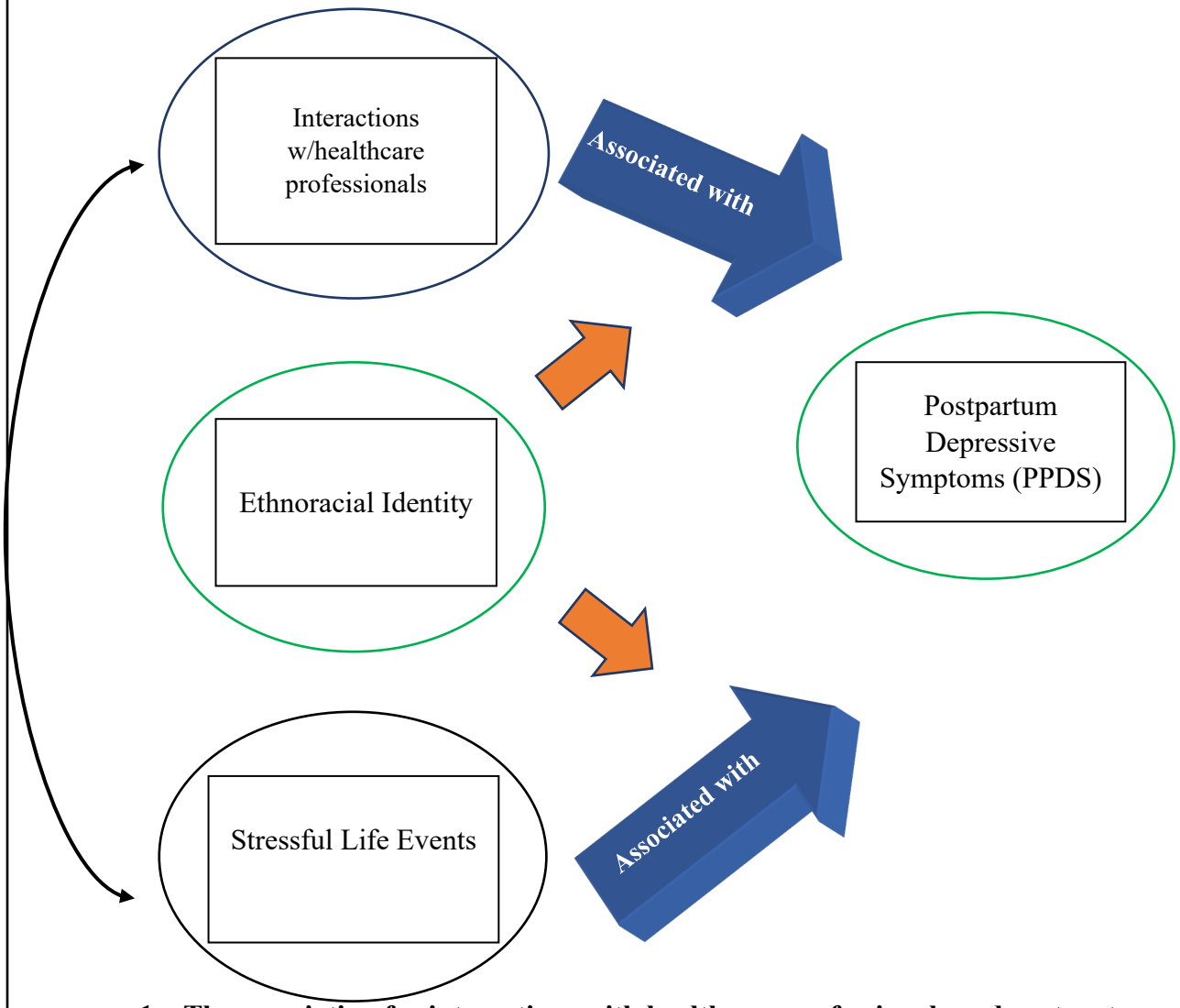


1. **Negative interactions with healthcare professionals are associated with postpartum depressive symptoms.**
2. **Stressful life events are associated with postpartum depressive symptoms.**

Lastly, I added ethnoracial identity as a moderating variable because I hypothesize that 1) the association between satisfaction of interactions with healthcare professionals and postpartum depressive symptoms *varies* by ethnoracial identity and 2) the association between stressful life events and postpartum depressive symptoms *varies* by ethnoracial identity (see Figure 3 for a depiction of the associations).. To assess a moderating relationship, this study examined whether the effect of stressors and satisfaction of interactions with healthcare professionals on PPDS varied by ethnoracial identity. First, a few simple regressions of the dependent variable, PPDS were ran on the interaction of ethnoracial identity and the 3 sets of independent variables—satisfaction of interactions with healthcare professionals during prenatal visits (4-item continuous variable), stressful life events (4-category continuous stressful life events variables and the binary racial discrimination variable)—individually (Model 9-11). Then, another interaction model with ethnoracial identity was ran with all 3 independent variables (Model 12). Lastly, the 5 control variables were added to Model 12 (Model 13). If ethnoracial identity is a moderating variable, then the association between stressors and satisfaction of interactions with healthcare professionals on postpartum depressive symptoms will differ for Black women compared to women from other ethnoracial identity. All models are restricted to show predicted values for only the cases used to estimate Model 13 since it contains the most variables (and hence the fewest observations).

Figure 3. Moderating Effect of Ethnoracial Identity on the Association Between Stressors and PPDS.

Ethnoracial identity as a <u>moderating</u> variable: The association between interactions with healthcare professionals and postpartum depressive symptoms <u>VARIES</u> by ethnoracial identity. The association between stressful life events and postpartum depressive symptoms <u>VARIES</u> by ethnoracial identity.



1. **The association for interactions with healthcare professionals and postpartum depressive symptoms, will be different for Black women than women from other ethnoracial identity.**

2. **The association for interactions with stressful life events and postpartum depressive symptoms, will be different for Black women than women from other ethnoracial identity.**

The second part of this secondary data study was to examine which ethnoracial identity healthcare professionals are more likely to discuss postpartum depression during prenatal visits. Similar to the associations between stressors and PPDS, there was a total of 2 logistic regression models, 1 bivariate model and 1 multivariable model. this study utilized Stata 17. Regressions are statistical analyses that were conducted in order to see the association between the dependent and independent variable. Logistic regressions were used when the outcome variable is binary. All models were restricted to show predicted values for only the cases used to estimate Model 15 since it contains the most variables (and hence the fewest observations). First, I regressed discussions about postpartum depression on ethnoracial identity (Model 14). Then, I added the 5 control variables to that regression (Model 15). For both logistic regressions, multiple logistic regressions were ran using the various ethnoracial identity as reference. Due to me assessing how experiencing discussions with healthcare professionals about depression during prenatal visits varies across ethnoracial identity, results from the logistic regression were reported in the metric of predicted probabilities for Models 14 and 15. Predicted probabilities were obtained individually after each model by using the "margins ethorace" command in Stata for Model 14 and "margin ethnorace, atmean" for Model 15 since it contains covariates.

Results

Postpartum Depressive Symptoms

Descriptive statistics. Table 1 illustrates the descriptive statistics of the analytic sample of postpartum depressive symptoms. In this analytic sample, depressive symptoms (n=411,897) is a binary variable coded as 1 if the respondent reports PPDS and 0 if they do not, with 14% reported experiencing PPDS. PRAMS defined a woman as experiencing PPDS if she responded often or always to feeling down, depressed, or hopeless after childbirth. In Phase 6, 110,181

participants provided an answer to this question and 15,702 (14.25%) recent mothers provided answers that indicated that they experienced PPDS. In Phase 7, 143,290 participants provided an answer to this question and 19,548 (13.64%) recent mothers provided answers that indicated that they experienced PPDS. In Phase 8, 158,426 participants provided an answer to this question and 22,683 (14.32%) recent mothers provided answers that indicated that they experienced PDPS. In this analytic sample, the independent variables were satisfaction of interactions with healthcare professionals, stressor (stressful life events and racial discrimination), and ethnoracial identity. Satisfaction of interactions with healthcare professionals is a continuous variable that ranges from 0 to 4 with a mean of 3.62. This score indicates a high level of satisfaction of interactions with healthcare professionals. Stressful life events is comprised of 12 stressful life events that participants reported occurred during the 12 months before their baby was born. This variable contains 4 categories partner-related (40%), financial (44%), emotional (15%), and trauma-related (2%). Only 10% of participants in the analytic sample reported that they felt emotionally upset (for example, angry, sad, or frustrated) as a result of how you were treated based on their race during the 12 months before your new baby was born. Looking at ethnoracial identity, 51% of participants identified as White, 17% as Black, 15% as Latina, 7% as Asian, 4% as American Indian/Alaska Native, 4% as more than one ethnoracial identity, and 1% other non-White. In this analytic sample, there were only 3 sites, Louisiana, Michigan, and Wisconsin that asked about postpartum depressive symptoms, satisfaction of interactions with healthcare professionals, stressful life events, racial discrimination, and ethnoracial identity (n=11,485). The state of Michigan asked all 5 variables in Phase 6 (2009-2011), Louisiana asked all 5 variables in Phase 7 (2012-2015), and Wisconsin asked all 5 variables in Phase 8 (2016-2020).

Table 13 also shows the descriptive statistics for the 5 control variables: marital status, age, education, insurance status, and income. Almost 60% of the women in the sample were married. Twenty seven percent of the sample were less than 25 years old, 29% 25-39 years old, 27% 30-34 years old, and 17% 35 years old or older. The majority of participants have a Bachelor's degree or above, 28% have some college education, 25% have a high school diploma or GED, and 14% of women in the analytic sample have less than a high school education. Almost half of the analytic sample have private healthcare insurance while 44% have Medicaid and 7% have some other type of insurance. A quarter of the sample have an annual income of less than $16,000, 20% have an annual income of $16,000-$32,000, 27% have an annual income of $32,001-$85,000, and 27% have an annual income of $85,001 or more.

Table 13. Descriptive Statistics of PPDS Analytic Sample, PRAMS 2009-2020

	Mean or Percent	Standard Deviation	Minimum	Maximum	n
Postpartum Depressive Symptoms	0.14	0.35	0	1	411,897
Satisfaction of Interactions	3.63	0.81	0	4	68,803
Stressful Life Events					
Experienced Partner-related (compared to not experienced)	27.46%				364,353
Experienced Financial (compared to not experienced)	49.62%				364,502
Experienced Emotional (compared to not experienced)	30.71%				364,426
Experienced Traumatic (compared to not experienced)	15.21%				364,077
Emotionally upset about experiencing Racial Discrimination (compared to not experiencing)	9.53%				74,365
Ethnoracial Identity					399,823
Asian	7.35%				
White	51.33%				
Black	17.48%				
American Indian/Alaska Native	3.72%				
Other, non-White	1.43%				
More than one	3.95%				
Latina	14.75%				

Married (compared to other)	59.74%	411,130
Age (in years)		411,881
Less than 25	27.23%	
25-29	28.76%	
30-34	27.23%	
35 or older	16.78%	
Education		407,455
Less than High School	13.79%	
High School	25.14%	
Some College	28.39%	
Bachelors and Above	32.68%	
Insurance Status		339,633
Medicaid	43.82%	
Private	49.12%	
Other	7.06%	
Income		382,749
Less than $16,000	25.71%	
$16,000-$32,000	19.93%	
$32,001-$85,000	27.09%	
$85,001 or more	27.27%	

[1]Note: All variables derived from Phases 6-8 of the Pregnancy Risk Assessment Monitoring System.

Logistic Regression Results

Postpartum depressive symptoms.

As noted earlier, there were 4 sets of logistic regressions that regressed the dependent variable, postpartum depressive symptoms were ran on the 3 sets of independent variables—satisfaction of interactions with healthcare professionals during prenatal visits (4-category continuous variable), experiencing stressful life events (partner-related, financial, emotional, and traumatic), and the binary feeling emotionally upset about experiencing racial discrimination variable), both satisfaction and stressors, and ethnoracial identity—individually and then with control variables individually. Table 14 illustrates the results, reported in odds ratio, of these 3 bivariate logistic regressions. Model 1 regressed postpartum depressive symptoms on satisfaction. For every 1-unit increase in satisfaction of interactions with healthcare professionals, the odds of experiencing PPDS were 23% lower (OR=0.77, $p<0.001$) and this

remained even after the addition of the 5 control variables (Model 2). These findings support my 1st hypothesis being dissatisfied with interactions of healthcare professionals were associated with postpartum depressive symptoms. Model 3 regressed postpartum depressive symptoms on chronic stressors (4 stressful life event binary variables and one binary racial discrimination variable). The odds of experiencing PPDS for women who experienced partner-related, financial, traumatic life events or racial discrimination were 118%, 33%, 49%, and 108% higher than women who did not experience these stressful life events during the 12 months before their pregnancy, respectively ($p<0.001$) (Model 3) while women who experienced emotional-related life events had 12% higher odds of experiencing PPDS than women who did not experience emotional-related life events. The associations were attenuated but still significant when controlling for sociodemographic characteristics (Model 4). These findings support my second hypothesis that stressful life events and racial discrimination (acute stressors) were associated with PPDS.

Model 5 regressed postpartum depressive symptoms on all 3 sets of predictor stressor variables (satisfaction, 4 stressful life event variables, and racial discrimination). Satisfaction, partner-related, financial, traumatic, and racial discrimination were still statistically associated with PPDS at the $p<0.001$ level (Model 5). There was no significant difference among those who experienced emotional related stressful life events compared to those who do not (Model 5). Model 6 adds sociodemographic characteristics to Model 5 and this attenuated the effects of some of the independent variable on PPDS. After adding control variables, the statistical significance for financial stressful life events changed from $p< 0.001$ in Model 5 to 0.003 in Model 6. These findings support my third hypothesis that being dissatisfied with healthcare professionals (acute stressors), stressful life events, and racial discrimination (chronic stressors)

each have independent associations with postpartum depressive symptoms, with the exception of emotional stressful live events. The addition of the control variables explained the association between emotional stressful life events and PPDS observed in Model 5.

Table 14. Logistic Regression of Postpartum Depressive Symptoms on Satisfaction, Stressors, and Ethnoracial Identity. PRAMS 2009-2020

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	OR	Se	OR	Se	OR	Se	OR	Se	OR	Se	OR	Se
Satisfaction of Interactions	0.722***	0.021	0.740***	0.022					0.796***	0.025	0.797***	0.025
Stressful Life Events												
Experienced Partner-related (compared to not experienced)					2.189***	0.130	1.960***	0.119	2.155***	0.129	1.931***	0.118
Experienced Financial (compared to not experienced)					1.332***	0.080	1.216***	0.075	1.315***	0.079	1.203**	0.074
Experienced Emotional (compared to not experienced)					1.124*	0.066	1.106	0.065	1.111	0.065	1.093	0.064
Experienced Traumatic (compared to not experienced)					1.489***	0.100	1.367***	0.093	1.473***	0.100	1.351***	0.093
Experienced Racial Discrimination (compared to not experiencing)					2.084***	0.142	1.991***	0.137	1.985***	0.137	1.896***	0.132
Married (compared to other)			1.421***	0.105			1.170*	0.088			1.189*	0.089
Age (in years)												
Less than 25			Reference				Reference				Reference	
25-29			0.800**	0.057			0.813**	0.059			0.813**	0.059
30-34			0.909	0.072			0.886	0.071			0.895	0.072
35 or older			1.080	0.105			1.032	0.103			1.062	0.106
Education												
Less than High School			1.177	0.143			1.253	0.155			1.245	0.154
High School			1.362**	0.148			1.450***	0.160			1.441***	0.159
Some College			1.346**	0.138			1.283*	0.132			1.287*	0.133

Bachelors and Above		Reference			Reference			Reference				
Insurance Status												
Medicaid		Reference			Reference			Reference				
Private		0.908**	0.062		0.801**	0.155		0.801**	0.066			
Other		0.787***	0.196		1.234	0.199		1.234	0.199			
Income												
Less than $16,000		Reference			Reference			Reference				
$16,000-$32,000		0.804***	0.055		0.876	0.061		0.886	0.062			
$32,001-$85,000		0.659***	0.062		0.786*	0.075		0.787*	0.075			
$85,001 or more		0.545***	0.079		0.728*	0.108		0.739*	0.110			
R2	0.0121	0. 0498		0.0675	0.0834		0.0731	0.0888				
n	10,744	10,744		10,744	10,744		10,744	10,744				

Note: Model 1 regresses postpartum depressive symptoms on satisfaction; Model 2 adds control variables to Model 1; Model 3 regresses postpartum depressive symptoms on stressful life events and racial discrimination; Model 4 adds control variables to Model 3; Model 5 regresses postpartum depressive symptoms on all 3 independent variables, satisfaction, stressful life events, and racial discrimination; Model 6 adds control variables to Model 5. All variables derive from Phases 6-8 of PRAMS and logistic regressions are restricted to show predicted values for only the cases used to estimate Model 13 since it contains the most variables (and hence the fewest observations). * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

I also examined how postpartum depressive symptom scores vary by ethnoracial identity (Model 7). Asian, White, and Latina women all had lower odds of reporting PPD than Black women ($p>0.001$). There was no significant difference between Black women and American Indian/Alaska Native women, other, non-White women, and women who identify as more than one ethnoracial identity (Model 7). After adding in control variables, the significant difference between Black women and Asian women is no longer statistically significant while the difference between Black and White women decreased slightly from $p<0.000$ in Model 7 to $p<0.003$ in Model 8 and the comparison between Latina and Black women remained significant at the $p<0.001$ level (Model 8).

Additional regressions were ran using the 6 other ethnoracial identity as the reference group for comparison. White women reported lower odds of experiencing PPDS than Asian women ($p<0.01$) while other, non-White women and women identify as more than one ethnoracial identity were 94% and 43% more likely (OR=1.936, $p<0.05$ and OR=1.428, $p<0.05$) to experience PPDS than Asian women, respectively (results not shown). Other, non-White women and women identify as more than one ethnoracial identity were 178% and 105% more likely to experience PPDS than White women, respectively. There were no significant differences observed between American Indian women and women from any other ethnoracial identity. Women who identify as more than one ethnoracial identity were 13% more likely (OR=1.129, $p<0.005$) to experience PPDS than other non-White women; while Latina women were 18% less likely to experience PPDS than other non-White women ($p<0.001$) (results not shown). Lastly, Latina women were 57% and 41% less likely to experience PPDS than other, non-White women and women who identify as more than one ethnoracial identity, respectively (OR=0.435, $p<0.01$; OR=0.589, $p<0.001$) (results not shown).

Overall, these findings indicate that Black women reported higher odds of PPDS than Asian, White, and Latina women; while White women and Latina women reported lower odds of PPDS than women from all other ethnoracial identity (White women reported higher PPDS than Latina women). These findings support my 4th hypothesis that the association between being dissatisfied with healthcare professionals, stressful life events, and racial discrimination on postpartum depressive symptoms varies by ethnoracial identity.

Table 15 shows the predicted probabilities of postpartum depressive symptoms across ethnoracial identity. Black women (0.202) and other, non-White women (0.231) reported the highest model-implied predicted probabilities of experiencing postpartum depressive symptoms compared to women from all other ethnoracial groups, while Latina women (0.115) and White women (0.097) reported the lowest. After controlling for other sociodemographic characteristics— marital status, age, level of education, annual household income, and health insurance—I observed that Black women (0.157) have the fourth highest predicted probability of PPDS while other, non-White women (0.159), Asian women (0.165) and other, non-White women (0.229) have the highest. Additional analysis adding the key independent stressor variables to Model 8 showed that other, non-White and Latina women had lower odds of reporting PPD than Black women (OR=2.212, $p<0.010$ and OR=0.709, $p>0.001$, respectively) and Black women (0.139) have the third highest predicted probability of PPDS after Asian (0.159) and other, non-White women (0.264) (results not shown). These findings indicate that when only looking at ethnoracial identity, other non-White women and Black women reported the highest predicted probabilities of experiencing PPDS but when considering stressors and other sociodemographic characteristics, other, non-White women continued to report the highest

predicted probabilities of PPDS; while Black women reported the fourth and third highest predicted probabilities.

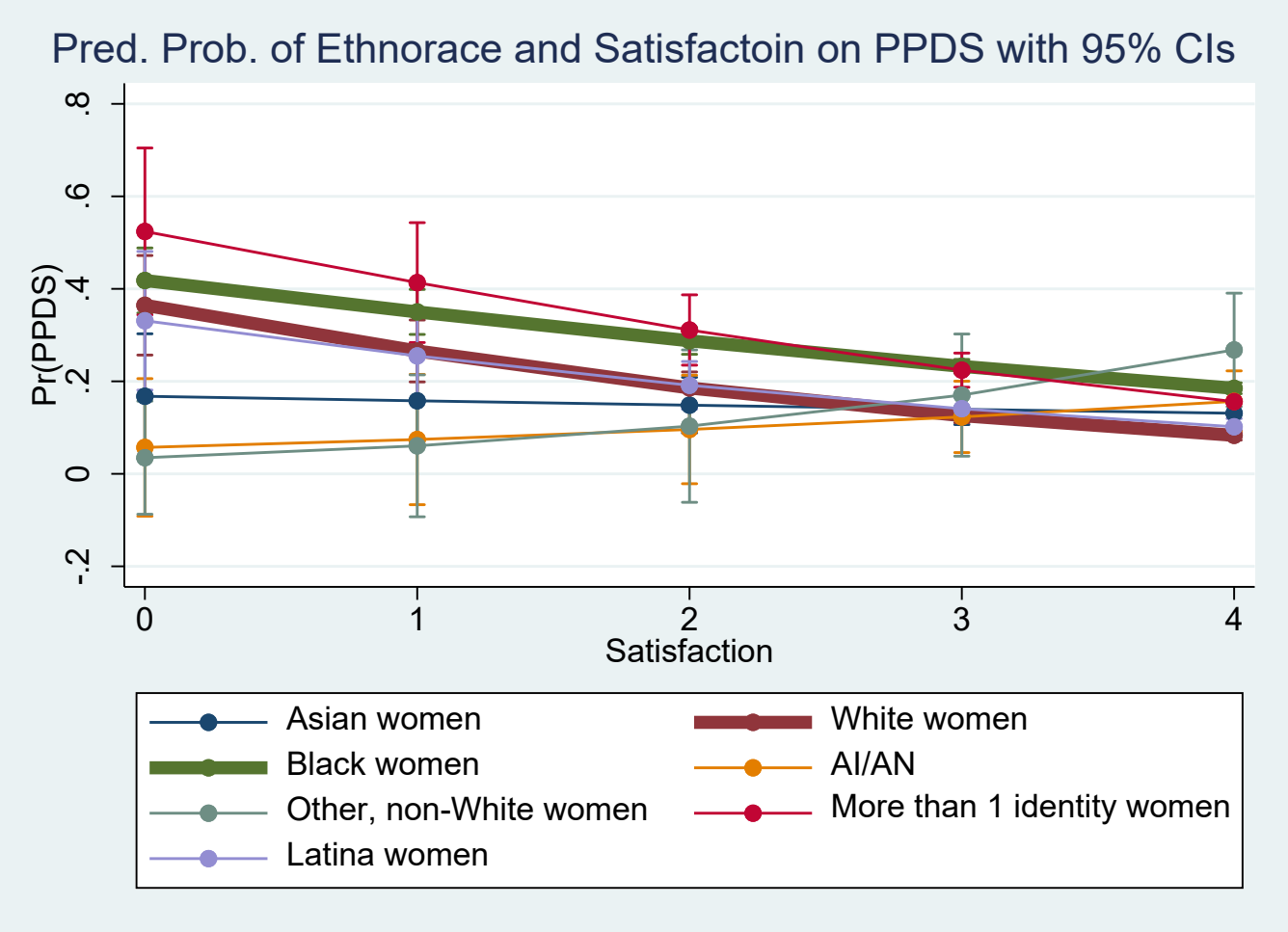
Table 15. Predicted Probabilities of Postpartum Depressive Symptoms Across Ethnoracial Identity, PRAMS 2009-2020

	Without Covariates		With covariates	
Ethnoracial Identity	Pred. Prob.	95% Confidence interval	Pred. Prob.	95% Confidence interval
Asian	0.134	0.108-0.160[b**,c***,e*,f*]	0.165	0.133-0.197[b*,g***]
White	0.097	0.087-0.108[a**,c***,e***,f***]	0.127	0.113-0.141[a*,c**,e*,f*]
Black	0.202	0.191-0.213[a***,b***,g***]	0.157	0.145-0.168[b**,g***]
American Indian/Alaska Native	0.146	0.088-0.203	0.122	0.072-0.172[e*]
Other, non-White	0.231	0.128-0.33[a*,b***,g**]	0.229	0.125-0.332[b*,d*,g**]
More than one	0.181	0.154-0.208[a*,b***,g***]	0.159	0.134-0.184[b*,g***]
Latina	0.115	0.098-0.133[c***,f**,g***]	0.106	0.089-0.123[a***,c***,e**,f***]

Note: Pred. Prob. = Predicted probabilities derived from logistic regression models 7 and 8. Model 7 is postpartum depressive symptoms regressed on ethnoracial identity. Model 8 adds 5 sociodemographic characteristics to Model 7. Predicted probabilities were obtained individually after each model by using the "margins. Significantly difference from [a]Asian women, [b]White, [c]Black women, [d]American Indian/Alaska Native women, [e]other,non-White women, [f]more than one ethnoracial identity women, [g]Latina women.

To examine whether ethnoracial identity is a moderating variable in the association between satisfaction with healthcare professionals and stressors and maternal mental health, PPDS was ran on the interaction of ethnoracial identity and the 3 sets of independent variables—satisfaction of interactions with healthcare professionals during prenatal visits (4-item continuous variable), 4 binary stressful life events (partner-related, financial, emotional, and traumatic) variables, and the binary racial discrimination variable—individually (Model 9-11). For these interaction regressions, Black women were used as the reference (Table 16). The effect of satisfaction on PPDS was stronger for White women compared to Black women (Model 9). Figure 4 is depiction of these effects.

Figure 4. Predicted Probabilities of Ethnoracial Identity and Satisfaction on PPDS with 95% CIs, PRAMS, 2009-2020.



Note: This figure derives from Stata 17 and shows the results of the predicted margins from Model 9 which regressed PPDS on the interaction of ethnoracial identity and satisfaction of interaction with healthcare professionals. Lines for Black and White women were bolded to demonstrate the significant differences.

Table 16. Moderating effect of Ethnoracial Identity in the Association between Stressors and Postpartum Depressive Symptoms, PRAMS 2009-2022.

	Model 9		Model 10		Model 11		Model 12		Model 13	
	OR	Se	OR	Se	OR	Se	OR	Se	OR	Se
Ethnoracial Identity										
Asian	0.281*	0.109	0.682**	0.092	0.881	0.166	0.334	0.205	0.454	0.281
White	0.798	0.223	0.474***	0.037	0.419***	0.055	1.132	0.446	1.454	0.578
Black	Reference		Reference		Reference		Reference		Reference	
AI/AN	0.084	0.119	0.800	0.212	1.02	0.444	0.120	0.177	1.133	0.198
other non-White	0.050	0.093	1.467	0.437	2.863*	1.186	0.174	0.334	0.186	0.367
More than one	1.533	0.609	0.900	0.105	0.735	0.158	1.236	0.364	1.543	0.799
Latina	0.689	0.258	0.526***	0.058	0.503***	0.087	0.431	0.209	0.457	0.223
Satisfaction of Interactions	0.750***	0.030					0.814***	0.034	0.813***	0.034
Experienced Racial Discrimination (compared to not experiencing)			2.524***	0.207			0.522***	0.045	0.510***	0.045
Stressful Life Events										
Experienced Partner-related (compared to not experienced)					1.806***	0.140	1.665***	0.131	1.628***	0.129
Experienced Financial (compared to not experienced)					1.348***	0.109	1.280**	0.131	1.262**	0.105
Experienced Emotional (compared to not experienced)					1.133	0.087	1.07	0.083	1.048	0.082
Experienced Traumatic (compared to not experienced)					1.669***	0.144	1.536***	0.135	1.464***	0.130
Ethnoracial#Satisfaction										
Asian	1.240	0.172					1.211	0.178	1.231	0.182
White	0.841*	0.064					0.862	0.070	0.887	0.072
Black	Reference	Reference					Reference		Reference	
AI/AN	1.765	0.658					1.571	0.584	1.591	0.598
other non-White	2.38	1.159					2.181	1.095	2.372	1.152
More than one	0.854	0.093					0.852	0.097	0.842	0.096

Latina	0.923	0.095					1.017	0.113	1.009	0.113
Ethnoracial#Racial Discrimination (experienced compared to not)										
Asian			0.740	0.221			1.319	0.423	1.368	0.442
White			2.101***	0.479			0.678	0.167	0.779	0.193
Black			Reference				Reference		Reference	
AI/AN			0.510	0.314			1.683	1.143	1.629	1.116
other non-White			(empty)				(empty)		(empty)	
More than one			0.949	0.220			1.10	0.269	1.091	0.269
Latina			1.060	0.233			1.145	0.274	1.247	0.301
Ethnoracial Identity#Stressful Life Events										
Experienced Partner-related (compared to not)										
Asian					1.337	0.374	1.367	0.390	1.273	0.367
White					1..841***	0.293	1.820***	0.295	1.644**	0.268
Black							Reference		Reference	
AI/AN					1.143	0.600	1.186	0.640	1.155	0.627
other non-White					0.768	0.770	0.843	0.852	0.746	0.752
More than one					1.554*	0.347	1.480	0.337	1.449	0.332
Latina					1.406	0.298	1.389	0.30	1.353	0.295
Experienced Financial (compared to not)										
Asian					0.785	0.207	0.816	0.216	0.799	0.214
White					1.070	0.168	1.048	0.167	0.923	0.149
Black					Reference		Reference		Reference	
AI/AN					0.799	0.427	0.842	0.457	0.777	0.427
other non-White					0.391	0.265	0.412	0.285	0.376	0.263
More than one					1.006	0.233	1.008	0.237	0.923	0.219
Latina					1.005	0.210	0.984	0.209	0.965	0.206

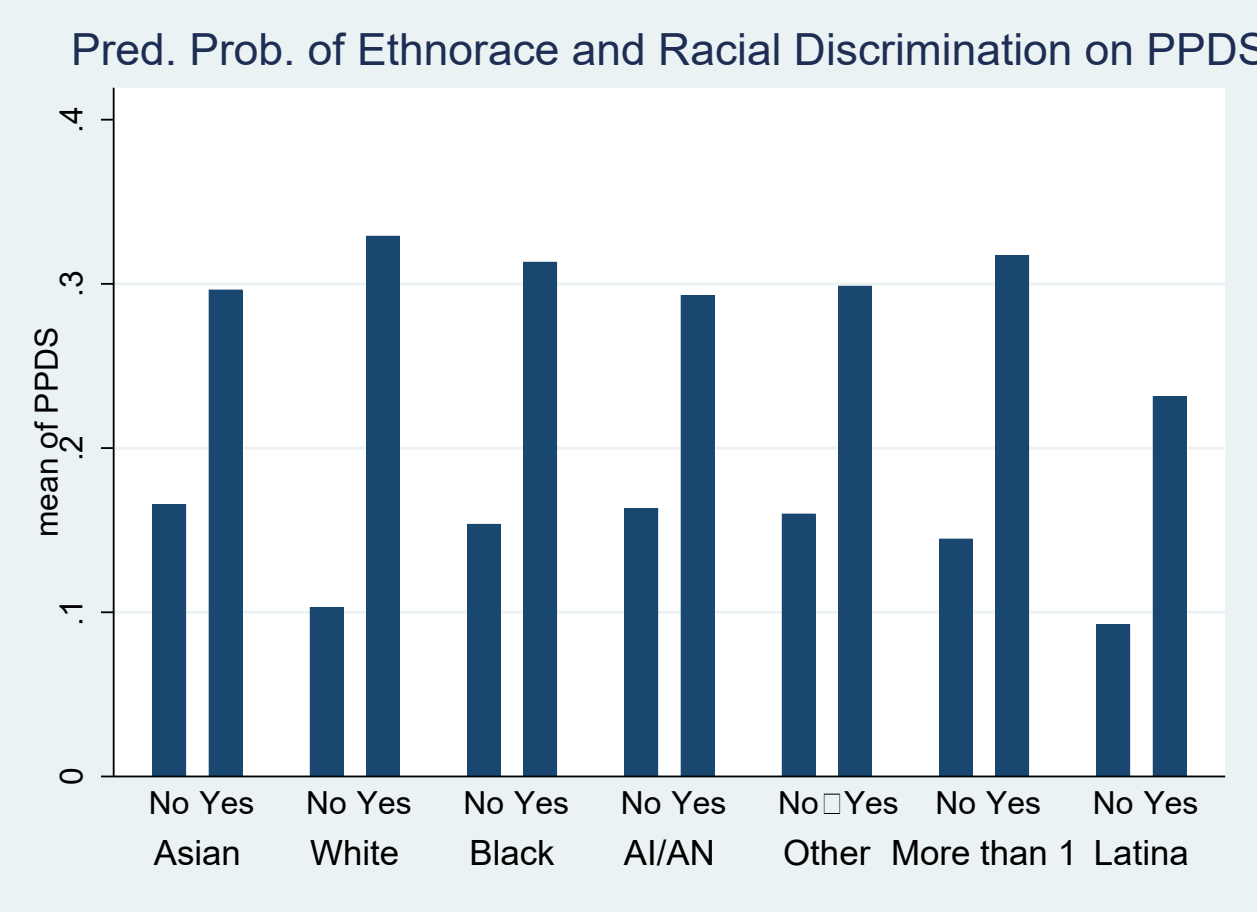
Experienced Emotional (compared to not)						
Asian	1.012	0.290	1.051	0.304	1.042	0.303
White	1.029	0.158	1.045	0.164	1.069	0.168
Black	Reference		Reference		Reference	
AI/AN	0.786	0.398	0.849	0.433	0.898	0.462
other non-White	0.650	0.508	0.682	0.546	0.835	0.678
More than one	1.124	0.239	1.096	0.239	0.131	0.248
Latina	1.140	0.243	1.119	0.243	1.185	0.259
Experienced Traumatic (compared to not)						
Asian	0.735	0.365	0.716	0.364	0.562	0.288
White	0.929	0.168	0.915	0.170	0.821	0.154
Black	Reference		Reference		Reference	
AI/AN	0.544	0.294	0.567	0.319	0.537	0.304
other non-White	1.494	2.249	1.312	2.005	0.155	1.761
More than one	0.600*	0.139	0.663	0.156	0.629*	0.149
Latina	1.423	0.358	1.409	0.361	1.453	0.375
Married (compared to other)					1.151	0.091
Age (in years)						
Less than 25					Reference	
25-29					0.819**	0.057
30-34					0.910	0.074
35 or older					1.080	0.109
Education						
Less than High School					Reference	
High School					1.116	0.093
Some College					0.983	0.087
Bachelors and Above					0.754*	0.095
Insurance Status						
Medicaid					Reference	
Private					0.801**	0.067

Other					1.241	0.203
Income						
Less than $16,000					Reference	
$16,000-$32,000					0.898	0.064
$32,001-$85,000					0.811*	0.078
$85,001 or more					0.780	0.119
R2	0.0337	0.0428	0.0680	0.0854	0.0965	
N	10,744	10,744	10,744	10,744	10,744	

Note: Model 9 regresses postpartum depressive symptoms on the interaction of ethnoracial identity and satisfaction. Model 10 regresses postpartum depressive symptoms on the interaction of ethnoracial identity and feeling upset about experiencing racial discrimination. Model 11 regresses postpartum depressive symptoms on the interaction of ethnoracial identity and 4 stressful life event variables (partner-related, financial, emotional, and traumatic). Model 12 regresses postpartum depressive symptoms on the interaction of ethnoracial identity and all stressor variables (satisfaction, feeling upset about experiencing racial discrimination, experiencing partner-related, financial, emotional, and traumatic stressful life events). Model 13 adds the control variables to Model 12. All variables derive from Phases 6-8 of PRAMS and logistic regressions are restricted to show predicted values for only the cases used to estimate Model 13 since it contains the most variables (and hence the fewest observations). * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Model 10 looks at how ethnoracial identity moderates the association between experiencing racial discrimination and PPDS. I observed only 1 significant difference where the effect of feeling emotionally upset about experiencing racial discrimination on PPDS was stronger for White women compared to Black women. Figure 5 is a depiction that shows that among White women who experience PPDS there is a huge gap between those who felt emotionally upset about experiencing racial discrimination compared to those who did not; while the gap for Black women is smaller.

Figure 5. Predicted Probabilities of Ethnoracial Identity and Feeling Emotionally Upset About Experiencing Racial Discrimination on PPDS with 95% CIs, PRAMS, 2009-2020.

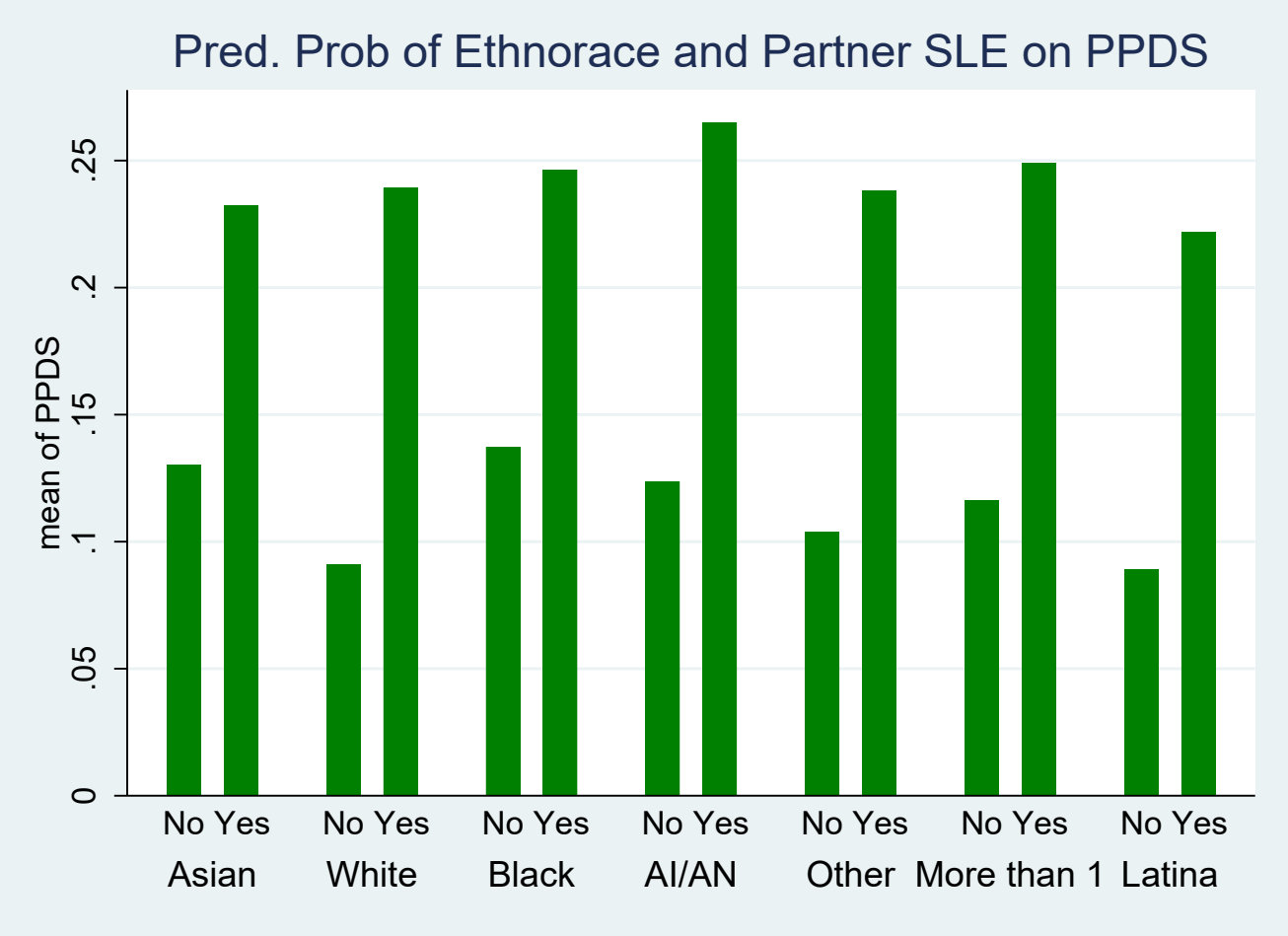


Note: This figure derives from Stata 17 and shows the results of the predicted margins from Model 11 which regressed PPDS on the interaction of ethnoracial identity and feeling emotionally upset about experiencing racial discrimination. There was only a significant difference White compared to Black women. AI/AN=American Indian Alaska Native women and other is other,non-White women.

Looking at how ethnoracial identity moderates the association between stressful life events and PPDS, I observed only a few significant differences for partner-related and traumatic stressful life events (Model 11) (Table 16). First with experiencing partner-related stressful life events, White women and women who identify as more than one ethnoracial identity reported higher odds of PPDS compared to Black women (Model 11). Figure 6 is a depiction that shows that among White women and women who identify as more than one ethnoracial identity there is

a huge gap between those who experienced partner-related stressful life events compared to those who did not, while the gap for Black women is smaller.

Figure 6. Predicted Probabilities of Ethnoracial Identity and Experiencing Partner-Related SLE on PPDS with 95% CIs, PRAMS, 2009-2020.

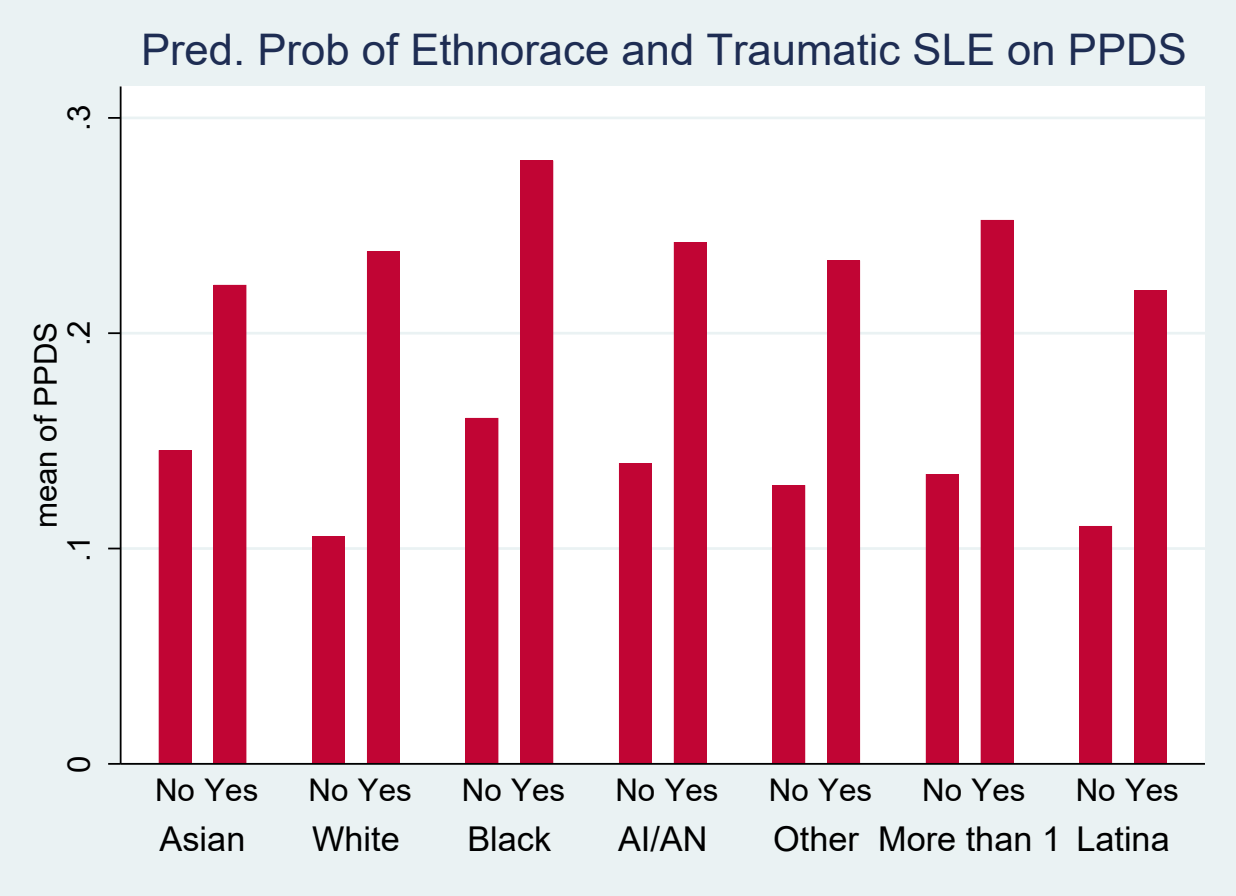


Note: This figure derives from Stata 17 and shows the results of the predicted margins from Model 10 which regressed PPDS on the interaction of ethnoracial identity and stressful life events (SLE) variables. Although the model includes all 4 stressful life events variables, the graph was created only using partner-related SLE variable. There were significant differences for White women and women who identify as belonging to more than one ethnoracial identity compared to Black women. AI/AN=American Indian Alaska Native women and other is other,non-White women.

Next with traumatic stressful life events women who identify as more than one ethnoracial identity reported higher odds of PPDS compared to Black women ($p<0.05$) (Model 10) (Table 16). Figure 7 is a depiction that shows that among women who identify as more than one ethnoracial identity who experience PPDS there is a larger gap between those who

experienced traumatic stressful life events compared to those who did not; while the gap for Black women is smaller.

Figure 7. Predicted Probabilities of Ethnoracial Identity and Experiencing Traumatic SLE on PPDS with 95% CIs, PRAMS, 2009-2020.



Note: This figure derives from Stata 17 and shows the results of the predicted margins from Model 10 which regressed PPDS on the interaction of ethnoracial identity and stressful life events (SLE) variables. Although the model includes all 4 stressful life events variables, the graph was created only using traumatic SLE variable. There were significant differences for women who identified as more than one ethnoracial identity compared to Black women. AI/AN=American Indian Alaska Native women and other is other,non-White women.

Model 12 assesses the moderating effect of ethnoracial identity on all independent variables (satisfaction of interactions with healthcare professionals; partner-related, financial, emotional, and traumatic stressful life events; and experiencing racial discrimination) on PPDS in one model (Table 16). The interactions of ethnoracial identify and partner-related, financial, emotional, and traumatic stressful life events, and racial discrimination were no longer

statistically significant (Model 12). The only significant interaction is between ethnoracial identity and experiencing partner-related SLE. Similar to Model 11, I observed that among White women there is a huge gap between those who experienced partner-related stressful life events compared to those who did not, while the gap for Black women is smaller (Model 12) and this remained after the addition of the control variables (Model 13). After the addition of the other stressor variables, I observed that women who identify as more than one ethnoracial identity who experience PPDS there is a larger gap between those who experienced traumatic stressful life events compared to those who did not, while the gap for Black women is smaller (Model 13).

Overall, these 13 logistic regression models supported my first 4 hypothesis. First, being dissatisfied with interactions with healthcare professionals was associated with postpartum depressive symptoms. Women who were more satisfied with their interactions with healthcare professionals had lower odds of experiencing PPDS (Model 1) (Table 2). Second, stressful life events and feeling emotionally upset about experiencing racial discrimination (chronic stressors) were associated with postpartum depressive symptoms. Women who experienced partner-related, financial, emotional, traumatic life events or racial discrimination reported higher odds of PPDS than women who did not experience these stressful life events or felt emotionally upset as a result of experiencing racial discrimination during the 12 months before their pregnancy (Model3) (Table 2). Third, being dissatisfied with healthcare professionals (acute stressors); experiencing partner-related, financial, and traumatic stressful life events; and feeling emotionally upset about experiencing racial discrimination each have independent associations with postpartum depressive symptoms; while experiencing emotional stressful life events was not significantly associated with PPDS (Model 5) (Table 2). The addition of the control variable

attenuates these significant associations, but they still remain statistically significant. Looking at ethnoracial identity as a moderating variable in these associations, I only observed that the effect of feeling emotionally upset about experiencing racial discrimination on PPDS compared to not was stronger for White women compared to Black women (Model 12 and Model 13) and the effect of experiencing partner-related stressful life events on PPDS was stronger for White women compared to Black (Model 13) (Table 4). These findings partially support my 4th hypothesis that only the association between partner related and traumatic life events on postpartum depressive symptoms varies by ethnoracial identity, when holding all other variables constant.

Discussion With Healthcare Professionals

Descriptive statistics.

As noted earlier, the second part of this secondary data study was to examine which ethnoracial identity healthcare professionals were more likely to discuss postpartum depression during prenatal visits. Table 5 illustrates the descriptive statistics of the analytic sample of discussion with healthcare providers (healthcare providers talking about postpartum depression during prenatal visits). This is a binary variable with a score of 1 indicating that a healthcare provider has talked about postpartum depression during prenatal visits. In this analytic sample, discussion with healthcare providers (n=281,774) is a binary variable, with 73% reporting yes they had a discussion with healthcare providers about postpartum depression during their prenatal visits. In Phase 6, 111,894 participants provided an answer to this question and 32,296 (28.86%) recent mothers provided answers that indicated that healthcare professionals have not discussed postpartum depression during prenatal visits. In Phase 7, 142,461 participants provided an answer to this question and 38,186 (26.80%) recent mothers provided answers that indicated

that healthcare professionals have not discussed postpartum depression during prenatal visits. In Phase 8, only 27,419 participants provided an answer to this question and 7,541 (27.50%) recent mothers provided answers that indicated that healthcare professionals have not discussed postpartum depression during prenatal visits. In this analytic sample, the independent variables were satisfaction of interactions with healthcare professionals, stressor (stressful life events and racial discrimination), and ethnoracial identity. Looking at ethnoracial identity, 53% of participants identified as White, 17% as Black, 14% as Latina, 7% as Asian, 3% as American Indian/Alaska Native, 3% as more than one ethnoracial identity, and 2% other non-White.

Table 17. Descriptive Statistics of Talked About PPDS Analytic Sample PRAMS 2009-2011

	Mean or Percent	S.D	Min.	Max.	N
Healthcare professional talked about PPDS	0.723	0.447	0	1	281,774
Ethnoracial Identity					273,516
Asian	7.12%				
White	53.40%				
Black	16.89%				
American Indian/Alaska Native	3.04%				
Other, non-White	1.71%				
More than one	3.35%				
Latina	14.49%				
Married (compared to other)	59.52%				281,112
Age (in years)					281,764
Less than 25	29.56%				
25-29	28.60%				
30-34	26.07%				
35 or older	15.77%				
Education					278,521
Less than High School	14.59%				
High School	25.67%				
Some College	28.33%				
Bachelors and above	31.41%				
Insurance Status					210,050
Medicaid	44.42%				
Private	48.69%				
Other	6.90%				
Income					260,465
Less than $16,000	27.74%				
$16,000-$32,000	18.34%				

$32,001-$85,000	25.78%
$85,001 or more	28.14%

[1]Note: All variables derived from Phases 6-8 of the Pregnancy Risk Assessment Monitoring System. PPDS=Postpartum depressive symptoms.

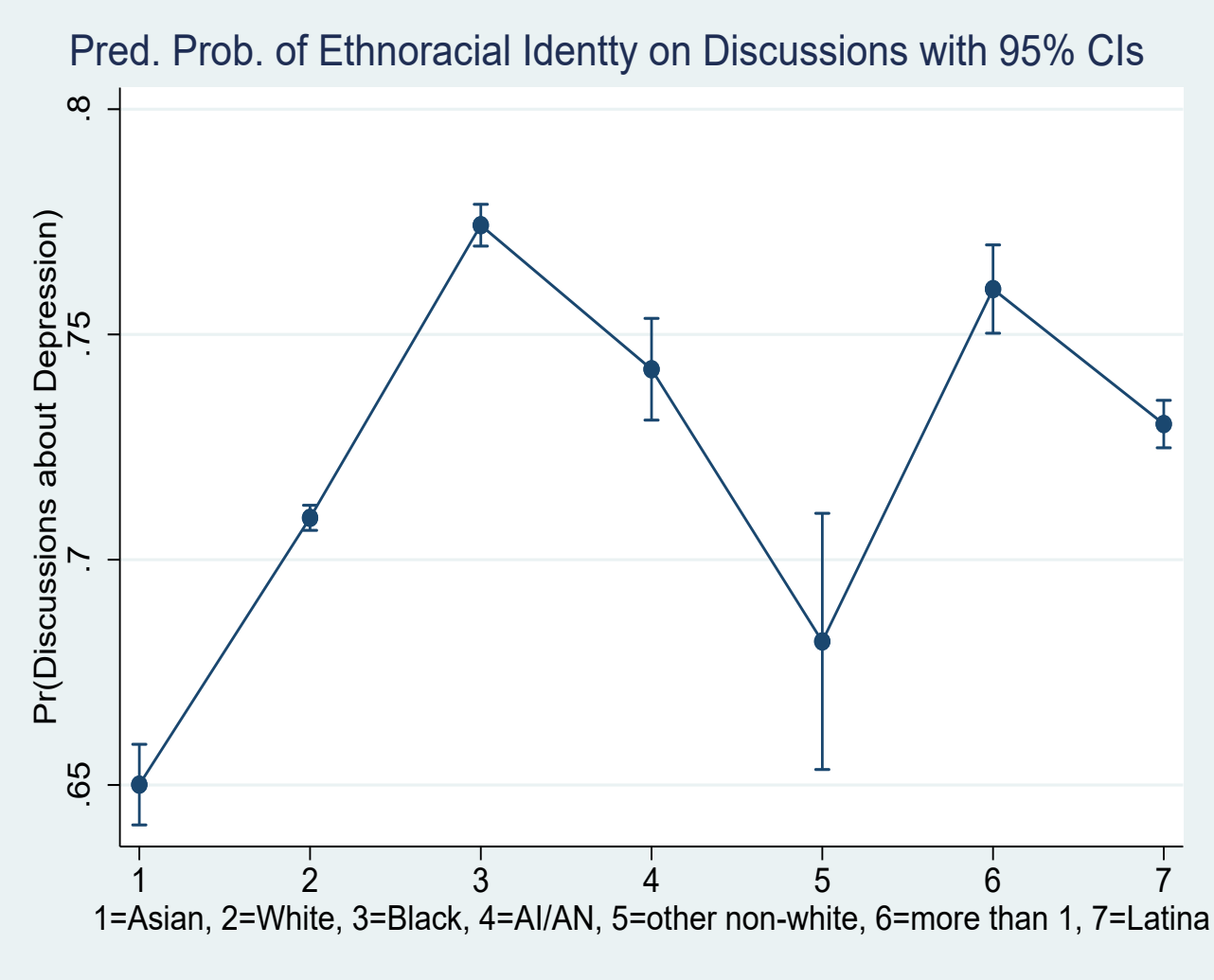
Table 17 also shows the descriptive statistics for the 5 control variables: marital status, age, education, insurance status, and income. Almost 60% of the women in the sample were married. Thirty percent of the sample were less than 25 years old, 29% 25-39 years old, 26% 30-34 years old, and 15% 35 years old or older. The majority of participants have a Bachelor's degree or above, 28% have some college education, 26% have a high school diploma or GED, and 15% of women in the analytic sample have less than a high school education. Almost half of the analytic sample have private healthcare insurance while 44% have Medicaid and 7% have some other type of insurance. A little over a quarter (28%) of the sample have an annual income of less than $16,000, 18% have an annual income of $16,000-$32,000, 26% have an annual income of $32,001-$85,000, and 28% have an annual income of $85,001 or more. In this analytic sample, there were 35 sites, Arkansas, Alabama, Arizona, Colorado, Connecticut, Delaware, Georgia, Hawaii, Iowa, Illinois, Louisiana, Massachusetts, Maryland, Maine, Michigan, Minnesota, Montana, Mississippi, Nebraska, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, Virginia, Washington, Wisconsin, West Virginia, and Wyoming and the city of New York City that asked about discussions with healthcare professionals about postpartum depressions during prenatal visits and ethnoracial identity (n=273,516). Only 6 states, Arizona, Colorado, Illinois, Pennsylvania, Tennessee, and West Virginia, asked about both variables in all 3 Phases.

Logistic Regression Results

There was a total of 2 logistic regression models, 1 bivariate model and 1 multivariable model (Table 19) l. First, I regressed discussions with healthcare professionals about postpartum

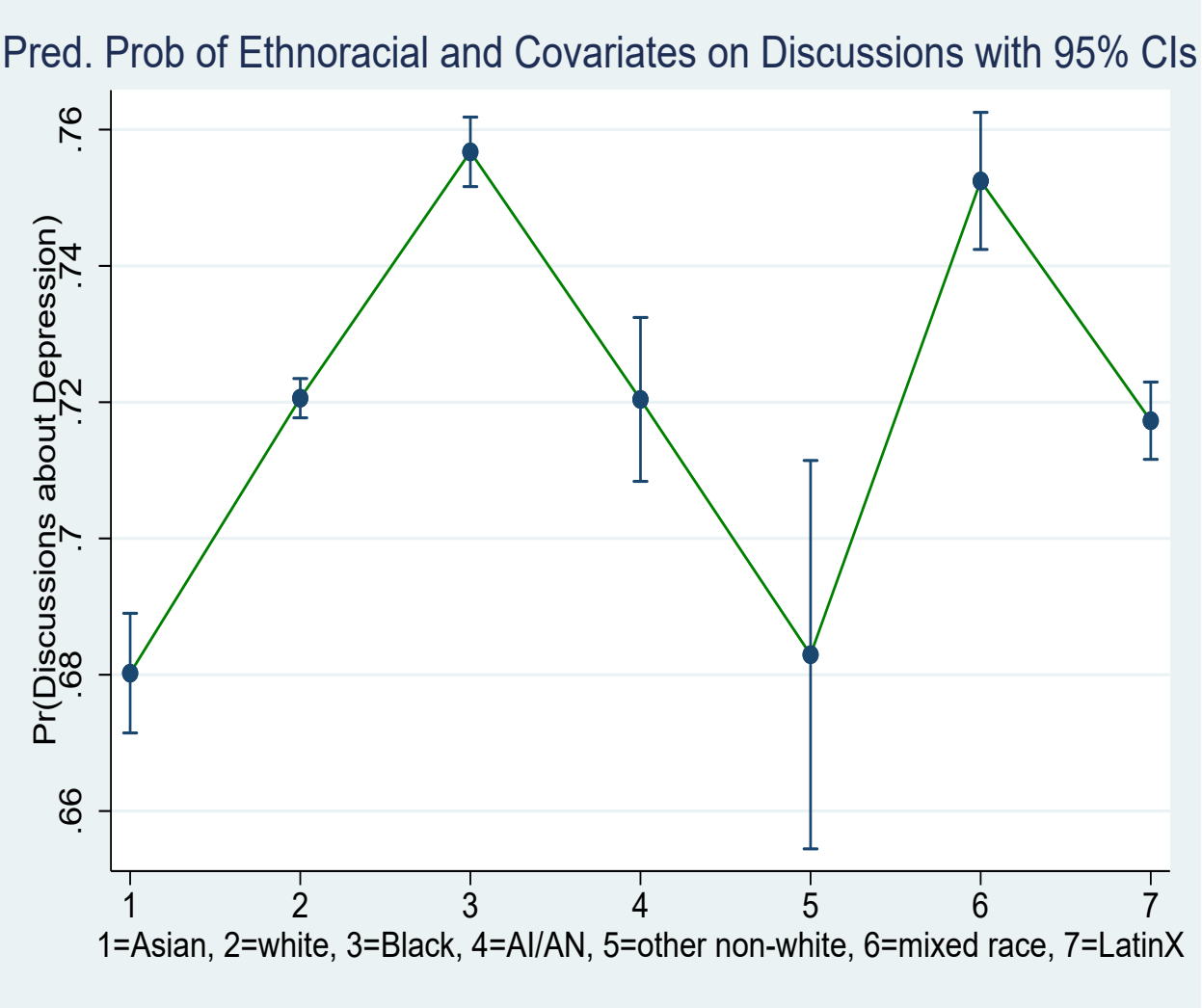
depression during prenatal visits on ethnoracial identity (Model 14). Then, I added the 5 control variables to that regression (Model 15). For both logistic regressions, multiple logistic regressions were ran using the various ethnoracial identity as reference. Asian, White, American Indian/Alaska Native, other non-White, and Latina women had 48%, 29%, 16%, 38%, and 21% lower odds of having discussions with healthcare professionals about postpartum depression during prenatal visits than Black women, respectively ($p>0.001$) (Model 14). Women who identify as more than one ethnoracial identity had 8% lower odds of having discussions with healthcare professionals about postpartum depression during prenatal visits than Black women, respectively ($p>0.001$) (Model 14). Figure 8 is a depiction of these differences. After adding in control variables, the significant difference between women who identify as more than one ethnoracial identity and Black women and discussions with healthcare professionals about postpartum depression during prenatal visits is no longer statistically significant while all other comparisons remained significant at the $p<0.001$ level (Model 15). Figure 9 is a depiction of these differences.

Figure 8. Predicted Probabilities of Ethnoracial Identity on Discussions About PPDS with 95% CIs, PRAMS, 2009-2020.



Note: This figure derives from Stata 17 and shows the results of the predicted margins from Model 14 which regressed discussions with healthcare professionals about depression on ethnoracial identity. Asian, White, American Indian/Alaska Native, other non-White, women who identify as more than one ethnoracial identity, and Latina women all reported lower odds than Black women.

Figure 9. Predicted Probabilities of Ethnoracial Identity and Covariates on Discussions about PPDS with 95% CIs, PRAMS, 2009-2020.



Note: This figure derives from Stata 17 and shows the results of the predicted margins from Model 15 which regressed discussions with healthcare professionals about depression on ethnoracial identity and covariates. Asian, White, American Indian/Alaska Native, and Latina women all reported lower odds than Black women.

Table 18 shows the predicted probabilities of discussions with healthcare professionals about postpartum depression during prenatal visits across ethnoracial identity. Black women (0.774) and women who identify more than one ethnoracial identity (0.760) reported the highest model-implied predicted probabilities of having discussions with healthcare professionals about postpartum depressive symptoms during prenatal visits compared to women from all other ethnoracial identities, while Asian women (0.650) and other, non-White women reported the

lowest (0.682). These results indicate that among the women in my sample, healthcare professionals were having more conversations about depression during prenatal visits with Black women and women who identify more than one ethnoracial identity compared to Asian and White women. When considering other sociodemographic characteristics, Black women and women who identify more than one ethnoracial identity still reported the highest, Asian women reported the lowest, and White women reported the third highest. These findings indicate that when considering other sociodemographic characteristics—marital status, age, level of education, annual household income, and health insurance—the number of White women that reported having this discussion about depression increase.

Table 18. Predicted Probabilities of Discussions About Postpartum Depressive Symptoms by Configurations of Ethnoracial Identity

	Without Covariates		With covariates	
Ethnoracial Identity	Pred. Prob.	95% Confidence interval	Pred. Prob.	95% Confidence interval
Asian	0.650	0.641-0.659[b***,c***,d***,e*,f***,g***]	0.680	0.671-0.689[b***,c***,d***,f***,g***]
White	0.709	0.707-0.713[a***, c***,d***,f***,g***]	0.721	0.718-0.723[a***,c***,e**,f***,g***]
Black	0.774	0.770-0.779[a***,b***,d***,e***,f**,g***]	0.757	0.752-0.762[a***,b***,d***,g***]
American Indian/Alaska Native	0.742	0.731-0.754[a***,b***,c***,e***,f*]	0.720	0.708-0.732[a***,c***,e**,f**,g***]
Other, non-White	0.682	0.653-0.710[a*,c***,d***,f***,g***]	0.683	0.654-0.711[a***,b**,d**,g***]
More than one	0.760	0.750-0.770[a***,b***,c**,d*,e***,g***]	0.752	0.742-0.763[a***,b***,d**,g***]
Latina	0.730	0.725-0.735[a***,b***,c***,e***,f***]	0.717	0.712-0.723 [a***,b***,c***,d***,e***,f***

Note: Pred. Prob. = Predicted probabilities derived from logistic regression models 14 and 15. Model 14 regresses regressed discussions with healthcare professionals about postpartum depression during prenatal visits on ethnoracial identity; Model 15 adds control variables to Model 14. Predicted probabilities were obtained individually after each model by using the "margins. Significantly difference from [a]Asian women, [b]White, [c]Black women, [d]American Indian/Alaska Native women, [e]other,non-White women, [f]more than one ethnoracial identity women, [g]Latina women.

Table 19. Logistic Regression of Discussions about Postpartum Depressive Symptoms with Healthcare Professionals on Ethnoracial Identity. PRAMS 2009-2020

	Model 14		Model 15	
	OR	Se	OR	Se
Ethnoracial Identity				
Asian	0.542***	0.013	0.684***	0.0174
White	0.7114***	0.011	0.829***	0.014
Black	Reference		Reference	
American Indian/Alaska Native	0.810***	0.028	0.828***	0.028
Other, non-White	0.625***	0.043	0.692***	0.048
More than 1 ethnoracial group	0.924**	0.028	0.977	0.03
Latina	0.789***	0.015	0.816***	0.016
Married (compared to other)			1.184***	0.017
Age (in years)				
Less than 25			Reference	
25-29			0.939***	0.014
30-34			0.870***	0.014
35 or older			0.791***	0.014
Education				
Less than High School			1.188***	0.026
High School			1.171***	0.021
Some College			1.147***	0.017
Bachelors and above			Reference	
Insurance Status				
Medicaid			Reference	
Private			0.980	0.015
Other			0.956*	0.021
Income				
Less than $16,000			0.977	0.016
$16,000-$32,000			Reference	
$32,001-$85,000			0.966*	0.017
$85,001 or more			0.939**	0.019
R2	0.0040		0.0097	
N	185,720		185,720	

Note: Model 14 regresses regressed discussions with healthcare professionals about postpartum depression during prenatal visits on ethnoracial identity; Model 15 adds control variables to Model 14. All variables derive from Phases 6-8 of PRAMS and logistic regressions are restricted to show predicted values for only the cases used to estimate Model 15 since it contains the most variables (and hence the fewest observations). * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Additional regressions (results not shown) were ran using the 6 other ethnoracial identity as the reference group for comparison. than White, American Indian/Alaska Native, other, non-White, more than 1 ethnoracial identity, and Latina women reported 1.313, 1.550 1.154, 1.705-, and 1.456-times higher odds of having discussions with healthcare professionals about postpartum depression during prenatal visits compared to Asian women, respectively ($p<0.001$)

(results not shown). American Indian/Alaska Native, more than 1 ethnoracial identity, and Latina women reported 1.18, 1.30-, and 1.109-times higher odds than White women, respectively ($p<0.001$) (results not shown). The odd of having discussion with healthcare professionals for other, non-White women was 25% lower compared to American Indian/Alaska Native women (OR=0.744, $p<0.001$) and 10% higher for women who identify as more than 1 ethnoracial identity compared to American Indian/Alaska Native women (OR=1.110, $p<0.05$) (results not shown). The odd of having discussion with healthcare professionals for women who identify as more than 1 ethnoracial identity was 48% higher compared to other, non-White (OR=1.478, $p<0.001$) and 26% higher for Latina women compared to other, non-White (OR=1.262, $p<0.001$) (results not shown). Lastly, The odd of having discussion with healthcare professionals for Latina women was 15% lower compared to women who identify as more than 1 ethnoracial identity (OR=0.54, $p<0.001$) (results not shown). Overall, these findings do support my hypothesis that discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity. Black women reported the highest odds of having discussions with healthcare professionals about postpartum depression during prenatal visits compared to women from all other ethnoracial identity while Asian, White women, and women who identify as other, non-White than women from all other ethnoracial identity (Asian women reported lower odds than White and other, non-White women). These findings support my 5th hypothesis that discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity.

Discussion

In this chapter, I have shown how acute and chronic stressors were associated with postpartum depressive symptoms. Recent mothers who were more satisfied with their

interactions with healthcare professionals had lower odds of experiencing postpartum depressive symptoms. Similarly chronic stressors, stressful life events and racial discrimination, were also associated with postpartum depression. Both types of stressors, acute and chronic, were independently associated with PPDS. Furthermore, these associations varied by ethnoracial identity; more specifically, Black women have higher odds of postpartum depressive symptoms than Asian, White, other non-White, more than one race, and Latina women. Additionally, I have shown how discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity. This study adds to the literature on maternal mental health by examining how interactions and discussions with healthcare professionals affect women's maternal mental health and which ethnoracial identity healthcare professionals were talking to about maternal mental health. This is important to study as the prevalence of postpartum depressive symptoms and the screening for it vary by ethnoracial identity.

Positive interactions were inversely associated with postpartum depressive symptoms; indicating that the more satisfied a recent mother was with her interaction with healthcare professionals, the lower her odds of experiencing postpartum depressive symptoms. This is supported by research that shows that doctor-patient interactions have a positive relationship with patient health outcomes, as patients who have better communication with their doctors were more satisfied (Brunett and Shingles 2018) and effective doctor-patient interactions were associated with better patient health outcomes in general (Olaisen et al. 2020) and maternal health disparities in particular (Howell and Ahmed 2019). When looking at how ethnoracial identity moderates the relationship between PPDS and satisfaction of interactions with healthcare professionals, I observed the effect of satisfaction on PPDS was stronger for other, non-White women compared to Black women, while the effect of satisfaction on PPDS was weaker for

women who identify as more than one ethnoracial identity compared to Black women (Model 9) (Figure 3). These finding emphasize the need for doctors to provide effective communication— communicating with patients in an empathetic and culturally sensitive way— to women from all ethnoracial identity in a systematic way during the doctor-patient interaction is essential to ensuring that perinatal women feel respected and hard and leads to better patient health outcomes.

Empirically, this chapter adds to the existing literature in the field of medical sociology and the stress process model in particular, by examining how acute and chronic stressors impact maternal mental health. The stress process model has been utilized in sociological research to investigate the origins of mental health and mental illness and to analyze the process of people responding to stressors. Low socioeconomic status and racial discrimination were common stressors that have been examined by scholars as contributors to poor mental health. In this study I observed how stressful life events and experiencing racial discrimination (chronic stressors) were associated with postpartum depressive symptoms. Prior research also observed this finding (Holzman et al. 2006; Lancaster et al. 2010; Lu and Chen 2004).

When looking at how ethnoracial identity moderates the relationship between PPDS and stressful life events, I did not observe a significant interaction between ethnoracial identity and experiencing financial stressful life events. However, additional analysis regressing PPDS only on income, I did observe that the odds of experiencing PPDS for women with higher income are lower compared to women who have lower income (results not shown). While holding all other variables constant, this association was observed in Models 2, 4, and 6 as well (Table 2). This is consistent with literature on the association between stressors and socioeconomic status have

observed that pregnant women with low SES experience more stress than pregnant women with higher SES (Kingston et al. 2012)

In addition to observing differences across financial stressors and PPDS, I also observed that among White women and women who identify as more than one ethnoracial identity there is a huge gap between those who experienced partner-related stressful life events compared to those who did not, while the gap for Black women is smaller. These findings indicate that Black women who experience stressful life events during the 12 months before their most recent pregnancy had better maternal mental health than women from other ethnoracial identities. This may be partially explained by the race paradox that shows that Black people—despite the greater exposure to psychological stress, poverty, and discrimination—typically have better mental health than White people (Keyes et al. 2011).

Similarly, among White women who experience PPDS there is a huge gap between those who felt emotionally upset about experiencing racial discrimination compared to those who did not; while the gap for Black women is smaller (Model 10). Scholars have observed how living in a race-conscious society has detrimental effects on maternal health (Collins et al. 2004; Geronimus 1996; Holzman et al. 2009; Kornfield 2021; Mark 2021). Pregnant Black women experienced more institutionalized racism compared to pregnant White women (Clay, Griffin, and Avehart 2018). I speculate that the reason why the effect of felling emotionally upset about experiencing racial discrimination on PPDS is stronger for White women than for Black women is because White women were much more likely to experience racial discrimination (Lee et al. 2019). My findings echo the arguments of scholars for the need to focus on individual implicit bias and structural and institutional racism that affects the quality of care that perinatal women

receive as a necessary effort to reduce ethnoracial disparities in maternal health (Howell and Zeitlin 2017).

I also assessed the moderating effect of ethnoracial identity on all independent variables (satisfaction of interactions with healthcare professionals; partner-related, financial, emotional, and traumatic stressful life events; and experiencing racial discrimination) on PPDS in one model and observed only 1 only significant interaction is between ethnoracial identity and partner-related stressful life events. The effect of experiencing partner-related stressful life events on PPDS compared to not was stronger for White women compared to Black women (Model 12) and the addition of the control variables attenuated this interaction but it was still significant ($p<0.01$) (Model 13) (Table 4). Additionally, the effect of experiencing traumatic stressful life events on PPDS was weaker for women who identify as more than one ethnoracial identity compared to Black women (Model 12) even after holding all other variables constant (Model 13) (Table 4). My 4th hypothesis is partially supported by these findings, which suggest that the relationship between partner-related and traumatic life events and postpartum depressive symptoms differs based on ethnoracial identity, while keeping all other variables constant. Future research should examine the coping mechanisms or buffers that protect Black maternal mental health from the effects of chronic stressors.

This study also adds to existing literature in maternal health by assessing the variations in who healthcare professionals were talking to about maternal mental health. I observed that Black women reported the highest odds of having discussions with healthcare professionals about postpartum depression during prenatal visits than women from all other ethnoracial identity while Asian, White women, and women who identify as other, non-White than women from all other ethnoracial identity (Asian women reported lower odds than White and other, non-White

women). These findings did support my 5tth hypothesis that discussions with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity; however, I did not anticipate Black women reporting the highest odds as research has shown that screening for depression during pregnancy and the postpartum period are not occurring routinely (CDC 2020a; Flynn et al. 2006; Marcus et al. 2003; Sidebottom et al. 2020). More specifically, White women are more likely to be screened for postpartum depression than women who are disproportionately affected by systemic oppression (Sidebottom et al. 2020). Despite Black women reporting higher odds of having discussions with healthcare professionals about postpartum depression during prenatal visits, they still reported higher odds of PPDS than women from all other ethnoracial identities (this is also supported by literature, see Bauman et al. 2020).

Limitations

Although this chapter makes important contributions to the field of medical sociology, a few limitations need to be mentioned when interpreting the findings. First, this is a secondary data analysis which restricts the ability to personalize survey questions. This means that my ability to conceptualize some variables. PRAMS created a binary variable for postpartum depressive symptoms (never, rarely, and sometimes=no and often and always=yes). I would have created is as a continuous variable to assess differences between women who reported never, rarely, sometimes, often, and always. Another limitation with using secondary data, more specifically using PRAMS, is that many of my variables of interest were not part of the core questionnaire. This means that not all sites in all Phases were required to ask each question. This greatly reduced my analytic sample size for PPDS from 411,897 participants who answered the PPDS question across all 3 Phases to 11,485 after restricted to exclude missing cases from my

independent variables. For example, satisfaction of interaction with healthcare professionals and racial discrimination are standard questions, meaning optional by site by Phase, that only 68,803 and 74,365 participants provided an answer for. Perhaps, my results would have been different if all of my independent variables were part of the core or required questionnaire. This restricts generalizability. Another limitation is that I did not observe trends over time. Future research should examine how the association of PPDS and stressors and discussions with healthcare professionals about postpartum depression and ethnoracial identity vary over time.

Conclusion

Postpartum depressive symptoms were impacted by acute and chronic stressors. Experiencing negative interactions (being dissatisfied) with healthcare professionals, stressful life events, and racial discrimination were each independently associated with PPDS. These associations vary by ethnoracial identity. In the U.S. maternal health disparities were not caused by one's ethnoracial identity but due to disparate life events that are caused by systemic oppression and institutional or structural racism. Doctor-patient interactions have a strong influence on maternal health disparities and literature has attributed implicit bias and institutional or structural racial views as influencers in the doctor-patient interactions and the quality of care that women receive during the perinatal period. Medical sociologist have utilized the stress process model to examine how stressors impact maternal health outcomes. In this chapter, I examined how interactions and discussions with healthcare professionals affect women's maternal mental health and which ethnoracial identity healthcare professionals are talking to about maternal mental health. Overall, I observed that women who are disproportionately affected by systemic oppression experience less satisfaction, more stressors, and higher odds of PPDS than White women; in particular Black women reported the highest odds of experiencing

PPDS. Remarkably, Black women reported the highest odds of having discussions with healthcare professionals about PPDS.

CHAPTER 6

CONCLUSION

Maternal health is an important topic to study. Hundreds of women in the United States die annually as a result of pregnancy and childbirth, about 20% of women experience some symptoms of depression during pregnancy, and about 10% of women develop major depression (Kahn et al. 2001). Ethnoracial disparities persist for both maternal physical and mental health. In 2021, the overall maternal mortality rate in 2021 was 32.9 deaths per 100,000 births but number decreases for White and Latina women to 26.6 and 28.0, respectively, and drastically increases to 69.9 deaths per 100,000 births for Black women (CDC 2023). Prevalence of postpartum depressive symptoms vary by ethnoracial identity, as American Indian/Alaska Native women (22%), Asian/Pacific Islander women (19.2%), and Black women (18.2%) have the highest prevalence of postpartum depressive symptoms, while White women (11.4%), Latina (12%), and women who identify as another ethnoracial identity (16.3%) have the lowest prevalence of postpartum depressive symptoms (Bauman et al. 2020). White women are more likely to be screened for postpartum depression than other ethnoracial identity groups. (Sidebottom et al. 2020).

The lack of screening from medical professionals as a whole and the variability of screenings by ethnoracial identity indicates that future research needs to focus on the role of

healthcare professionals as research has paid significant attention to the role that implicit bias has on maternal health disparities. Implicit bias is the unconscious negative attitudes that people hold about a particular group that develops as a result of stereotypes that are perpetuated by structural discrimination. During medical school, medical students learn what it means to be a physician and how to interact with patients. A key component of the professional socialization of medical students is the medical school curriculum, including both pre-clinical courses and clerkships. It is through the curriculum where students transition from layperson to a practicing physician who interacts with patients. Healthcare professions scholars have concluded that training in medical education is not standardized nor comprehensive (Becker et al. 1961; Everitt et al. 2020; Underman 2015). When it comes to medical education, medical students develop their own definitions of what is and what is not important to know, and they are more concerned with preparing for their required United States Medical Licensing Exam (USMLE) than excelling in their classes (Everitt et al. 2020).

This dissertation adds to existing literature in the field of sociology of medical/health education and professional socialization by examining how medical students are taught about maternal health disparities in medical schools. Additionally, this dissertation builds on existing research in medical sociology by utilizing the stress process model to investigate how chronic stressors (experiences with racism and poverty) and acute stressors (interactions with health care professionals during pregnancy) affect maternal mental health. Across the three empirical chapters, the topic—maternal health disparities—remains the same and the unit of analysis changes to examine the issue of maternal health disparities from multiple angles and foci.

Professional Socialization

My dissertation is the first study, to my knowledge, that examines medical students' perceptions of what they are or are not learning about maternal health disparities in the curriculum of their school. In *Chapter 3 Professional Socialization of Medical Students (interviews w/students)*, I interviewed 25 medical students at one allopathic, religiously affiliated private predominately White institution (PWI). I observed that the medical students in my sample are not being professionally socialized into future doctors who actively seek to reduce maternal health disparities. Although 24 out of 25 of the participants in this study were able to provide a description of their understanding of maternal health disparities, most participants (72%) reported that they had not learned about maternal health disparities in any capacity at their medical school. These participants perceive the absence of instruction on maternal health disparities as impeding their ability to be medical professionals who care about the outcomes of their patients and who provide culturally competent and empathetic care to pregnant women.

Through examining the views of medical students, my research contributes to the existing body of literature on maternal health disparities and medical education. Specifically, it investigates the role of healthcare institutions and professionals in the existence of maternal health disparities, as well as the actions they can take to decrease maternal health disparities in particular. When discussing the role that healthcare professionals have in the existence of maternal health disparities, the participants in my study also discussed doctor-patient interactions and the type of care that providers give. The participants in the study noted that implicit bias influences doctor-patient interactions, as they have observed physicians treating patients differently based on their ethnoracial identity, making unwarranted assumptions about patients, and even raising their voices at them. As medical students observe these behaviors during their

clerkships, it serves as their initial hands-on experience of what it means to be and the behaviors of a physician. My research participants stated that medical schools have a responsibility to address and alleviate the biases held by students. They emphasized the importance of professors openly acknowledging the existence of implicit biases and the systemic racism that underlies the healthcare system. Scholars have highlighted the need for both individual implicit bias and the structural and institutional racism affecting perinatal care to be addressed as a vital step in reducing ethnoracial disparities in maternal health (Howell and Zeitlin 2017). It is imperative for medical schools in the U.S. to introduce a comprehensive curriculum, both in the preclinical and clinical years, that educates students on social determinants of health, implicit bias, strategies to mitigate such bias, ethnoracial health disparities, and maternal health disparities. This will enable the development of empathetic and compassionate physicians who actively work towards reducing maternal health disparities.

Medical School Curriculum

In addition to assessing how U.S. medical students perceive their curriculum and the incorporation, or lack thereof, of maternal health disparities, my dissertation is also the first study that examines the instruction of maternal health disparities in the U.S. medical school curriculum. In Chapter 4 Medical School Curriculum (content analysis and interviews with professors), two sets of data were used to study medical school curriculum. The first was a content analysis of the public-facing websites of 100 medical schools. The other was interviews with 4 U.S. medical clerkship professors at an allopathic, religiously affiliated private Midwestern school. The results from these studies revealed that only 18 of the 100 U.S. medical schools have publicly available information on their website about maternal health disparities and only 6 of these schools incorporated a curriculum on maternal health disparities. Among

these 6 schools, three of them had webinars and series were one-time events that were voluntary and not dedicated only to medical students—meaning that the targeted audience was not only medical students as the registration or attendance for these were not limited to medical students—two of them had a required instruction of maternal health disparities, and one had an optional summer experience. One of the required instructions was student led, even though research has demonstrated how having student-led teaching, as opposed to professor-led instructions, can lead to the content being devalued or viewed as irrelevant academic knowledge required for being a competent doctor (Olsen 2019).

Interviews with 4 medical clerkship professors, 2 OBGYN and 2 family medicine professors, at an allopathic, religiously affiliated private Midwestern school revealed that the 2 OBGYN professors reported that maternal health disparities is incorporated into their clerkship curriculum. Interestingly, their schools' website does not have publicly available information on their website that conveys this instruction and more importantly the medical students who attend this institution did not perceive any teaching at all about maternal health disparities during their OBGYN clerkship. As shown in *Chapter 3 Professional Socialization of Medical Students (interviews w/students)*, there were only 2 students who reported that they learned about maternal health disparities in their OBGYN clerkship, however, they did not learn about it from the OBGYN attending professors, but from residents and other students. The findings from these two empirical chapters highlight a disparity between what medical professors indicate is taught in medical schools and how medical students perceive the curriculum's incorporation of maternal health disparities.

In addition to looking at whether and to what extent maternal health disparities is being incorporated into the medical school curriculum, I also examined terms related to care such as

implicit bias or racism, cultural competency, emotion, and simulations. Looking at the number of schools that mentioned these terms related to care, I observed that 70 medical schools mentioned implicit bias or racism, 67 mentioned cultural competency, 75 mentioned emotion, and 91 mentioned simulations. Patients who have better communication with their doctors are more satisfied (Brunett and Shingles 2018) and have better health outcomes (Olaisen et al. 2020). Expression of emotion and cultural competence are integral to positive communication during doctor-patient interactions (Kaihlanen, Hietapakka, and Heponiemi 2019). Implicit biases shape physicians' behavior towards patients and medical decision-making, which relates to unequal treatment of patients (Chapman, Kaatz, and Carnes 2013). Medical schools need to incorporate an implicit bias training so that medical students can be aware of their own biases and know how to mitigate them to provide the best quality of care.

Despite there being a high percentage of medical schools that mentioned these terms, I observed that only a few medical schools incorporated these terms in their mission statement. The mission statement of an organization is a crucial representation of its overall purpose and core values. For medical schools, it is essential to prioritize the education of medical students on cultural competence and the use of emotions during doctor-patient interactions. This emphasis can improve communication between doctors and patients, ultimately leading to better health outcomes for patients. Specifically, medical schools must educate students on maternal health disparities and the means to reduce and not contribute to the existence of them.

Doctor-Patient Interactions During Perinatal Visits

Lastly, in addition to examining medical students perception of their curriculum and medical schools' curriculum from publicly available information on medical schools' websites and interviews with clerkship professors, my dissertation, to my knowledge, is also the first

investigation into 1) how negative interactions with healthcare professionals can act as an acute stressor that affects postpartum depression and how discussions about postpartum depression vary by ethnoracial identity and 2) how discussion with healthcare professionals about postpartum depression during prenatal visits vary by ethnoracial identity. In *Doctor-Patient Interactions During Perinatal Visits (PRAMS)*, I investigate these associations using secondary data analysis of Phases 6-8 (2009-2020) of the Pregnancy Risk Assessment Monitoring System (PRAMS). I observed that recent mothers who were more satisfied with their interactions with healthcare professionals (acute stressors) or who did not experience stressful life events and racial discrimination (chronic stressors) had lower odds of experiencing postpartum depressive symptoms; and both types of stressors, acute and chronic, were independently associated with postpartum depressive symptoms. Looking at how these associations vary across ethnoracial identity, I observed that Black women have higher odds of postpartum depressive symptoms than Asian, White, other non-White, more than one race, and Latina women.

One of the medical students (M3 S1) that I interviewed (*Chapter 3 Professional Socialization of Medical Students (interviews w/students)*), also described the impact that stress has on maternal health when I asked them to describe the racial disparity issues concerning maternal health. This third-year medical student stated

> I think and I think we're just starting to learn how chronic stress affects our health. And also, then how chronic stress and like chronically elevated cortisol levels and everything that goes along with stress beyond cortisol. But how that affects, yeah, like the pregnant person and the fetus that's growing like it's, of course going to affect both…, I think it's more like, I personally think that like, a big part of what's going to explain the differences is going to have to do with like, just the constant stress. Like constant stress of poverty. Constant stress of just a harder, harder life. Like, think, living less securely, it's just gonna cause stress.

This participant is echoing the stress process model which argues that stressors are often interconnected and dependent on an individual's social context and how socioeconomic status influences the stress that women experience during pregnant; as women with low SES experience more stress than pregnant women with higher SES (Kingston et al. 2012). Examining racial discrimination in particular, in *Doctor-Patient Interactions During Perinatal Visits (PRAMS),* women who felt emotionally upset about experiencing racial discrimination had higher odds of postpartum depressive symptoms. Looking at how ethnoracial identity moderates this relationship, I observed that among White women who experience PPDS there is a huge gap between those who felt emotionally upset about experiencing racial discrimination compared to those who did not; while the gap for Black women is smaller. Research has observed how living in a race-conscious society has detrimental effects on maternal health (Collins et al. 2004; Geronimus 1996; Holzman et al. 2009; Kornfield 2021; Mark 2021). Pregnant Black women experienced more institutionalized racism compared to pregnant White women (Clay, Griffin, and Avehart 2018). When examining Black women's narratives of their encounters with healthcare professionals during perinatal care research has revealed that there are several types of racism that Black women have encountered and how they perceive these types of racism as a threat to positive birth outcomes (Davis 2019).

When discussing differences in maternal health outcomes, 11 out of 25 of the medical students that I interviewed (*Chapter 3 Professional Socialization of Medical Students (interviews w/students)* described race, and not racism, as a predictor or risk factor. Several of these 11 participants discussed the role that racism has on health disparities. For these students, they view one's ethnoracial identity as a predisposing someone to health conditions. However, there were 3 medical students who did do not conceptualize race as a risk factor, but due to structural and

interpersonal racism, ethnoracial minoritized groups[3] face several barriers to obtaining optimal health. One student (M3 S9) went into great detail about the role that racism has on health outcomes. They stated,

> The greatest social determinant of health that we will acknowledge as a as a United States is your socioeconomic status. Right. And so that [socioeconomic status] because of racism in the United States is closely tied to race, right? And again, we won't call it out, but myself and other people like I'm sure you've heard of Dr. <name> like she used to work at CDC actually. And I had the pleasure of meeting her one time. But, you know, she talks about that racism is a social determinant of health. And I completely agree with that, especially when we look at the data, not only that's done by CDC, but also by WHO, okay, and United Nations. And so, we know for a fact that racism, both structural and interpersonal effects someone's health, and wellbeing, as well as their health outcomes, right. So that's going to determine your morbidity or mortality rates within a community. So Black people, unfortunately, have higher morbidity and mortality, right? Meaning that they have a shorter life expectancy. They have more comorbidities. And all of this ties back to socioeconomic status, which is related to structural and interpersonal racism. So that's my understanding of it. I could talk longer, but that's like the brief point of it.

In this quote we see how this medical student views racism, and not one's race, as a determinant to health and the root cause of ethnoracial health disparities.

As noted in the preceding paragraph, the majority of the medical students that I interviewed described ethnoracial identity, and not racism as a determinant of health where one's ethnoracial identity is a risk factor for certain diseases. The notion that one's race, and not racism, determines their health is problematic for two reasons. Firstly, it overlooks the historical and systemic policies and beliefs that oppress specific ethnoracial groups. Secondly, this belief perpetuates historical eugenic racial beliefs, affect doctor-patient interactions, and can lead to misdiagnosis and disrupt physicians' ability to identify causes of health disparities (Sheets et al. 2011). To reframe the discourse of race in the context of ethnoracial health disparities, we must acknowledge structural racism, rather than one's ethnoracial identity, as the fundamental cause (Silverman-Lloyd et al. 2021). Overall, these findings underscore the necessity for physicians to

engage in effective communication with perinatal women of all ethnoracial identities during doctor-patient interactions. This requires communicating in a culturally sensitive and empathetic manner to ensure that women feel respected and heard, leading to improved health outcomes for patients.

In addition to assessing the association between acute and chronic stressors and postpartum depressive symptoms, I also assess variations in who healthcare professionals are talking to about maternal health disparities during prenatal visits. I observed that Asian, White women, and women who identify as other, non-White had lower odds of having discussion with healthcare professionals about PPDS during prenatal visits than women from all other ethnoracial identity (Asian women reported lower odds than White and other, non-White women), while Black women reported the highest odds of having discussions with healthcare professionals about postpartum depression during prenatal visits than women from all other ethnoracial identity. This finding shocked me, as I was anticipating Black women to report the lowest odds. My prediction was based on research indicating that Black women were less likely to be screened for postpartum depression that White women (Sidebottom et al. 2020). Although Black women reported higher odds of discussing postpartum depression with healthcare professionals during prenatal visits, they still reported having higher odds of experiencing postpartum depressive symptoms compared to women from all other ethnoracial identities.

Policy implications attainment

This study draws attention to the lack of training that medical students receive on maternal health disparities. During medical school, medical students learn what it means to be a physician and how to interact with patients. A key component of the professional socialization of medical students is the medical school curriculum, including both pre-clinical courses and

clerkships. It is through the curriculum where students transition from layperson to a practicing physician who interacts with patients. The findings from these empirical studies have several implications for 1) deans and administrators who develop their medical school's program and curriculum, 2) medical professors, 3) current and future medical students, 4) pregnant women, and 5) non-medical personnel who are interested in maternal health disparities.

Medical school administrators. Deans and administrators who have an active role in the medical school curriculum can take the findings from my study and Olsen's 2019 study to require that medical professors teach about maternal health disparities, implicit bias, and ethnoracial identity. Medical schools are required by the Liaison Committee on Medical Education (LCME) to teach medical students about social inequalities and how they, as physicians, can reduce health disparities (LCME 2018). The LCME can amend their requirement for accreditation to specifically state that medical professors need to teach about health disparities—and not offload the responsibilities onto medical students—during the preclinical years and they also can require that all clerkship professors teach on health disparities as disparities exist in all medical specialties; OBGYN clerkship professors in particular should teach on maternal health disparities. Emphasizing the suggestions of Metzl and Hansen (2014) for U.S. medical education to incorporate a structural focus in clinical training, I argue that incorporating a curriculum on maternal health disparities will provide medical students with not only an understanding of maternal health disparities but also provide them with ways to reduce the existence of them. This will create future doctors who actively seek to reduce maternal health disparities.

My recommendation for medical schools to change the ways in which they teach about social inequalities and how they train doctors rests on the theories used over four decades ago to

explain racial inequity in American education (i.e., Brown v. Board of Education). Critical Race Theorists like Derrick Bell asserted that the Brown v. Board of Education decision that ruled racial segregation in schools as unconstitutional because it violated the 14th amendment only occurred because it advanced the interest of White people. Bell refers to this as the *interest convergence* which argues that "the interest of blacks in achieving racial equality will be accommodated only when it converges with the interests of whites" (1980:523). Expanding on this premise, medical schools will only incorporate physician-led teaching on maternal health disparities specifically, and health disparities and social determinants of health more generally in the medical school curriculum if they believe it would enhance their capacity to treat patients and address illnesses. I argue that it is in the interest of White people, generally those in administrative positions, to incorporate these teaching because they risk losing accreditation if they do not fulfill the LCME requirement to teach medical students about social inequalities. Additionally, from an appearance standpoint, interest convergence can also be used to explain the recent influx of diversity and anti-racism policies and declarations that almost all medical schools now have because they do not want to be seen as racist. These policies and declarations on the surface appear to advance Black equity (interest of Black people) and makes the school to appear to be progressive and anti-racist (interest of White people).

If the LCME does not amend their requirements, individual medical schools can update their curriculum. One example is medical school R75, a private HSPS. This medical school has a required teaching on maternal mortality and the disparities that exist in terms of access to maternal care that all medical students take. This form of education occurs through two one-hour student led sessions that discuss maternal mortality in the U.S., examines the role that disparities that exist in access to care have on the existence of maternal mortality, and emphasizes the role

that all physicians, not just obstetricians and gynecologists have in being a part of the solution to reduce maternal health disparities. However, I recommend that these teaching need to be lectures and professor-led discussions and not what Olsen refers to as the conscripted curriculum, using students' lived experiences as members of marginalized groups as the only form of instruction on the social understandings of ethnoracial identity.

Medical professors. Medical professors can also take the initiative and incorporate health disparities into their curriculum. The approach of inhabited institutionalism can shed light on the correlation between macro-level such as teaching students about social inequalities, and what is actually taught. Scholars have employed this approach to explore how primary education teachers interpret institutional regulations (Everitt 2012; Everitt 2018; Hallett 2010). These studies indicate that teachers inhabit institutions where they are frequently required to adjust their teaching methods due to institutional pressures within the education system. Thus, both individuals and institutions impact each other, and institutions function both top-down and bottom-up (Everitt 2018). This indicates that although medical professors are bound to the curriculum, there are pieces or pockets of autonomy in any institutional setting where medical professors can incorporate these teachings. Studies have indicated that while standardization in medicine, on the surface, appears to be a macro-level reform; however, it ultimately hinges on the willingness of individuals within organizations to comply with the reform, as highlighted by Kellogg's concept of "face-to-face collective combat processes occurring on the ground inside organizations" (Kellogg, 2011, p. 170). This implies that medical professors within an organization wield significant control over the content taught to medical students, as demonstrated by Olsen's 2019 research, which illustrates how despite medical schools are

obligated to educate students on social inequalities, the actual manner in which this instruction is delivered rests on the medical professors.

In addition to instructing on the social underpinnings of race and health disparities, medical professors also need to be informally and formally incorporating empathy into their curriculum. Empathy plays a major role in doctor-patient interactions as, empathy expressed by doctors also influences the doctor-patient interactions and health outcomes of patients (Larson and Yao 2005). Sociologists of medical education have studied the expression or suppression of emotions is one aspects of the doctor-patient relationship (Underman and Hirshfield 2016; Vinsonn and Underman 2020). Regarding emotional labor of medical professionals, there has been a shift in the norms where medical professionals used to suppress their emotions. Now, medical students are supposed to be explicitly trained to express emotions as it is part of USMLE Step 2 exam where students are evaluated on their ability to manage patients' emotions during simulated medical encounters (Hoppe et al. 2013). This indicates that physicians should be exhibiting clinical empathy when they are interacting with patients (Vinson and Underman 2020). However, research—Van Ryn et al. 2015 and my interviews with medical students—has shown, medical students have heard and/or observed some attending physicians demonstrate a lack of compassion and make negative remarks about patients who are disproportionately affected by systemic oppression. Medical students that I interviewed noted that they do not want to emulate the negative behaviors that they observed from attending physicians, but instead wanted to provide empathetic care to patients These findings underscore the need for physicians to informally—how they actually interact with patients—and formally—how they teach medical students to provide empathetic care—incorporate empathy into their curriculum.

Regarding interacting with patients, medical professors and medical professionals overall need to screen women more during the perinatal period for depression. Although there are no national standards in place that recommend the timing and frequency for perinatal depression screening, medical professionals can embrace their responsibility that they have to their patients to provide the best care possible to ensure the best maternal and child health outcomes. This includes using the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists' Guidelines for Perinatal Care which recommends that doctors have discussions with patients at all stages of pregnancy about the psychosocial issues that may arise during pregnancy and in the postpartum period. Screening for depression is not a one-time test, but it should be an ongoing assessment as depressive symptoms can develop at any stage. Medical professors need to also reach out to patients prior to their 4-6 week postpartum checkup to ensure that their patient is not experiencing postpartum depressive symptoms. Despite medical professors and professionals being bound to the institution in which they work, they still have the authority and ability to care about treating the whole patient. This includes caring about outcomes and reducing disparities not focusing solely on treating illness. As one of the medical students that I interviewed passionately explained, "it is a privilege to take care of somebody, but only if you're doing it from a loving place, right? You know, if people would just love their patients as if they were their, their relatives, we wouldn't have any of these health disparities."

Medical students and future medical professionals. As the medical students that I interviewed noted, the type of teaching matters. Clerkship professors should not teach about health disparities in a performative or surface level by only briefly mentioning that disparities exist but should also incorporate a discussion of the existence of them and how to reduce them. This will enable the development of empathetic and compassionate physicians who actively

work towards reducing maternal health disparities. Medical professors, like the family medicine professors that I interviewed, should also focus on social determinants of health and not only teach students how to identify the barriers that each of their patients experience to obtaining optimal health but also teach them how to provide resources to combat these barriers.

Additionally, scholars have observed how medical students' implicit biases are influenced by their formal curricular, informal curricular, and interracial contact with patients (Van Ryn et al. 2015). Current medical students can use the findings of my study as research that demonstrates that maternal health disparities is not part of the medical school curriculum. Students can advocate for an incorporation of maternal health disparities specifically and health disparities more generally in the curriculum across all 4 years. It is imperative for medical schools in the U.S. to introduce a comprehensive curriculum, both in the preclinical and clinical years, that educates students on social determinants of health, implicit bias, strategies to mitigate such bias, ethnoracial health disparities, and maternal health disparities. Medical school is where laypersons become professionally socialized into the medical profession, where medical students learn how to interact with and care for patients.

Pregnant women and families. Pregnant women and loved ones—which includes partner, sibling, mother, doula, etc.—can use the findings from my study as evidence that future medical professionals are not being taught about maternal health disparities, the ways to mitigate barriers to optimal health, and the role that they have in the existence of maternal health disparities. Additionally, my findings serve as evidence that supports prior research that shows that healthcare professionals are not routinely discussing postpartum depression (Sidebottom et al. 2020) and that Black women have higher odds of experiencing stressors (Lu and Chen 2004), less satisfaction with healthcare professionals (Attanasio, Kozhimannil, and Kjerulff 2008), and

higher odds of experiencing postpartum depression symptoms (CDC 2020a). Pregnant women and their loved ones can be their own advocates during perinatal visits by informing doctors of their barriers to optimal health, encouraging and demanding a positive communication and depression screening both prenatal and postpartum. Advocating for perinatal depression screening is crucial as research has indicated that to reduce depression in pregnant women, physicians should be routinely screening women for depression (Alipour, Lamyian, and Hajizadeh 2012; Bobo and Yawn 2015; Gjerdingen and Yawn 2007; Hollier 2018). Unfortunately, there are no national guidelines in place that recommend the timing and frequency for perinatal depression screening. Patients and their can, however, ask to be screened at each prenatal visit and reach out to their doctors if they are experiencing symptoms of postpartum depression. I am not suggesting that the onerous is on pregnant women, but based on alarming maternal mortality and postpartum depression rates, I am recommending that pregnant women and their loved ones be their own advocates and this starts with educating oneself about the disparities that exist and knowing that patients have decision-making capacity as well which gives them the right to be an active participant in the care that they receive by contradicting their providers' recommendations, demanding screening, and even changing doctors.

Conclusion

Overall, my dissertation brings into conversation research on the professional socialization of medical students and the impact that implicit bias and physicians' behaviors have on the doctor-patient interaction in order to examine how medical students make sense of and understand maternal health disparities, as well as what they are or are not learning about maternal health disparities in the curriculum of their school. Empirically, my work 1) adds to the existing literature in the field of sociology of medical/health education and professional

socialization and the field of medical sociology by examining how medical students are taught about maternal health disparities in medical institutions and by examining the medical school curriculum and whether it incorporates maternal health disparities, and 2) adds to the existing literature in the field of medical sociology and the stress process model in particular, by examining how acute and chronic stressors impact maternal mental health. The results from my study draw attention to how medical schools are not being professionally socialized to reduce maternal health disparities. My study has policy recommendations for current and future medical students, medical professors, deans and administrators who develop their medical school's program and curriculum, pregnant women, and scholars who are interested in maternal health disparities.

APPENDIX A

STUDENT INTERVIEW GUIDE

STUDENT INTERVIEW GUIDE

Getting to Know Participant

1. First, I would like to learn a little about you. Can you tell me what brought you to medical school? (What are some key moments, places, people that impacted this decision)?
2. Can you describe your medical school application process?
    a. For example, what was your major in undergrad?
    b. How did you prepare to apply to medical school (internships, test prep)?
    c. How did you decide where to go to medical school?
    d. How did you decide to attend an allopathic or MD school vs an osteopathic or DO school?
3. What is your specialty or focus?
    a. How did you decide on this specialty?
    b. Tell me about the classes that you have taken thus far in your specialty area.
4. What year are you in medical school?
5. Describe your preparation process for step 1 exam?

    ****For those in 3rd or 4th year ask Q6--For students in 1st or 2nd year skip to question 7**

6. Describe your preparation process for step 2 exam (COMLEX or USMLE)?
7. Can you tell me about your experiences in clinicals so far?
    a. What have you learned informally from observations with healthcare professionals?

b. Do you have any specific examples that you would like to share about clinicals?

Racial Health Disparities

8. Thank you for telling me about yourself. Is there anything else that you would like to share with me about yourself? Anything you would like to share about your medical school process and experiences?

   Now, I want to ask you some questions about racial health disparities. There has been a lot of recent attention to issues about racial health disparities. What is your understanding of some of the issues concerning this topic?

   ****IF they do not have working knowledge ask 9a. IF they do, ask 9, 9b, then 9c.**

9. What are some of the ways that you have learned about racial health disparities? EX: in the curriculum, in clinicals, personal experiences, etc.

   a. Do you have any thought or feelings about your limited knowledge on racial health disparities?

   ****

   b. Is it part of your medical curriculum? Is it part of the training that you experience in clinicals? Or is it knowledge that you gained externally?

   c. Can you tell me specific examples of when/where you learned about racial health disparities?

10. How has your medical school taught you about racial health disparities?

    ****IF their school has not taught them, ask 10a. IF they did, ask 10b and 10c.**

    a. What do you think about that? Do you think that your medical school should be teaching about health disparities?

    ****

b. Can you provide me with specific examples?

c. When was the last time that you talked about racial health disparities in class?

    i. Can you describe that conversation? Which class was it? How was the topic introduced? Do you recall what the professor or other students said about the topic?

****For those in 3rd or 4th year ask about clinicals. For students in 1st or 2nd year skip to question 12.**

11. In your clinical experience, how have you explicitly been taught about racial health disparities? How have you observed or been explicitly taught about caring for patients from different backgrounds?

****IF they have not been taught in clinicals ask 11a. IF they do, ask 11b-d.**

a. How do you feel about the lack of health disparities being taught to you in clinicals? Do you feel that it should have been taught to you in clinicals?

****

b. Do you have any specific examples that you would like to share about what you have observed in clinicals?

c. When was the last time that you talked about racial health disparities in clinicals?

    i. Can you describe that conversation? How was the topic introduced? Was it in front of patients? Where other healthcare professionals or students around?

12. What are your thoughts on the debates on the concept of race and the ways that it has been taught and used in medicine (i.e., race-based medicine versus evidence-based medicine)?

a. How has race been taught to you in medical school?

b. Do you see the value in both?

13. Are you aware of the White Coats for Black Lives chapter that your medical school has?

****IF they are not aware of it go to question 14. IF they are, ask 13a.**

a. Are you aware of any of their initiatives?

Maternal Health Disparities

14. Thank you for answering those questions about racial health disparities. I want to ask you about maternal health in particular. How would you describe your understanding of maternal health disparities?

****IF they do not have working knowledge ask 15a. IF they do, ask 15, 15b, then 15c.**

15. Where did you learn this?

a. Do you have any thought or feelings about the lack of knowledge on maternal health disparities?

****

b. Is it part of your medical curriculum? Is it part of the training that you experience in clinicals? Or is it knowledge that you gained externally?

c. Can you tell me specific examples of when/where you learned about maternal health disparities?

16. In the classes that you have taken thus far at (medical school name) how has maternal health disparities been taught to you?

****IF they have not been taught in class ask 16a. IF they do, ask 16b-d.**

a. How do you feel about the lack of maternal health disparities being taught to you? Do you feel that it should have been taught to you?

****

b. Is this through lecture or small group discussion? Is there a class that focuses specifically on women and maternal health that all students regardless of specialty are required to take?

c. Do you have any specific examples that you would like to share about how maternal health disparities has been taught to you in the classes that you have taken at (medical school name)?

d. When was the last time that you talked about maternal health disparities in class?

    i. Can you describe that conversation? Which class was it? How was the topic introduced? Do you recall what the professor or other students said about the topic?

****For those in 3rd or 4th year ask about clinicals. For students in 1st or 2nd year skip to question 11.**

17. In your clinicals experience, how has maternal health disparities been discussed or taught to you?

****IF they have not been taught in class ask 17a. IF they do, ask 17b-d.**

a. How do you feel about the lack of maternal health disparities being taught to you in clinicals? Do you feel that it should have been taught to you?

****

b. Are medical professionals explicitly discussing maternal health disparities? Or are you informally learning about maternal health disparities through observations of interactions?

c. Do you have any specific examples that you would like to share about what you have observed in clinicals?

d. When was the last time that you talked about maternal health disparities in clinicals?

    i. Can you describe that conversation? How was the topic introduced? Was it in front of patients? Where other healthcare professionals or students around?

Reducing health disparities

18. What do you think healthcare professionals, as well as healthcare institutions could be doing to reduce these disparities in maternal health?

    ****If they think nothing, ask 18a.**

    a. If healthcare professionals and healthcare institutions should not be doing anything to reduce these disparities, then who should? (patients, policy)

19. Do you think healthcare professionals and institutions may be playing a role in the existence of racial health disparities?

    ****If they think nothing, ask 19a. Ask 19b if they say yes or no.**

    a. If healthcare professionals and healthcare institutions do not play a role in the existence of maternal health disparities, then who does? (patients, policy

    b. Can you elaborate?

Initiatives at school

20. Are you aware of any health disparities initiatives or projects that your school has?

21. Are you aware of any maternal health initiatives or projects that your school has?

DEMOGRAPHIC Questions

Is there anything else that you would like to share or discuss with me about any of the topics that we've discussed in this interview? Thank you for all of your answers so far. Lastly, I just have a few demographic questions that I would like to ask. If you do not want to answer any of the questions, you do not have to. Just respond with prefer not to answer.

22. How do you describe your race or ethnicity?

23. What is your gender?

24. How would you characterize your parents' social class?

25. How old are you?

That concludes all of the questions that I had for you. Thank you for taking the time to do this interview and thank you for all of the answers that you have provided. Is there something that you thought I would ask but I did not?

APPENDIX B

PROFESSOR INTERVIEW GUIDE

PROFESSOR INTERVIEW GUIDE

Getting to Know Participant

1. First, I would like to learn a little about you. Can you tell me what brought you to medical school? (What are some key moments, places, people that impacted this decision)?
2. Can you describe your medical school selection process?
    e. Selecting MD over DO?
2. Your specialty is (say specialty) correct?
    a. How did you select that specialty?
3. What brought you to (name of school)?
4. What is your title?
5. What classes do you teach?
6. What responsibilities or roles are associated with your position as a (say position)?
7. Do you remember your clinicals?

    ****If yes ask 7a if no skip to 8**

    a. Do you have any specific examples that you would like to share about (say specialty) clinicals?
8. Can you tell me about the (say specialty) clerkship here at (name of school)?
    a. Schedule, materials that students read, discussions or dynamics between attending physician, residents, nurses, medical students, and patients?

9. How would you compare your clinical experience as a student at the school you attended to the clinical experiences of students at (name of school)?

10. Where did you complete your residency?
    a. Can you tell me about your experiences in residency?
11. Have you ever taught anywhere else?
    a. If so, where? What class?

Racial Health Disparities

Thank you for telling me about yourself. Is there anything else that you would like to share with me about yourself? Anything you would like to share about your experience as being a professor at Stritch?

Now, I want to ask you some questions about racial health disparities. There has been a lot of recent attention to issues about racial health disparities. What is your understanding of some of the issues concerning this topic? Where did you learn this?

****IF they do not have working knowledge ask 12a. IF they do, ask 12, 12b, then 12c.**

a. Do you have any thought or feelings about your limited knowledge on racial health disparities?

****

b. Did you gain this knowledge as part of medical training (in classes, exam, clinicals, residency)? Or is it knowledge that you gained externally?
c. Can you tell me specific examples of when/where you learned about racial health disparities?

12. How do you teach about racial health disparities in your clerkship?

****IF they do not teach about it ask 12a. IF they do, ask 12b and 12c.**

a. What do you think about that? Do you think that you should be teaching students about racial health disparities?

****

b. Can you provide me with specific examples?

c. When was the last time that you talked about this in class?

i. Can you describe that conversation? Which class was it? How was the topic introduced? Do you recall what students said about the topic?

13. Do you know any core classes, not clerkships where students learn about health disparities or social determinants of health?

a. Can you tell me which class?

b. Anything specific that you would like to share with me about what students learn in that class?

14. What are your thoughts on the debates on the concept of race and the ways that it has been taught and used in medicine (i.e., race-based medicine versus evidence-based medicine)?

a. How has race been taught to you in medical school?

b. How is race being taught to medical students at (name of school)?

c. Do you see the value in both?

15. Are you aware of the White Coats for Black Lives chapter that your medical school has?

****IF they are not aware of it go to question 14. IF they are, ask 13a.**

a. Are you aware of any of their initiatives?

Maternal Health Disparities

16. Thank you for answering those questions about racial health disparities. I want to ask you about maternal health in particular. How would you describe your understanding of maternal health disparities?

    ****IF they do not have working knowledge ask 17a. IF they do, ask 17, 17b, then 17c.**

17. Where did you learn this?

    a. Do you have any thought or feelings about the lack of knowledge on maternal health disparities?

    ****

    b. Did you gain this knowledge as part of medical training (in classes, exam, clinicals, residency)? Or is it knowledge that you gained externally?

    c. Can you tell me specific examples of when/where you learned about maternal health disparities?

18. Does your research focus on maternal health disparities?

19. How do you teach about maternal health disparities in your clerkship?

    ****IF they do not teach about it ask 19a. IF they do, ask 19b and 19c.**

    a. What do you think about that? Do you think that you should be teaching students about maternal health disparities?

    ****

    b. Can you provide me with specific examples?

    c. When was the last time that you talked about this in class?

i. Can you describe that conversation? Which class was it? How was the topic introduced? Do you recall what students said about the topic?

20. As a (say specialty) clinical faculty member do you see a need or shift in curriculum for incorporating discussions about health disparities?
21. What do you think healthcare professionals, as well as healthcare institutions could be doing to reduce these disparities in maternal health?

****If they think nothing, ask 20a.**

a. If healthcare professionals and healthcare institutions should not be doing anything to reduce these disparities, then who should? (patients, policy)?

22. Do you think healthcare professionals and institutions may be playing a role in the existence of racial health disparities?

****If they think nothing, ask 22a. Ask 22b if they say yes or no.**

a. If healthcare professionals and healthcare institutions do not play a role in the existence of maternal health disparities, then who does? (patients, policy
b. Can you elaborate?

DEMOGRAPHIC Questions

Thank you for all of your answers so far. Lastly, I just have a few demographic questions that I would like to ask. Please

23. How do you describe your race or ethnicity?
24. What is your gender?
25. How would you characterize your social class (education level)?
26. How old are you?

That concludes all of the questions that I had for you. Thank you for taking the time to do this interview and thank you for all of the answers that you have provided. Do you have anything else that you would like to tell me? Is there something that you thought I would ask but didn't?

APPENDIX C

CONTENT ANALYSIS CODEBOOK

CONTENT ANALYSIS CODEBOOK

- This codebook corresponds to codes used in the Transcription Workbook.
- Codes are organized by question where codes appear.
- Primary codes are in bold
- Secondary codes are listed after the primary code and only apply when the primary code is present. Primary codes are in bold text and are followed by a space and then a comma. Similarly, Secondary codes are followed by a space and then a comma if another secondary code is listed. After a primary code and secondary code(s) are listed press shift+enter to do a hard return to put the next set of codes on a separate line
    - Example:
      AcademicMH , SeriesMH
      SpecificConditionMH , MHD

Mentioning of Maternal Health:

SpecificTopicMH

- MHD: Any specific mention of the word maternal health disparities.
- MHDStat: Any mention of maternal health disparities (statistics, general comparisons).
- PPC: Any specific mention of postpartum care.
- PPD: Any specific mention of postpartum depression or perinatal depression.
- SpecificCondMH: Any mention of specific maternal health conditions.

AcademicMH

- DepartmentMH: Any mention of their being a specific department, committee, or division at the school that discusses MH.
- EducationMH: Any mention of lectures, sessions, cases, workshops, series, symposium, webinar, or panel on maternal health.
- TrackMH: Any mention of a track that the school offers that discusses maternal health.
- FellowshipMH: Any specific mention of resident fellowship.

Content an Mission Statements:

SchoolTypeMS

OsteoMS: Any mention of osteopathic principles, values, style of care (wholistic) in the mission statement.
ReligionMS: Any mention of religion in the mission statement .

EducationMS

StudentsMS: Any mention of educating students in the mission statement.
ResidentsMS: Any mention of educating residents in the mission statement.
PhysiciansMS: Any mention of educating physicians in the mission statement

ResearchMS: Any mention of research in the mission statement.
HealthDispMS: Any explicit use of the terms health or healthcare disparities in relation to education in the mission statement

CareMS
QualityMS: Any mention of providing quality care to patients in the mission statement.
EthicMS: Any mention of providing ethical care in the mission statement.
PatientCenteredMS: Any mention of providing patient centered care in the mission statement.
PrimaryCareMS: Any mention of providing primary care in the mission statement.
GlobalMS: Any mention of global-minded or global community care in the mission statement.
CompassionMS: Any mention of compassion, empathy, emotion in the mission statement.
CultCompMS: Any mention of cultural humility, sensitivity, awareness, competence(y), or respect of culture in the mission statement.
HealthEquityMS: Any mention of advancing or promoting health equity (optimal health for all) in the mission statement.

CommunityMS: community served
CommServeMS: Any mention of community service, engagement, or volunteer work in the mission statement.
UnderservedMS**:** Any mention of serving underserved, urban, minority, marginalized, or disadvantaged community in the mission statement.
RuralMS: Any mention of serving rural community in the mission statement.
StateMS**:** Any mention of serving state in the mission statement.
RegionMS: Any mention of serving a region in the US in the mission statement.

DiverseMS
DiversePhysMS: Any mentioning of diversifying student, resident, physician, or people in medicine population in the mission statement.
DiversityMS: Any explicit mention of the word diversity or diverse patient population served in the mission statement.

REFERENCE LIST

American Association of Colleges of Osteopathic Medicine. 2021 “U.S. Colleges of Osteopathic Medicine.” Retrieved December 6, 2021 (Learn More About The US Colleges of] Osteopathic Medicine - ChooseDO)

Amnesty International. 2010. *Deadly Delivery the Maternal Health Care Crisis in the USA* London: *Amnesty International Publications*

Alipour, Zahra, Minoor Lamyian, and Ebrahim Hajizadeh. . 2012. "Anxiety and Fear of Childbirth as Predictors of Postnatal Depression in Nulliparous Women." *Women Birth* 25(3):e37-43. doi: 10.1016/j.wombi.2011.09.002.

Andersen. Warwick. 2008. “Teaching ‘Race’ at Medical Schools: Social Scientists on the Margin.” *Social Studies of Science* 38(5):785-800.

Aneshensel, Carol S., and William R. Avison. 2015. “The Stress Process: An Appreciation of Leonard I. Pearlin.” *Society and Mental Health* 5(2):67-85.

Attanasio, Laura B., Katy B. Kozhimannil, and Kristen Kjerulff. 2018.” Factors Influencing Women's Perceptions of Shared Decision Making During Labor and Delivery: Results From A Large-Scale Cohort Study Of First Childbirth.” *Patient Education and Counseling.*

Aron, David C., Howard S. Gordon, David L. DiGiuseppe, Dwain L. Harper, and Gary E. Rosenthal. 2000. “Variations in Risk-Adjusted Cesarean Delivery Rates According to Race and Health Insurance.” *Medical Care* 38(1):35–44.

Association of American Medical Colleges (AAMC). 2022a. “Diversity Increases at Medical Schools in 2022. ”Retrieved March 20, 2023 https://www.aamc.org/news-insights/press releases/diversity-increases-medical-schools-2022

Association of American Medical Colleges (AAMC). 2022b. “Medical School Admission Requirements (MSAR).” Retrieved January 11, 2022 Medical School Admission Requirements (aamc.org)

Bacak, Stephen J., Cynthia J. Berg, Justine Desmarais, Ellen Hutchins, and Elaine Locke. 2006. State Maternal Mortality Review Accomplishments of Nine States. Atlanta: Centers for Disease Control and Prevention.

Badreldin, Nevert, William A. Grobman, and Lynn M. Yee. 2019. "Racial Disparities in Postpartum Pain Management." *Obstetrics & Gynecology* 134(6):1147-53. doi: 10.1097/aog.0000000000003561.

Balsa, Ana I and Thomas G. McGuire. 2003. "Prejudice, Clinical Uncertainty and Stereotyping as Sources of Health Disparities." *Journal of Health Economics* 22(1):89-116.

Barber, Emma L., Lisbet S. Lundsberg, Kathleen Belanger, Christian M. Pettker, Edmund F. Funai, and Jessica L. Illuzzi. 2011. "Indications Contributing to the Increasing Cesarean Delivery Rate." *Obstetrics and Gynecology* 11(1):29–38

Bauman, Brenda L., Jean Y. Ko, Shanna Cox, Denise V. D'Angelo, Lee Warner, Suzanne Folger, Heather D. Tevendale, Kelsey C. Coy, Leslie Harrison, and Wanda D. Barfield. 2020. "*Vital Signs*: Postpartum Depressive Symptoms and Provider Discussions About Perinatal Depression — United States, 2018." *Morbidity and Mortality Weekly Report* 69:575-581.

Bayrampour, Hamideh, Sheila McDonald, and Suzanne Tough. 2015. "Risk Factors of Transient and Persistent Anxiety During Pregnancy." *Midwifery* 31(1):S82-S89.

Bean, Frank D. 2018. "Growing U.S. Ethnoracial Diversity: A Positive or Negative Societal Dynamic?". The ANNALS of the American Academy of Political and Social Science 677(1):229-39. doi: 10.1177/0002716218765415

Becker, Howard S., Blanche Geer, Everett C. Hughes, and Anselm L. Strauss. 1961. *Boys in White: Student Culture in Medical School*. Chicago: University of Chicago Press.

Bobo, William V., and Barbara P. Yawn. 2015. "Concise Review for Physicians and Other Clinicians: Postpartum Depression." *Mayo Clinic Proceedings* 89(6):835-844. doi: 10.1016/j.mayocp.2014.01.027.

Bonham, Vence L, Sherrill L. Sellers, Thomas H. Gallagher, Danielle Frank, Adebola O. Odunlami, Eboni G. Price, and Lisa L. Cooper. 2009. "Physicians' Attitudes toward Race, Genetics, and Clinical Medicine." *Genetics in Medicine* 11(4):279-86. doi: 10.1097/GIM.0b013e318195aaf4.

Bourdieu, Pierre. 1977. "Cultural Reproduction and Social Reproduction." Pp. 487-510 in *Power and Ideology in Education*, edited by Jerome Karabel and A. H. Halsey.

Brown, Tony N. , David R. Williams, James S. Jackson, Harold W. Neighbors, Myriam Torres, Sherrill L. Sellers and Kendrick T. Brown. 2000. ""Being black and feeling blue": the mental health consequences of racial discrimination." *Race and Society* 2(2):117-131.

Brunett, Miranda and Rene Revis Shingles. 2018. "Does Having a Culturally Competent Health Care Provider Affect the Patients' Experience or Satisfaction? A Critically Appraised Topic." *Journal of Sport Rehabilitation* 27(3):284-88. doi: 10.1123/jsr.2016-0123.

Bryant, Allison S., Ayaba Worjoloh, Aaron B. Caughey, and A. Eugene Washington. 2010. "Racial/Ethnic Disparities in Obstetric Outcomes and Care: Prevalence and Determinants." *American Journal of Obstetrics and Gynecology* 202(4):335-43. doi: 10.1016/j.ajog.2009.10.864.

Campbell, Kendall M., Jose E. Rodriguez. 2019. "Addressing the Minority Tax: Perspectives from Two Diversity Leaders on Building Minority Faculty Success in Academic Medicine." *Academic Medicine* 94(12):1854-57. doi: 10.1097/ACM.0000000000002839.

Carr, Deborah, Elizabeth Heger Boyle, Benjamin Cornwell, Shelley Correll, Robert Crosnoe, Jeremy Freese, and Mary C. Waters. 2020. *The Art and Science of Social Research*, Second Edition. W. W. Norton & Company.

Center for Disease Control and Prevention. 2020a. "Identifying Maternal Depression." Retrieved March 3, 2021. (Infographic: Identifying Maternal Depression | CDC l)

Center for Disease Control and Prevention. 2021. "Racism and Health." Retrieved December 6, 2021. (https://www.cdc.gov/minorityhealth/racism-disparities/index.html)

Center for Disease Control and Prevention. 2022. "Are PRAMS Data Available to Outside Researchers?" Retrieved March 3, 2022. (Are PRAMS data available to outside researchers? | CDC)

Chapman, Elizabeth N., Anna Kaatz, and Molly Carnes. 2013. "Physicians and Implicit Bias: How Doctors May Unwittingly Perpetuate Health Care Disparities." *Journal fo General internal Medicine* 28(11):1504-1510.

Cheng, Diana, Eleanor B. Schwarz, Erika Douglas, and Isabelle Horon. 2009. "Unintended Pregnancy and Associated Maternal Preconception, Prenatal and Postpartum Behaviors." *Contraception* 79(3):194-198.

Clay, Shondra L., Marquianna Griffin, and Wanda Avehart. 2018. "Black/White disparities in pregnant women in the United States: An examination of risk factors associated with Black/White racial identity." *Health & Social Care in the Community* 26(1):654-663.

Collins, James W. Jr., Richard J. Davis, Arden Handler, Stephen Wall, and Steven Andes. 2004. "Very Low Birthweight in African American Infants: The Role of Maternal Exposure to Interpersonal Racial Discrimination." *American Journal of Public Health* 94(12):2132 2138.

Conrad, Peter. 1992. "Medicalization and Social Control." *Annual Review of Sociology* 18:209-232.

Cunningham, Brooke A., Vence L. Bonham, Sherrill L. Sellers, Hsin-Chieh Yeh, and Lisa A. = Cooper. 2014. "Physicians' Anxiety Due to Uncertainty and Use of Race in Medical Decision Making." *Medical Care* 52(8):728-33.

Cyrus, Kali D. 2017. “Medical Education and the Minority Tax.” Journal of the American *Medical Association* 317(18):1833–34.

Davenport, Margie H., Sarah Meyer, Victoria L. Meah, Morgan C. Strynadka, and Rshmi Khurana. 2020. “Moms Are Not OK: COVID-19 and Maternal Mental Health.” *Frontiers Global Women’s Health* 1(1):1-6.

Davis, Dana-Ain. 2019. "Obstetric Racism: The Racial Politics of Pregnancy, Labor, and Birthing." *Medical Anthropology* 38(7):560-73. doi: 10.1080/01459740.2018.1549389.

Declercq, Eugene and Laurie Zephyrin. 2020. *Maternal Mortality in the United States: A Primer* (Commonwealth Fund) https://doi.org/10.26099/ta1q-mw24

Deliz, Juan R., Fayola F. Fears, Kai E. Jones, Jenny Tobat, Douglas Char, and Will R. Ross. 2020. "Cultural Competency Interventions During Medical School: A Scoping Review and Narrative Synthesis." *Journal of General Internal Medicine* 35(2):568-77. doi: 10.1007/s11606-019-05417-5.

Edmonds, Bownsyne T., and Marjie Mogul. 2015. “Understanding Low-Income African American Women’s Expectations, Preferences, and Priorities in Prenatal Care.” *Family Community Health* 38(2):149-157.

Everitt, Judson G., James M. Johnson, and William H. Burr, W. 2022. "Why Your Doctor Didn't Go to Class: Student Culture, High-Stakes Testing, and Novel Coupling Configurations in an Allopathic Medical School." *J Health Soc Behav*:221465221118584. doi: 10.1177/00221465221118584.

Everitt, Judson G., James M. Johnson, William H. Burr, and Stephanie H. Shanower. 2020. “Examining healthcare institutions by bringing qualitative data from two eras into empirical dialogue.” *Ethnography* 0(0):1-19.

Feagin, Joe R. 2006. *Systemic Racism: A theory of oppression.* New York: Routledge.

Feagin, Joe R., and Zinobia Bennefield. 2014. “Systemic Racism and U.S. Health Care.” *Social Science & Medicine* 103(1):7-14.

Flynn, Heather A., Frederic C. Blow, and Sheila M. Marcus. 2006. “Rates and predictors of depression treatment among pregnant women in hospital-affiliated obstetrics practices.” *General Hospital Psychiatry* 28(4):289–295.

Frank, Danielle, Thomas H. Gallagher, Sherrill L. Sellers, Lisa A. Cooper, Eboni G. Price, Adebola O. Odunlami, and Vence L. Bonham. 2010. "Primary Care Physicians' Attitudes Regarding Race-Based Therapies." *Journal of General Internal Medicine* 25(5):384-9. doi: 10.1007/s11606-009-1190-7.

Gauthreaux, Christina, Jenesis Negron, Daniel Castelanos, Melissa Ward-Petterson, Grettel Castro, Pura Rodriguez de la Vega, Juan Manuel Acuna. 2017. “The association between

pregnancy intendedness and experiencing symptoms of postpartum depression among new mothers in the United States, 2009 to 2011." *Medicine (Baltimore)* 96)6): E5851. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5312985/

George, Linda K. 2014. "Taking Time Seriously: A Call to Action in Mental Health Research." *Journal of Health and Social Behavior* 55(3):251-64.

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

Geronimus, Arline T. 1996. "Black/White Differences in the Relationship of Maternal Age to Birthweight: A Population-Based Test of the Weathering Hypothesis. *Social Science Medicine* 42(4): 589-597.

Giddens, Anthony, Mitchell Duneier, Richards P. Appelbaum, and Deborah Carr. 2013. = *Introduction to Sociology*, Ninth Edition. W.W. Norton & Company.

Gjerdingen, Dwenda K., and Brbara P. Yawn. 2007. "Postpartum Depression Screening: Importance, Methods, Barriers, and Recommendations for Practice." *Journal of the American Board of Family Medicine* 20(3):280-288.

Green, Tiffany L. 2018. "Unpacking Racial/Ethnic Disparities in Prenatal Care Use: The Role of Individual-, Household-, and Area-Level Characteristics." *Journal of Women's Health* 27(9):1124-34. doi: 10.1089/jwh.2017.6807.

Green, Tiffany L. Jasmine Y. Zapata, Heidi W. Brown, and Nao Hagiwara. 2021. "Rethinking Bias to Achieve Maternal Health Equity: Changing Organizations, Not Just Individuals." *Obstetrics and Gynecology* 137(5):935-40. doi: 10.1097/AOG.0000000000004363.

Haider, Steven J. 2014. "Racial and Ethnic Infant Mortality Gaps and Socioeconomic Status." *Focus* 31(1):18-20.

Hallett, Tim. 2010. "The Myth Incarnate: Recoupling Processes, Turmoil, and Inhabited Institutions in an Urban Elementary School." *American Sociological Review* 75:52-74.

Hoffman, Kelly M., Sophie Trawalter, Jordan R. Axt, and M. Norman Oliver. 2016. "Racial Bias in Pain Assessment and Treatment Recommendations, and False Beliefs About Biological Differences between Blacks and Whites." *Proceedings of the National Academy of Sciences of the United States of America* 113(16):4296-301. doi: 10.1073/pnas.1516047113.

Holzman Claudia, Janet Esyter, Linda B. Tiedje, Lee A. Roman, Elizabeth Seagull, and Mohammad Hossein Rahbar. 2006. "A Life Course Perspective on Depressive Symptoms in Mid-Pregnancy. *Maternal and Child Health Journal.* 10(2):127–138.

Hoppe, Ruth B., Ann M. King, Kathleen M. Mazo, Gail E. Furman, Penelope Wick-Garcia, Heather Corcoran-Ponisciak, and Peter J. Katsufrakis. 2013. "Enhancement of the

Assessment of Physician-Patient Communication Skills in the United States Medical Licensing Examination." *Academic Medicine* 88(11):1670-1675.

Howell, Elizabeth A., and Zainab N. Ahmed. 2019. "Eight Steps for Narrowing the Maternal Health Disparity Gap: Step-By-Step Plan to Reduce Racial and Ethnic Disparities in Care." *Contemporary OB/GYN.* 64(1):30-36.

Howell, Elizabeth A., and Jennifer Zeitlin. 2017. "Improving Hospital Quality to Reduce Disparities in Severe Maternal Morbidity and Mortality." *Seminars in Perinatology* 41(5):266-272.

Hoyert Donna L. 2023. "Maternal mortality rates in the United States, 2021". *National Center for Health Statistics* DOI: https://www.cdc.gov/nchs/data/hestat/maternal mortality/2021/maternal-mortality-rates-2021.htm

Hoyert, Donna L. 2007. "Maternal Mortality and Related Concepts." *Vital and Health Statistics* 3(33):1-13.

Jackson, Chazemen S. and J. Nadine Garcia. 2014. "Addressing Health and Health-Care Disparities: The Role of a Diverse Workforce and the Social Determinants of Health." *Public Health Reports* 129(Suppl 2):57-61. doi: 10.1177/00333549141291S211.

Jamshed, Shazia. 2014. "Qualitative Research Method-Intervieweing and Observationn." *Journal of Basic and Clinical Pharmacy* 5(4):87-88.

Jenkins, Tania M., Kelly Underman, Alexandra Vinson, Lauren Olsen, and Laura Hirschfield. 2021. "The Resurgence of Medical Education in Sociology: A Return to Our Roots and an Agenda for the Future." *Journal of Health and Social Behavior* (in press).

Johanson, Richard, Mary Newburn, and Alison Macfarlane. 2002. "Has the Medicalisation of Childbirth Gone Too Far?" *BMJ* 324(7342):892-895.

Kaihlanen, Anu-Marja, Laura Hietapakka, and Tarja Heponiemi. 2019. "Increasing Cultural Awareness: Qualitative Study of Nurses' Perceptions About Cultural Competence Training." *BMC Nursing* 18(38):2-9. doi: 10.1186/s12912-019-0363-x.

Kellogg, Katherine C. 2011. *Challenging Operations: Medical Reform and Resistance in Surgery*. Chicago, IL: University of Chicago Press.

Kending, Susan, John P. Keats, M Camille Hoffman, Lisa B. Kay, Emily S. Miller, Tiffany A.Moore Simas, Ariela Frieder, Barbara Hackley, Pec Indman, Christena Raines, Kisha Semeunuk, and Lauren A. Lemieux. 2017. "Consensus Bundle on Maternal Mental Health: Perinatal Depression and Anxiety." *Journal of Obstetrics, Gynecologic & Neonatal Nursing* 46(2): 272-281.

Keyes, K. M., David M. Barnes, and L. M. Bates. 2011. "Stress, Coping, and Depression: Testing a New Hypothesis in a Prospectively Studied General Population Sample of U.S. Born Whites and Blacks." *Social Science & Medicine* 72(5):650-659.

Khullar, Dhruv, and Dave A. Chokshi. 2018. "Health, Income, & Poverty: Where We Are & What Could Help." *Health Affairs.* Retrieved March 3, 2021.10.1377/hpb20180817.901935

Kingston, Dawn, Maureen Heaman, Deshayne Fell, Susie Dzakpasu, and Beverly Chalmers. 2012. "Factors Associated with Perceived Stress and Stressful Life Events in Pregnant Women: = Findings from the Canadian Maternity Experiences Survey." *Maternal and Child Health Journal* 16(1):158-168.

Kornfield, Sara L., Valerie M. Riis, Clare McCarthy, Michal A. Elovitz, and Heather H. Burris. 2021. "Maternal Perceived Stress and The Increased Risk of Preterm Birth in a Majority Non-Hispanic Black Pregnancy Cohort." *Journal of Perinatology doi: 10.1038/s41372 021-01186-4*

Kripalani, Sunil, Jada Bussey-Jones, Marra G. Katz, and Inginia Genao. 2006. "A Prescription for Cultural Competence in Medical Education." *Journal of General Internal Medicine* 21(10):1116-20. doi: 10.1111/j.1525-1497.2006.00557.x.

Lancaster, Chrisite, Katherine J. Gold, Healther A.Flynn, Hari Yoo, Sheila M. Marcus, and Matthew M. Davis. 2010. "Risk Factors for Depressive Symptoms During Pregnancy: A Systematic Review." *American Journal of Obstetrics and Gynecology* 202(1):5-14.

Larson, Eric B., and Xin Yao. 2005. "Clinical Empathy as Emotional Labor in the Patient Physician Relationship." *Journal of American Medical Association* 293(9):1100-1106.

Lee, Hedwig and Kristin Turney 2013. "Investigating the Relationship between Perceived Discrimination, Social Status, and Mental Health." *Society and Mental Health* 2(1):1-20.

Lu Michael, and Belinda Chen. 2004. "Racial and ethnic disparities in preterm birth: The role of stressful life events." *American Journal of Obstetrics and Gynecology.* 2004;191(3):691 9.

Mack, Kristen and John Palfrey. 2023 "Capitalizing Black and White: Grammatical Justice and Equity." MacArthur Foundation. Retrieved on March 29, 2023.

Marcus, Sheila M., Heather A. Flynn, Frederic C. Blow, and Kristen L. Barry. 2003. "Depressive symptoms among pregnant women screened in obstetrics settings." *Journal of Women's Health* 12(4):373–380.

Marcus, Sheila M. and Julie E. Heringhausen. 2009. "Depression in Childbearing Women: When Depression Complicates Pregnancy." *Primary Care* 36(1):151-165.

Mark, Nicholas D.E. 2021. “Whither weathering? The variable significance of age in Black White low birth weight disparities.” *SSM Population Health* 15: https://doi.org/10.1016/j.ssmph.2021.100806

Matthews, Kay, Isabel Morgan, Kelly Davis, Tracey Estriplet, Susan Perez, and Joia A. Crear Perry. 2021. "Pathways to Equitable and Antiracist Maternal Mental Health Care: Insights from Black Women Stakeholders." *Health Affairs* 40(10):1597-604. doi: 10.1377/hlthaff.2021.00808.

McLeod, Jane D. 2012. “The Meanings of Stress Expanding the Stress Process Model.” *Society and Mental Health* 2(3):172–86.

Metzl, Jonathan M. and Helena Hnasen. 2014. "Structural Competency: Theorizing a New Medical Engagement with Stigma and Inequality." *Social Science Medicine* 103:126-33. doi: 10.1016/j.socscimed.2013.06.032.

Meyer, John and Brian Rowan. 1977. “Institutionalized Organizations: Formal Structure as Myth and Ceremony.” *American Journal of Sociology* 83: 340-63.

Miller, Byron, Sunshine M. Rote, and Verna M. Keith. 2013. “Coping with Racial Discrimination Assessing the Vulnerability of African Americans and the Mediated Moderation of Psychosocial Resources.” *Society and Mental Health* 3(2):133–50.

Miranda, Marie L, Geeta K. Swammy, Sharon Edwards, Pamela Maxson, Alan Gelfand, and Sherman James. 2010. “Disparities in maternal hypertension and pregnancy outcomes: evidence from North Carolina, 1994-2003.” *Public Health Reports* 125(4):579-587.

Mouzon, Dawne M. 2013. “Can Family Relationships Explain the Race Paradox in Mental Health?” *Journal of Marriage and Family* 75(2):470–85.

New York City Department of Health and Mental Hygiene. 2016. “Severe Maternal Morbidity in New York City, 2008-2012.” Retrieved March 3, 2021. (https://www.nyc.gov/assets/doh/downloads/pdf/data/maternal-morbidity-report-0812.pdf)

Nicoloro-SanataBarbara, Jennifer, Lisa Rosenthal, Melissa V. Auerbach, Christina Kocis, Cheyanne Busso, and Marci Lobel. 2017. “

Olaisen, R. Henry, Mark D. Schluchter, Susan A. Flocke, Kathleen A. Smyth, Siran M. Koroukian, and Kurt C. Stange. 2020. "Assessing the Longitudinal Impact of Physician-Patient Relationship on Functional Health." *Ann Fam Med* 18(5):422-29. doi: 10.1370/afm.2554.

Oliver, Melvin, and Thomas Shapiro. 1995. *Black Wealth/White Wealth: A New Perspective on Racial Inequality*. New York, NY: Routledge.

Olsen, Lauren D. 2019. “The Conscripted Curriculum and the Reproduction of Racial Inequalities in Contemporary U.S. Medical Education.” *Journal of Health and Social Behavior* 60(1):55-68.

Omeish, Yousof, and Samantha Kiernan. 2020. “Targeting Bias to Improve Maternal Care and Outcomes for Black Women in the USA.”

Osterman, Michelle J.K., Brady E. Hamilton, Joyce A. Martin, Anne K. Driscoll, and Claudia P. Valenzuela. 2022. “Births: Final Data for 2020”. *National Vital Statistics Reports* 70(17):1-50.

Osterman, Michelle J.K., and Joyce A. Martin. 2018. “Timing and Adequacy of Prenatal Care in the United States, 2016." *National Vital Statistics Reports* 67(3):1-14.

Owens, Deirdre C., and Sharla M. Fett. 2019. “Black Maternal and Infant Health: Historical Legacies of Slavery.” *American Journal of Public Health* 109(10):1342-1345.

Pearlin, Leonard I., Elizabeth G. Menaghan, Morton A. Lieberman, and Joseph T. Mullan. 1981. ‘‘The Stress Process.’’ *Journal of Health and Social Behavior* 22(4):337-356.

Petersen, Emily E., Nicole L. Davis, David Goodman, Shanna Cox, Carla Syverson, Kristi Seed, Carrie Shapiro-Mendoza, William M. Callaghan, and Wanda Barfied. 2019. “Racial/Ethnic Disparities in Pregnancy-Related Deaths—United States, 2007-2016.” *Morbidity and Mortality Weekly Report* 68(35):762-765.

Riessman, Catherine 1983. “Women and Medicalization: A New Perspective” *Social Policy* (Summer): 3-18.

Ripp, Kelsey and Lundy Braun. 2017. "Race/Ethnicity in Medical Education: An Analysis of a Question Bank for Step 1 of the United States Medical Licensing Examination." *Teaching and Learning in Medicine* 29(2):115-22. doi: 10.1080/10401334.2016.1268056.

Roberts, Dorothy E. 1997. "Killing the Black Body: Race, Reproduction, and The Meaning of Liberty" *Vintage Books*

Robertson, Emma, Sherry Grace, Tamara Wallington, and Donna E. Stewart. 2004. “Antenatal Risk Factors for Postpartum Depression: A Synthesis of Recent Literature.” *General Hospital Psychiatry* 26(4):289-295.

Roth, Louise M., Megan M. Henly. 2012. “Unequal Motherhood: Racial-Ethnic and Socioeconomic Disparities in Cesarean Sections in the United States.” *Social Problems* 59(2): 207-227.

Sabin, Janice, Brian A. Nosek, Anthony Greenwald, and Frederick P. Rivara. 2009. “Physicians' Implicit and Explicit Attitudes About Race by MD Race, Ethnicity, and Gender.” *Journal of Health Care Poor Underserved.* 20(3):896-913.

Saluja, Bani, and Zenobia Bryant. 2021. “How Implicit Bias Contributes to Racial Disparities in Maternal Morbidity and Mortality in the United States.” *Journal of Women’s Health* 30(2):270-273.

Saunders, B. F. and L. Braun. 2017. "Reforming the Use of Race in Medical Pedagogy." *The American Journal of Bioethics* 17(9):50-52. doi: 10.1080/15265161.2017.1353185.

Schramm, Gabrielle. 2016. “The Effects Race and Socioeconomic Status Have on Infant Mortality Rates.” *Honors Research Projects* 274(1):1-25. Retrieved from Honors Research Project

Sheets, Lincoln, Jessica Johnson, Timothy Todd, Timothy Perkins, Chris Gu, and Megan Rau. 2011. "Unsupported Labeling of Race as a Risk Factor for Certain Diseases in a Widely Used Medical Textbook." *Academic Medicine* 86(10):1300-3. doi: = 10.1097/ACM.0b013e31822bbdb5.

Schober, Michael FL., Frederick G. Conrad, Christopher Antoun, Patrick Ehlen, Stefanie Fail, Andrew L. Hupp, Michael Johnston, Lucas Vickers, H. Yanna Yan, and Chan Zhang. 2015. “Precision and Disclosure in Text and Voice Interviews on Smartphones.” PLoS ONE 10(6): e0128337. doi:10.1371/journal.pone.012833

Shulman, Holly B., Denise V. Angelo, Leslie Harrison, Ruben A. Smith, and Lee Wamer. 2018. “The Pregnancy Risk Assessment Monitoring System (PRAMS): Overview of Design and Methodology.” *American Journal of Public Health.* 108(10):1305-13. doi: 10.2105/AJPH.2018.304563.

Sidebottom, Abbey, Marc Vcquier, Elizabeth LaRusso, Darin Erickson, and Rachel Harderman. 2020. “Perinatal depression screening practices in a large health system: identifying current state and assessing opportunities to provide more equitable care.” *Archives of Women’s Mental Health* https://doi.org/10.1007/s00737-020-01035-x

Silverman-Lloyd, L.uke G., Naomi S. Bishop, and Jessica P. Cerdena. 2021. "Race Is Not a Risk Factor: Reframing Discourse on Racial Health Inequities in Cvd Prevention." *American Journal of Preventive Cardiology* 6:100185. doi: 10.1016/j.ajpc.2021.100185.

Segre, Lisa S., Brooke T. Mehner, and Rebecca L. Brock. 2021. “Perceived Racial Discrimination and Depressed Mood in Perinatal Women: An Extension of the Domain Specific Stress Index.” *Women’s Health Issues* 31(3):254-262.

Sørensen, Jette Led, Doris Ostergaard, Vicki LeBlanc, Bent Ottesen, Lars Konge, Peter Dieckmann, and Cees Van der Vleuten. 2017. "Design of Simulation-Based Medical Education and Advantages and Disadvantages of in Situ Simulation Versus Off-Site Simulation." *BMC Medical Education* 17(1). doi: 10.1186/s12909-016-0838-3.

Stancil, Tonya R., Irva Hertz-Picciotto, Margaret Schramm, and Margaret Watt-Morse. 2000. “Stress and pregnancy among African American women.” *Pediatric and Perinatal Epidemiology* 14(2):127-135.

Stone, Sarah L., Hafsatou Diop, Eugene Declercq, Howard J. Cabral, Matthew P. Fox, and Lauren A. Wise. 2015. “Stressful Events During Pregnancy and Postpartum Depressive Symptoms.” *Journal of Women’s Health* 24(5):384-393.

Tangel, Virginia, Robert S. White, Anna S. Nachamie, and Jeremy S. Pick. 2018. “Racial and Ethnic Disparities in Maternal Outcomes and the Disadvantage of Peripartum Black Women: A Multistate Analysis, 2007–2014.” *American Journal of Perinatology* 36(8): 835-848.

Taylor, Jamila K. 2020. “Structural Racism and Maternal Health Among Black Women.” *The Journal of Law, Medicine & Ethics* 48:506-517.

The New York Times Magazine. 2018. “Why America’s Black Mothers and Babies Are in a Life-or-Death Crisis**.** The answer to the disparity in death rates has everything to do with the lived experience of being a black woman in America.” Linda Villarosa. Retrieved on September 20, 2020 (https://www.nytimes.com/2018/04/11/magazine/black-mothers babies-death-maternal-mortality.html).

Tsai, Jennifer, Laura Ucik, Nell Baldwin, Christopher Hasslinger, and Paul George. 2016. "Race Matters? Examining and Rethinking Race Portrayal in Preclinical Medical Education." *Academic Medicine* 91(7):916-20. doi: 10.1097/ACM.0000000000001232.

Turner, R. Jay, and William R. Avison. 2003. “Status Variations in Stress Exposure: Implications for the Interpretation of Research on Race, Socioeconomic Status, and Gender.” *Journal of Health and Social Behavior* 44(4):488–505.

Underman, Kelly. 2015. “Playing Doctor: Simulation in Medical School as Affective Practice.” Social Science & Medicine 136(1):180–88.

Underman, Kelly and Laura E. Hirshfield. 2016. “Detached concern? Emotional socialization in twenty-first century medical education.” *Social Science Medicine* 160(1):94-101
van Ryn, Michelle, Rachel Hardeman, Sean M. Phelan, Diana J. Burgess, John F.
Dovidio, Jeph Herrin, Sara E. Burke, David B. Nelson, Sylvi Perry, Mark Yeazel, and Julia M. rzedworski. 2015. “Medical School Experiences Associated with Change in Implicit Racial Bias among 3547 Students: A Medical Student CHANGES Study Report.” *Journal of General Internal Medicine* 30(12):1748–56.

Vedam, Saraswathi, Kathrin Stoll, Tanya Khemet Taiwo, Nicholas Rubashkin, Melissa Cheyney, Nan Strauss, Monica McLemore, Micaela Cadena, Elizabeth Nethery, Eleanor Rushton, Laura Schummers, Eugene Declerq, and the VTtM-US Steering Council. . 2019. "The Giving Voice to Mothers Study: Inequity and Mistreatment During Pregnancy and Childbirth in the United States." *Reproductive Health* 16(1):77. doi: 10.1186/s12978-019 0729-2.

Wadhwa, Pathik D., Curt A. Sadnman, and Thomas J. Garite. 2001. “The Neurobiology of Stress in Human Pregnancy: Implications for Prematurity and Development of the Fetal Central Nervous System.” *Progress in Brain Research* 133(1):131-142.

Ward, Trina S., Florence A. Kanu, and Sara W. Robb. 2017. “Prevalence of Stressful Life Events During Pregnancy and its Association with Postpartum Depressive Symptoms.” *Archives of Women’s Mental Health* 20(1):161-171.

Washington, Harriet A. 2006. *Medical Apartheid: The Dark History of Medical Experimentation on Black Americans from Colonial Times to the Present*. New York: Doubleday.

Weeks, Fiona, Jasmine Zapata, Angela Rohan, and Tiffany Green. 2022. "Are Experiences of Racial Discrimination Associated with Postpartum Depressive Symptoms? A Multistate Analysis of Pregnancy Risk Assessment Monitoring System Data." *Journal of Women's Health* 31(2):158-66.

Weick, Karl. 1976. “Educational Organizations as Loosely Coupled Systems.” *Administrative Science Quarterly*. 21: 1-19.

Williams, David R. 2019. “Stress and the Mental Health of Populations of Color: Advancing Our Understanding of Race-related Stressors.” *Journal of Health and Social Behavior* 59(4): 466-485.

Wyatt, Tasha R., Nicole Rockich-Winston, DeJuan White, and Taryn R. Taylor. 2020. “Changing the narrative”: a study on professional identity formation among Black/African American physicians in the U.S.” *Advances in Health Sciences Education* 1-16. https://link.springer.com/article/10.1007/s10459-020-09978-7

Vinson, Alexandra H. 2019. “Short White Coats: Knowledge, Identity, and Status Negotiations of First-Year Medical Students.” *Symbolic Interaction* 42:395-411.

Vinson, Alexandra and Kelly Underman. 2020. “Clinical empathy as emotional labor in medical work.” *Social Science & Medicine* 252(1):1-9

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