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Addressing Black Maternal Mental Health Utilizing Social Media for Health Promotion and Community Building

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A thesis submitted to the Faculty of the Rollins School of Public Health of Emory University in partial fulfillment of the requirements for the degree of Master of Public Health in Hubert Department of Global Health

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Abstract

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By Sabreen Mohammed

This thesis seeks to explore how frequently Black pregnant and postpartum women use digital technology for mental health support. A social media strategy is proposed for building community, disseminating mental health information, and raising awareness among Black pregnant and postpartum women. The literature review establishes a historical background for Black women's maternal healthcare, and depicts how enslavement in the United States accounts for the complex relationship Black women have with healthcare systems affecting their healthcare seeking patterns. The Maternal Mental Health Study: Technological Approaches to Maternal Mental Health Promotion Amid the Pandemic, which included 102 Black pregnant and postpartum women who completed an online survey, formed the basis for this project. This topic explores the need for culturally competent and comprehensive health care for Black women, as well as provide insight to the ways this new era of technological advancements can open up access to better healthcare quality. The study examines the ways in which wellness and community development can be promoted through social media to create safe spaces for Black women to discuss mental health issues during pregnancy and postpartum.

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Table of Content

Chapter 1: Introduction

1.1. Introduction and Rationale

This special studies project was conceived in the midst of the current COVID-19 pandemic, which has highlighted the healthcare system's institutionalized flaws in the United States, which disproportionately affect Black communities. Following an uptick in political discourse, presidential elections, and large-scale protests across the United States and around the world in response to police brutality against Black people, it is critical to address the role of public health in perpetuating inequities in addressing the needs of Black people. Furthermore, the dire state of overall Black maternal health and its associated Black maternal mental health, as a result of racist and oppressive systems of care, as well as the staggering economic and climate change burden on Black bodies, necessitate a thorough understanding of the struggle for a just society.

In recent decades, public health research has focused on the overall maternal health outcomes of Black women. However, there is a dearth of data and research on the mental health concerns that Black mothers face during and after pregnancy. Because of this knowledge gap, as well as pre-existing social determinants of health that affect Black mothers' maternal health, it is critical to address this issue and learn more about Black mothers' mental health during and after pregnancy. Black women are more likely than the overall population to suffer from depression (Taylor & Gamble, 2017). This is compounded by the poor mental health care received by Black women/mothers, which is related to the poor maternal health care received by Black people in general.

In the past year, life has not been normal for everyone around the world. Since the COVID-19 pandemic shut down the globe, staying indoors has become the new normal, and

many people have begun to experience significant mental health difficulties. As a result, the World Health Organization (WHO) focused on COVID-19's impact on mental health services, highlighting some of COVID-19's direct and indirect implications on mental illness (World Health Organization, 2020). Despite a lack of funding for mental health-specific services, 89 percent of nations consider mental health and psychological assistance to be a significant part of their COVID-19 response, according to the WHO (World Health Organization, 2020).

The COVID-19 pandemic has resulted in the establishment of multiple shelters as well as social distancing orders that have changed healthcare delivery, particularly maternal health care delivery, putting additional strain on pregnant women and new mothers. Concern over COVID-19 transmission or contact for mothers, their unborn child, or their newborn babies, as well as a lack of support and alienation, have consequences for maternal mental health concerns among pregnant and postpartum women (Goyal & Selix, 2021). Notably, a study found that women of color (Asian, Black, Hispanic, or Multiracial) had a higher risk of adverse mental health outcomes and disruptions to their healthcare access during the ongoing COVID-19 pandemic, and that the results varied by race and ethnicity (Masters et al., 2021). Furthermore, racial, and ethnic minorities' lack of access to mental health care during pregnancy perpetuates psychological chronic conditions (Lemke & Brown, 2020). Additionally, fear of COVID-19 infection, uncertainty about socioeconomic status, and other psychological stressors associated with disruption of daily life due to COVID-19 increases adverse mental health outcomes (Lemke & Brown, 2020).

Chattel slavery's tragic consequences add to disparities and inequities for Black women and mothers seeking maternal care. Slavery and early scientific experimentation on Black women's bodies are inextricably related to the assumption that Black people do not feel pain

(Owens et al., 2019). A large body of research and essential evidence ties racism, sexism, and institutional barriers to poor Black maternal health outcomes, as detailed in a later chapter. Black mothers in the United States have the most severe maternal health disparities (National Partnership for Women & Families, 2018). As a result, Black mothers are three to four times more likely than white mothers to die as a result of their pregnancy, according to the statistics (National Partnership for Women & Families, 2018). In the U.S., a Black mother with a college education has a 60% higher risk of maternal death than a white or Hispanic mother with a high school education (Declercq & Zephyrin, 2020). The low quality of maternity care provided to Black women and mothers at Black-serving hospitals played a major role in the high prevalence of maternal death among Black women (National Partnership for Women & Families, 2018).

The overall purpose of this thesis is to look into how frequently Black pregnant and postpartum women use digital technology for mental health support. Also, using the Maternal Mental Health Study: Technological Approaches to Maternal Mental Health Promotion Amidst the Pandemic questions on Technology Use and Satisfaction for Mental Health Resources a social media strategy is proposed for building community, disseminating mental health information, and raising awareness among Black pregnant and postpartum women. The literature review will establish the framework for addressing unfilled gaps in public health research.

1.2. Problem Statement

Black maternal mental health is a major public health concern, exacerbated by a shortage of maternal health services for Black women (Matthews et al.,2021). The obvious lack of equity-based and justice-centered maternal healthcare for Black mothers has an effect on Black mothers' mental health care, leaving them more prone to mental illness, psychological trauma, and parental mood and anxiety disorders (UPMC Western Behavioral Health, 2020).

1.3. Purpose Statement

The purpose of this thesis is to investigate the frequency of digital use for mental health support among Black pregnant and postpartum women. A social media strategy is proposed for building community, disseminating mental health information, and raising awareness among Black pregnant and postpartum women using the findings from the Maternal Mental Health and Technology Study: Technological Approaches to Maternal Mental Health Promotion Amid the Pandemic.

1.4. Significance Statement

In the U.S, addressing Black maternal mental health issues will very certainly have an influence on Black maternal health. Despite the scarcity of public health research on the uniqueness of Black mothers and women's mental health issues, the Maternal Mental Health and Technology Study will shed light on gaining a better understanding of this issue. This study could provide the framework for future in the context of Black maternal mental health research and as well as impact Black maternal mental health outcomes directly. The results of this study will have a significant impact on the digital landscape for Black pregnant and postpartum women. During the COVID-19 pandemic, internet platforms provide a potential setting for mental health support, and it's vital to be at the forefront of the telehealth/telemedicine conversation by providing knowledge about how Black pregnant and postpartum women use digital resources. Social media has the potential to be a powerful tool for raising mental health awareness, bridging the stigma gap and empowering Black pregnant and postpartum women to take part in the conversation. Understanding the potential for Black pregnant and postpartum

women to embrace digital technology would be advantageous to healthcare practitioners, policymakers, and, most importantly, Black pregnant and postpartum women.

1.5. Definition of Terms

Systemic Racism:

Defined as "policies and practices that exist throughout a whole society or organization, and that result in and support a continued unfair advantage to some people and unfair or harmful treatment of other based on race" (Cambridge Dictionary, 2021)

Social Determinant of Health

Defined as "conditions in environments where people are born, live, learn, work, play, worship, and age that affects a wide range of health, functioning, and quality-of-life risks outcomes and risks. (U.S. Department of Health and Human Services, n.d.)

Centers for Disease Control and Prevention:

"One of the major operating components of the Department of Health and Human Services" (Centers for Disease Control and Prevention, 2021).

Mental Health:

Defined as "the cognitive, behavioral, and emotional well-being. It is all about how people think, feel, and behave. Sometimes the term "mental health" I used to mean the absence of a mental disorder." (Felman, 2020).

Maternal Health:

"Refers to the health of women during pregnancy, childbirth, and the postnatal period" (World Health Organization, 2021).

Postpartum Depression:

"Is a serious mental illness that involves the brain and affects your behavior and physical health. If you have depression, then sad, flat, or empty feelings don't go away and can interfere with your day-to-day life. You might feel unconnected to your baby, as if you are not the baby's mother, or you might not love or care for the baby. These feelings can be mild to severe." (Office of Women's Health, 2019).

Perinatal or Postpartum Mood and Anxiety Disorders (PMAD):

Defined as "the term used to describe distressing feelings that occur during pregnancy (perinatal) and throughout the first year after pregnancy (postpartum)." (Children's Hospital of Philadelphia, 2021).

Chattel Slavery:

Defined as "a model of enslavement used in what is now the U.S. since settlement. Unique features of chattel slavery include, the enslaved person was considered the property of another person, throughout the duration of their life, the enslaved person's children were also considered a property of the other person, so it is generational, and life property, enslaved persons were passed down through the generations like inheritrices. Also, when bought, enslaved persons ownership was transferred to buyer who becomes the new owner." (The Irina Project, 2021).

"Strong Black Woman" Schema/ Superwoman:

Defined as "a mantra for so much a part of U.S. culture that it is seldom realized how great a toll it has taken on the emotional well-being of the African American woman. As much as it may give her the illusion of control, it keeps her from identifying what she needs and reaching out for help" (Liao et al., 2019)

Restorative justice:

Defined as "a theory of justice that emphasizes repairing the harm caused by criminal behavior.

It is best accomplished through cooperative processes that allow all willing stakeholders to meet, although other approaches are available when that is impossible. This can lead to transformation of people, relationships, and communities" (Center for Justice and Reconciliation, n.d.)

Health Equity:

Defined as "when every person has the opportunity to "attain his or her full health potential" and no one is "disadvantaged from achieving this potential because of social position or other socially determined circumstances." Health inequities are reflected in differences in length of life; quality of life, disease, disability, and death; severity of disease, and access to treatment" (The Centers for Disease Control and Prevention, 2020a).

Community Healthcare Workers:

Defined as "frontline public health workers who have a close understanding of the community they serve. This trusting relationship enables them to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery" (Community Health Training Institute, 2016).

Community-Based Participatory Research:

Defined as "it is a collaborative approach to research that involves all stakeholders throughout the research process, from establishing the research question to developing data collection tools to analyze and disseminate findings. It is a research framework that aims to address the practical concerns of people in a community and fundamentally changes the roles of researchers and who is being researched. The CBPR framework begins with community issues, proposed action, or strategy, and them supports or enhances this action with research that is community-based and engaged, it frames research to be community based, participatory, action based, and oriented"

(Burns et al., 2011).

Chapter 2: Literature Review

2.1. Introduction

In creating this thesis project, several areas were explored to conduct the literature review. The first area explored was the Black maternal outcomes in the United States by showcasing studies and understanding the historical perspective that contributes to the severe disparities in maternal outcomes for Black women compared to their white women counterparts. The second area explored is the mental health challenges Black women and mothers experience that impacts their overall health outcomes. In this area, it was important to highlight the successes and failures in addressing Black women overall mental health challenges in the United States while considering the adverse mental health outcomes Black women and mothers experience in their daily lives and societal, systematic, and historical context that contribute to Black women and mothers overall adverse mental health outcomes. Also, discussed are the ways that COVID-19 pandemic exacerbated the negative mental health outcomes for Black mothers. Lastly, the relationship between the overall Black maternal health and their mental health's outcomes has been an under-researched topic. However, in this chapter, Black maternal health relationship to Black maternal mental health will be examined.

2.2. Black Maternal Health and Maternal Outcomes in the United States

2.2.1. The state of Black Maternal Health

Without studying and setting out the historical backdrop and foundation of racism and white supremacy in Black women's experience and maternal health outcomes in the United States, discussing Black maternal mental health in the United States will not be a reasonable and honest conversation. For years, societal determinants of health such as poverty, educational

achievement, and healthcare access have been blamed for poor maternal health outcomes among Black women (Taylor, 2020). However, structural racism is a major social factor of maternal health because it has its roots in an oppressive historical system that devalues women of color while silently continuing in modern-day healthcare practices (Taylor, 2020).

Slavery's legacy in the United States is intrinsically tied to present Black maternal health outcomes. During chattel slavery, enslaved Black women's childbirth was a vital part of the economy (Owens et al., 2019). In the antebellum South of the United States, physicians began to rely on enslaved Black people for scientific information. Much of the progress in gynecology can be traced back to slavery (Owens et al., 2019). Racism's influence on Black women's sexual and reproductive health has been thoroughly established in recent years. According to studies, black American women are disproportionately affected by a variety of sexual and reproductive health issues compared to women of other races and ethnicities (Prather et al., 2016).

Maternal mortality rates have been rising in recent decades, with the United States having the highest maternal mortality rate among developing countries. The impact of systematic racism on Black women's pregnancy, childbirth, and postpartum period is visible today. According to the CDC, non-Hispanic Black women accounted for 41.7 percent of pregnancy-related deaths from 2014 to 2017, as illustrated in figure 1. (Centers of Disease Control and Prevention, 2020b). The CDC attributes systemic racism, implicit biases, accessing quality of care, and the associated morbidity and mortality for the disparities in death risk (Centers of Disease Control and Prevention, 2020b). The absence of equal healthcare access and delivery for Black women is the primary cause of documented racial disparities in maternal mortality (Chinn et al., 2020).

In 2011, Amnesty International declared that maternal health is a human rights issue (Amnesty International USA, 2011). It noted that avoidable maternal death might be the outcome

or otherwise indicate abuses of numerous human rights, such as the right to life, the right to be free from discrimination, and the right to the best health possible (Amnesty International USA, 2011). Maternal mortality is greater in the U. S. than in Europe, Canada, and several Asian and Middle Eastern countries. Despite the reality that maternal mortality decreased by 34% globally between 1990 and 2008, the U.S. was one of 23 countries whereby maternal mortality has seen an increase (Amnesty International USA, 2011).

2.2.2. Frameworks Exploring Black Maternal Health Outcomes

The influence of institutional discrimination, racism, and unequal treatment of Black women has been identified through research, as well as racial inequities in socioeconomic status linked to academic attainment, employment results, and housing opportunities for Black women. This is a result of segregation, racism, and past laws in the United States that were intended to oppress Blacks and women (Chinn et al., 2020). According to recent data, the top 10 main causes of mortality for Black American women aged 20-54 and 15-34 years are HIV and pregnancy-related problems, respectively (Prather et al., 2016). This finding corresponds to enslaved Black women's experiences, as well as the historical oppression of Black women's reproductive rights and emancipation. Enslaved Black people in the United States had no rights at the period, and enslaved Black women found themselves unable to manage their bodies due to slaveholders placing a high value on their bodies and reproductive rights for decades before the Civil War (Taylor, 2020).

According to an article, understanding how racism affects Black women's sexual and reproductive health and experiences requires looking at the three levels of racism (Prather et al., 2016). We should describe how individual, interpersonal, community, and society impact Black women's health experiences by using a socioecological model framework based on the

Bronfenbrenner ecological model for human development (Prather et al., 2016). The fundamental goal of this framework is to address the need for laying the groundwork for combating health issues that disproportionately affect people from disadvantaged groups. This framework, as shown in Figure 2, provides a multilevel model for understanding social determinants of health (SDOH) that can be used to adapt or create interventions to minimize the risk of sexual and reproductive health disorders among Black women.

A review that utilized Urie Bronfenbrenner's Ecological Systems Theory to understand the root causes of maternal mortality and morbidity for Black women was examined (Noursi et al., 2020). The theoretical framework and evidence for the review suggested that forces driving racial disparities in maternal mortality and morbidity work at three levels – patient, provider, and the healthcare system (Noursi et al., 2020). Using the Ecological Systems Theory, the root causes for maternal mortality and morbidity for Black women were described in the different theory levels as seen in figure 3. The purpose of the Ecological Systems Theory is to identify the reciprocal relationship and interactions between an individual with their social environment and that behavior both affect and is affected by the different levels of influence (Noursi et al., 2020). This review suggested that revising the educational curriculum for healthcare providers and professionals, enhancing prenatal care utilization, and reforming or expanding Medicaid coverage would help combat the maternal mortality rate for Black women.

Restoring Our Own Through Transformation (ROOTT) recently created a theoretical framework that explains the web of connection that occurs across systemic, SDOH, and wellness (Crear-Perry et al., 2020). This framework seen in figure 4 works to identify the social determinants of Black maternal health such as education, socioeconomic status and income, housing, access to care, and safety. While identifying their interactions and availability to Black

families has been dictated by American society since the inception of this country and slavery (Crear-Perry et al., 2020). This report suggested that advancement in upstream structural solutions to address Black maternal health is critical while identifying the root causes of this persistent health inequity. As a result, it is a significant step toward moving the focus of treatments away from individual guilt and flawed explanations of race and ethnicity's biological underpinnings and toward pragmatic and legislation-based solutions (Crear-Perry et al., 2020).

The COVID-19 pandemic has marked a shift in the way healthcare is delivered and access to quality healthcare. A recently published blog post highlighted the three major ways COVID-19 was further jeopardizing Black maternal health (Harrison & Megibow, 2020). The first issue highlighted in this piece is how telehealth prevents early diagnosis of health concerns and that Black women are less likely to advocate for themselves, which might also contribute to the poor patient outcomes or weathering. Second, the lack of assistance during delivery and the isolation of mother and infant may put them in danger (Harrison & Megibow, 2020). Finally, COVID-19's social exclusion and financial distress can adversely affect Black mothers after birth, generating a mental health setting that is hazardous (Harrison & Megibow, 2020).

2.2.3. Interventions Addressing Black Maternal Health

To improve Black maternal health outcomes, the National Partnership for Women and Families developed an outline to address the needs pertaining to this issue. The plan recognized the critical need to increase and sustain Black women's access to health care (National Partnership for Women & Families, 2018). Only 87% of Black women of reproductive age have health insurance, and many more will suffer coverage gaps in their lifetimes. They pushed for the creation of laws that would be maintained and targeted at boosting healthcare access and availability in order to remedy the problem (National Partnership for Women & Families, 2018).

Additionally, through addressing SDOH, provide patient-centered care for Black women that assures their security and confronts the challenges that have influenced their experiences. (National Partnership for Women & Families, 2018).

2.3. Black Mothers and Mental Health Challenges

2.3.1. The State of Black Maternal Mental Health

Maternal mental health is a primary concern for the World Health Organization (WHO) in reaching Millennium Development Goal 5, which aims to improve global maternal health outcomes (World Health Organization, 2008). The report's main takeaways or messages are the importance of focusing on the links between poor maternal health outcomes and mental health disorders. Poor mental health outcomes, according to the WHO, can increase maternal mortality and morbidity directly or indirectly (World Health Organization, 2008). As a result, the global effort to improve maternal health outcomes must include mental health treatment (World Health Organization, 2008).

Globally, preterm birth, low birth weight, poor newborn growth, and cognitive development are all linked to mother depression, which has a prenatal prevalence of 15.6% and a postnatal prevalence of 19.8% (Atif et al., 2015). Addressing this growing public health issue is now more crucial than ever (Atif et al., 2015). Even though mothers of any race can suffer from perinatal mood and anxiety disorders (PMADs) during pregnancy or for up to a year after having given birth, Black women have a distinct experience. Black mothers are more likely to suffer from PMADs, with nearly 40% reporting postpartum depression in particular (Pao et al., 2019). As discussed in the previous section, factors like systematic racism, socioeconomic status, and access to quality healthcare are the major drivers of the poor Black maternal health outcomes, which by association contributes to the poor Black maternal mental health outcomes.

As a result of years of systemic racism and oppression, Black women, and Black culture in general in the U.S. have established the persona of the Strong Black Woman. The embodiment of the Strong Black Woman schema has a significant impact on the mental health of Black women (Nelson et al., 2016). Black women are expected to navigate life's problems by demonstrating resilience in the face of adversity (Leath, 2020). Furthermore, by continuously being of service, displaying unwavering displays of strength, possessing caring qualities, and concealing their feelings (Castelin, 2019). Three well-known overlapping racialized tropes used to depict Black women are the mammy, jezebel, and sapphire (West, 2008). These stereotypes are internalized, romanticized, and manifested in the modern day of "strong" womanhood among Black women (Carter & Rossi, 2019), as shown in figure 5. Nonetheless, being strong and expressing strength-based attributes serves as a guardian and a type of physical and psychological resistance for Black women, protecting themselves, their families, and communities from historical traumas and current contemporary violence (Black et al., 2012).

The phenomena of the angry Black woman occurs as a result of the perceived SBW schema (Ashley,2014). This provides little room for Black mothers' mental health to be repaired and treated. Black women were portrayed as angry, irritable women who were irrational, bossy, unpleasant, and ignorant after slavery and its long-term impacts on social, economic, and political experiences across the United States (Ashley, 2014). As a result, Black women have internalized this unfavorable stereotype, which is likely to show up in their experiences seeking psychotherapy or dealing with mental health issues in general (Ashley, 2014). Mental health practitioners are unaware of how stereotypes might lead to misinterpretations of symptoms and clinical observations of Black women in psychotherapy settings, resulting in insufficient and ineffective treatments (Ashley, 2014).

2.3.2. Black Maternal Mental Health Frameworks

A qualitative descriptive study was initiated to understand more about women's perceptions of painful childbirth and the factors that impact their impressions (Rodríguez-Almagro et al., 2019). The majority of respondents said that being misinformed or ignorant by healthcare providers, being overlooked or prejudiced, a lack of support, and complications throughout pregnancy and childbirth all contributed to their traumatic childbirth experiences (Rodríguez-Almagro et al., 2019). Furthermore, medical providers' actions can have a significant impact on delivery outcomes (Rodríguez-Almagro et al., 2019). The findings of the study are consistent with many Black moms' documented experiences throughout pregnancy and labor. According to an interview with Alexis Wesley, M.D. for Glamour magazine's Black Maternal Health series, black women report feeling disregarded by health providers and experiencing greater rates of trauma (Glass,2020).

The series does highlight several first account re-telling of Black women's experiences during pregnancy and childbirth (Glass,2020). When one respondent went into labor, her suffering was both disregarded and directly rejected, according to this interview series (Glass,2020). Another respondent described how she was requested to leave her wheelchair for a white woman and remain in a room while in agony (Glass,2020). Inside the interview, another participant claimed that "I can remember how I sat there in the hospital for, like, eight hours just in complete pain because nobody believed was baby was coming" she added, "they literally tried to send me home, I was like 'you're gonna have to make a bed for me that night because I'm not leaving only to have my child in the car." All the respondents have a clear recollection of how the healthcare providers are not tending to their needs (Glass,2020).

During this interview, Dr. Wesley does state that.

> "Black women, in particular, are more likely to suffer those types of birthing complications, like an unplanned C-section or maternal hemorrhaging" and "they are also more like to tell stories where they're feeling informed or dismissed, having that birthing experiences that made them feel powerless in those moments, which can play into the role of the mom's sense of safety for herself and her child. All of these things, having the trauma of these feelings of dismissal, can be a risk factor for the development of postpartum mental health issues" (Glass, 2020).

In addition, according to this interview, Black women face significant barriers to postpartum mental health care and are less likely to interact with perinatal mental health experts after giving birth (Glass,2020)

The absence of screening tools that support Black women and mothers' mental health needs, as well as the stigma surrounding mental health care in the Black community, is considered a major facilitator for Black women's unfavorable mental health outcomes. A study was done to see how widespread stigma-related concerns regarding mental health care are among low-income immigrants and U.S.-born Black and Latina women (Nadeem et al., 2007). The study included 15,383 low-income women who were assessed for depression and asked about barriers to care, stigma-related concerns, and whether or not they wanted or were receiving mental health care (Nadeem et al., 2007). According to the findings of the study, Black women were more likely than white women to have stigma concerns that impeded their motivation to seek treatment (Nadeem et al., 2007).

A qualitative methods study with 34 participants was conducted to examine how stigma affects Black people receiving mental health treatment by developing a consumer-based stigma intervention (Alvidrez et al., 2008). It showed similar findings to the previous study in which

stigma around mental health promoted Black consumers to delay seeking treatment. Still, once participants began mental health treatments, they had identified members in their social networks that support and accept their mental health treatment (Alvidrez et al., 2008). Another study measured the stigma associated with four types of postpartum depression (PPD) therapy (prescription medication, mental health counseling, herbal remedies, and spiritual counseling) to estimate the acceptance of these therapy treatments among Black and White women in the first six months postpartum period (Bodnar-Deren et al., 2017). According to the data, Black postpartum mothers were less likely than white postpartum mothers to accept prescribed medications and counseling, but they were more inclined to accept spiritual counseling. More research is needed to identify the challenges to PPD therapy for Black women, according to the researchers (Bodnar-Deren et al., 2017).

While the link between social support and PPD in racial and ethnic minority women is unclear, a lack of social support is thought to be a major risk factor for PPD (Pao et al., 2019). The role of social support was explored in a heterogeneous group of PPD patients compared to controls with 1517 respondents at four distinct outpatient clinics in North Carolina (Pao et al., 2019). In this study, higher levels of social support were found to have a significant protective impact against PPD (Pao et al., 2019). The difference in social support across racial/ ethnic minority groups is visible through social support networks, which has a significant impact on the management of PPD symptoms (Pao et al., 2019).

As previously stated, PPD is a major concern for Black Maternal Mental Health. In this study, they investigated the experiences of depression from Black single mothers who consistently report high levels of depressive symptoms that go untreated and undertreated and undetected (Atkins et al., 2018). This study is unique due to its primary focus and participants

identifying as Black women. The sample participants consisted of 210 Black single mothers ages 18-45, and they utilized a descriptive, cross-sectional design (Atkins et al., 2018). The findings from this study showed that collectively Black single mothers reported higher levels of sadness with their natural response. With the qualitative-based responses, young adult Black single mothers reported higher depressive moods (Atkins et al., 2018).

In addition, a sample of 93 employed and 95 unemployed low-income single Black mothers was studied to see if there was a link between financial, parenting stress, and employment status (Gyamfi et al., 2001). In summary, the findings revealed that working did not alleviate financial stress in the two groups of women. Nonetheless, regression analysis revealed that being unemployed was linked to higher levels of stress (Gyamfi et al., 2001). Parental stress was linked to lower educational achievement, and overall work status was linked to improved mental health outcomes for single Black mothers, according to another research (Gyamfi et al., 2001). The findings of this study contradict the widely held belief that employment status is a protective factor against depression. When it comes to modifiable risk and protective factors for depression among Black mothers, especially those who are low-income, research shows and advocates for the need for interventions at the individual, household, and societal levels to address the root and fundamental causes of poor mental health outcomes among Black mothers (Siefert et al., 2007).

Furthermore, researchers investigated the link between depression and an increased risk of unfavorable obstetric outcomes in Black pregnant women. The Edinburgh Postnatal Depression Scale (EPDS) was used to test patient depressed levels after the initial obstetrics visit (Kim et al., 2013). According to the findings of this study, a positive patient-rated depression screening at the initial obstetric visit was linked to an elevated risk of various bad delivery

outcomes (Kim et al., 2013). The findings of this study show that depression leads to poor health behaviors and a higher likelihood of negative health outcomes (Kim et al., 2013).

When attempting to understand the daunting experiences of Black women and mothers' sexual reproductive health, which includes pregnancy, childbirth, and postpartum period, it is critical to examine providers' role in overcoming the unmet Black maternal mental health to address this gap in maternal mental health. Also, healthcare organizations must provide culturally aware and competent mental health care that addresses the unique challenges of Black women and mothers, which necessitate the need to revisit the SBW schema and debunks it.

2.4. Black Maternal Mental Health and COVID-19 Pandemic

The impact of the COVID-19 pandemic has excessed societal expectations and shaped our understanding of the severity of future pandemics. With the lack of infrastructure to support the COVID-19 pandemic efforts, millions of individuals are suffering the mental health impacts, especially among those who are prone to experiencing health disparities being part of an ethnic minority in the U.S. A prospective longitudinal study compared non-COVID exposed healthy pregnant women to a pre-pandemic group of healthy pregnant women to assess the overall impact of COVID-19 on maternal mental health (Quistorff et al. 2021). The data revealed that during the COVID-19 pandemic, pregnant women had a considerable rise in stress and anxiety, and that maternal mental health issues are most common during pregnancy and postpartum (Quistroff et al., 2021).

By developing a cross-sectional study among pregnant or up to three months postpartum women, a quantitative study looked at how the COVID-19 pandemic has damaged mental health and created barriers to receiving healthcare for perinatal individuals (Masters et al., 2021). The patients had a history of depressed symptoms, and the researchers used established mental health

screening instruments to look into the relationship between demographics and psychiatric symptoms (Masters et al., 2021). Participants of color (Black, Asian, Multiracial, and/or Hispanic/Latinx) were significantly more likely to demonstrate that the pandemic had negatively affected their mental health, and positive test results for depression, anxiety, and/or PTSD were linked with reported adverse mental health, as shown in tables 1 and 2. (Masters et al., 2021).

Similarly, an online survey of 913 pregnant women in the Philadelphia area was utilized to estimate the significant burden of the COVID-19 pandemic among pregnant Black women, with 216 of them identifying as Black women (Gur et al., 2020). To assess the general and pregnancy-specific concerns and harmful repercussions of the COVID-19 pandemic, researchers used logistic regression models and analysis of covariance (Gur et al., 2020). The findings revealed that pregnant Black women were more likely to have their work status impacted by the pandemic, as well as general concerns about a long-term economic burden (Gur et al., 2020). In addition, pregnant black women were more likely than pregnant white women to meet the criteria for depression (Gur et al., 2020).

Chapter 3: Methodology

3.1. Introduction

The methodologies employed in phase one of the Maternal Mental Health Study: Technological Approaches to Maternal Mental Health Promotion Amid the Pandemic quantitative survey are described in this chapter. The findings of this study will be used to propose a social media plan that targets Black pregnant and postpartum women to build community and discuss mental health challenges during and post pregnancy.

This chapter is divided into two categories:

1. The Maternal Mental Health Survey Methods
2. Proposal Plan to use Social Media for Community Building and Health Promotion

3.2. The Maternal Mental Health Survey Methods

3.2.1. Population and Sample

For the first round of the Maternal Mental Health Study, the sample population was entirely made up of Black women. Qualtrics software (Qualtrics, Provo, UT) was used to accomplish the recruitment and survey distribution processes. To qualify for the survey and reach the target audience, all participants had to complete a screening questionnaire. Eligible participants must be pregnant at the time of the survey or have recently given birth between March 2020 and April 2021. Participants also needed to be at least 18 years old, female, Black/African American, or bi-racial with one race identifying as Black/African American.

3.2.2. Research Design and Procedures

The quantitative study was conducted with pregnant and postpartum Black women living in the United States from January to April 2021. This study used a quantitative descriptive

research methodology to investigate the additional barriers that Black pregnant and postpartum women face when it comes to addressing their mental health needs. The online survey was hosted by Qualtrics, which was employed as a recruitment tool. The qualified participants were filtered using a six-question screener devised by the lead investigators. The survey screener questions drew a total of 330 responses, however only 120 of these met the inclusion criteria. During the filtering process, surveys with data inconsistencies between the screener and demographics questions were removed, as were surveys with a completion duration of less than 15 minutes. A total of 102 valid surveys were found to meet the screening criteria.

3.2.3. Instruments

A pilot test with eight participants was undertaken to discover survey difficulties and technical concerns. The goal of the pilot test was to address issues with phrasing, sentence structure, and completion time. The final survey comprised 100 questions, including "yes/no/don't know," multiple-choice, Likert scale, and six open-ended text items, after pilot testing. There were various elements to the online quantitative survey.

The first section of the study used the Pandemic-Related Pregnancy Stress Scale (PREPS) to obtain information on pandemic-related mother stress and anxiety. Participants who self-identified as pregnant answered questions about pregnancy in this section, whereas those who self-identified as postpartum answered questions on the postpartum period. The Superwoman Schema framework, which covers concerns of strength, obligation, and resistance to vulnerability for Black women, was the subject of section two questions. The validated Edinburgh Postnatal Depression Scale was used in section three of the survey to obtain data on maternal depression (EPDS).

The General Anxiety Disorder Scale (GAD) and the Patient Health Questionnaire-4 were used in section four to collect data on general anxiety and depression (PhQ-4). Section five gathered information on technology access, including whether participants have internet connection and how they use it. The sixth section examines the types of resources employed to address Black pregnant and postpartum women's mental health needs throughout the pandemic. Participants who indicated in section seven that they had not had a virtual visit during the pandemic were asked to fill out sections seven and eight, which collected data on their telehealth experience and satisfaction. Participants who answered that they had not had a virtual visit during the epidemic in part seven were asked to complete section nine. The purpose of section nine was to examine why these individuals did not employ virtual visits during the pandemic. Section ten gathered information on ethnicity and race, as well as location, age, gestational age, income, educational achievement, and health insurance.

In addition to the quantitative research methods employed in this thesis, social media, specifically Instagram (Menlo Park, CA), was used to construct a social media plan and launch the campaign.

3.2.4. Plans for data analysis

The data acquired in the survey was self-reported, and the analysis was done in two parts. The first principal investigators of the study finished step one, which included descriptive statistics. An external evaluator performed step two of the analysis, which included inferential statistics and sub-group analysis.

3.2.5. Ethical considerations

This research effort was authorized by the Georgia Tech research ethics board, and Institutional Review Board (IRB) permission was required because the study involved human

subjects and their personal health information. The protocol and study instruments were submitted to Georgia Tech IRB (H20279) and approval was granted effective December 18, 2020.

3.3. Social Media Proposal

3.3. 1. Introduction

During the COVID-19 pandemic, this study aims to learn more about the mental health concerns and challenges that Black pregnant and postpartum women face. The Maternal Mental Health Study's section seven quantitative survey provided the inspiration for the social media proposal to engage Black pregnant and postpartum women. The question below was included to the survey for this thesis research solely to help discover the best mental health support tool that Black pregnant and postpartum women will likely use.

Q1: Have you used any of the following resources to address your mental health during and/or after your most recent pregnancy? Please check all that apply.

- Print resources (e.g., pamphlets, self-help books, etc.) ○ Apps for anxiety, depression, stress, etc. (e.g., Calm, Headspace, etc.) ○ Online Therapist Directories (e.g., PsychologyToday, etc.) ○ Podcasts (e.g., TherapyforBlackGirls, BlackGirlInOm, etc.) ○ Self-tracking devices (e.g., Apple Watch, Fitbit, etc.)
- Email
- Social Media (e.g., Instagram, Facebook, etc.) ○ Video Calls (e.g., Facetime, Zoom) o Other (Please describe) ○ Not Applicable/I have NOT used any resources to address my mental health

3.3.2. Procedure

The Juntos social marketing strategy (Juntos Marketing, 2019) will be utilized to propose a social media plan for targeting Black pregnant and postpartum women that focuses on the most common type of mental health support used during the COVID-19 pandemic among Black pregnant and postpartum women who took part in the Maternal Mental Health Study online survey. The Juntos marketing strategy focuses on four important social marketing elements: co-design, integrated communication, adaptable creative, and a clear call to action (Juntos Marketing, 2019). The Juntos social marketing strategy is developed and customized for this project in the following steps.

Co-Design Approach

This step involves an irritative process in which target audience are in the center of the process and their feedback is heavily incorporated into the implementation of the project.

Communication Channels

This step focuses on creating an integrated communication channels that allows for the key messages and takeaway points to be effectively communicated to the target audience.

Creative Materials

This step in the creation process focuses on using variety of materials and creative executions to deliver the project.

Call to Action

This step focuses on the outcome for the project, and it can be initiated after establishing a target objective. This step depends on the previous steps in the social marketing design to be accomplished.

3.3.3. Design

For the purposes of this project, social media proposal plan will be used to tool for addressing issues of attractiveness and appeal in the delivery of mental health care. Instagram will be the key social media platform for testing and fine-tuning this approach based on feedback from the target group, as part of the Juntos social marketing plan. This social media mental health plan's objectives are to reach the target audience, engage with the social media platform, and generate traffic. The table below lists the social media objectives and how to track them.

Table 3: Social Media Goals and Measurement Techniques.

Goals	How to Measures
Reaching the target audience	▪ Using hashtags (creating hashtag that are specific for the target population) ▪ Example of hashtags used for this platform (#blackmaternalmentalheath #mentalhealth4bw #blackmothersmatter)
Engagement with social media platform (Instagram)	▪ Likes and shares ▪ Growth in followers ▪ Comments on posts ▪ Answering questions on the Instagram stories
Traffic generation	▪ Use Instagram insights to determine how many followers the account has generated ▪ Ask current followers to share the account with family and friends

The following social media plan outlines the general aim for using Instagram to create a forum for Black pregnant and postpartum women. The goal is to raise awareness and establish an online community for Black pregnant and postpartum women to talk about mental health issues. This strategy will be conducted using Instagram as the primary communication channel, with Instagram stories and posts used to share mental health content and start a conversation.

Background

Lack of mental health support forms that focus on Black pregnant and postpartum women

Objective

Awareness and building an online community to discuss Black pregnant and postpartum mental health concerns

Goals

- Reaching target audience
- Engagement with social media platform (interactions, comments, likes, etc.)
- Traffic generation (visits and new followers)

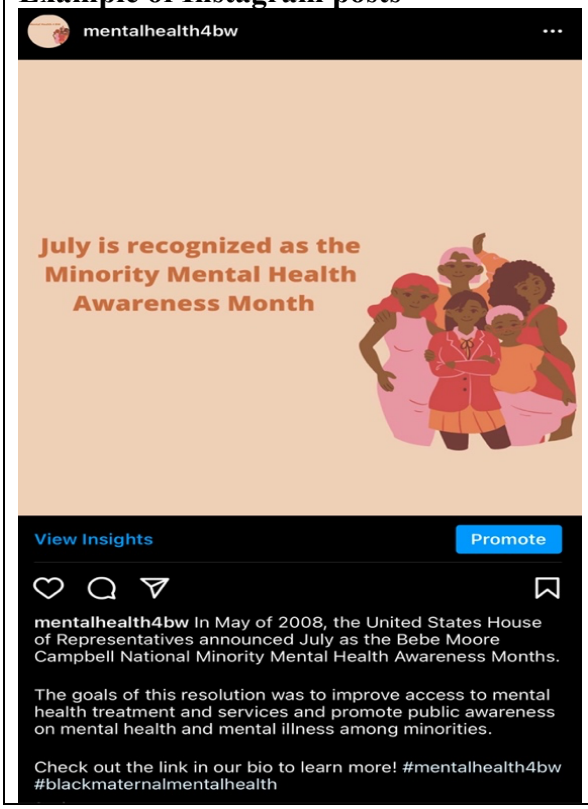
Channels

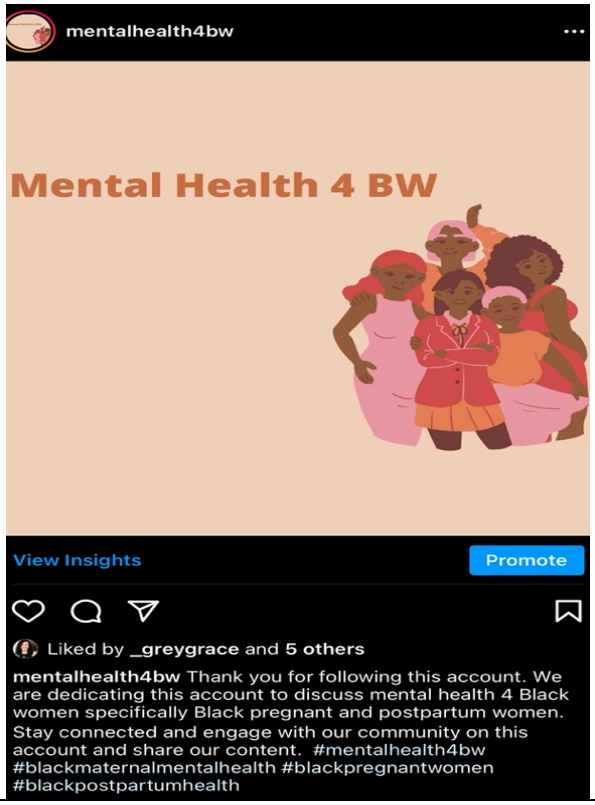
Primary Channel used for this project will be Instagram under the name of Mental Health 4BW

Overview

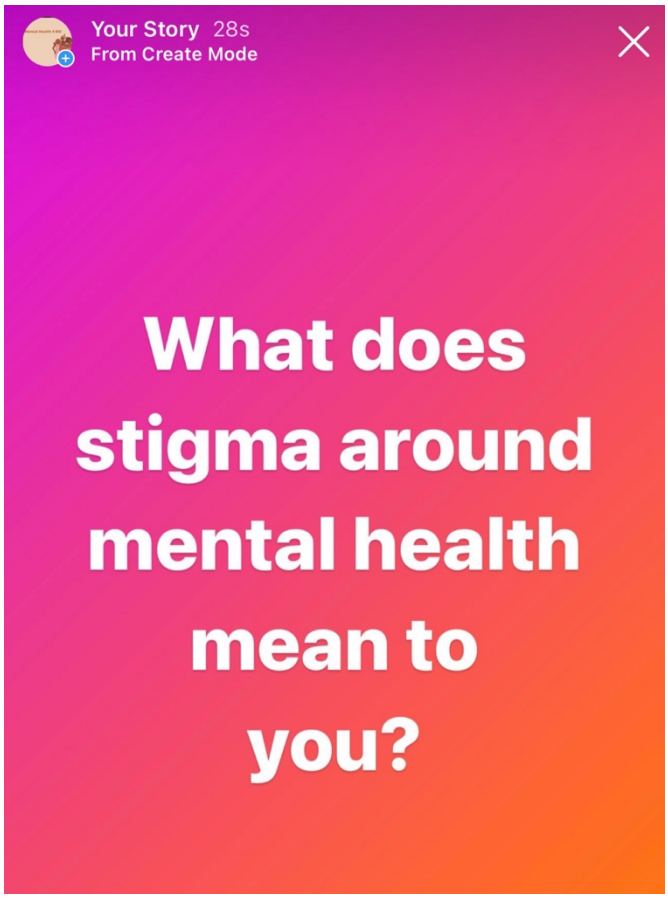
- Use Instagram feed for publishing weekly posts to share information about mental health and continue to build community by sharing conversation starter posts
- Use Instagram stories to ask questions and share news about the account
- Use Instagram bio to share links about published posts and direct followers to learn more

Example of Instagram posts





Example of Instagram stories



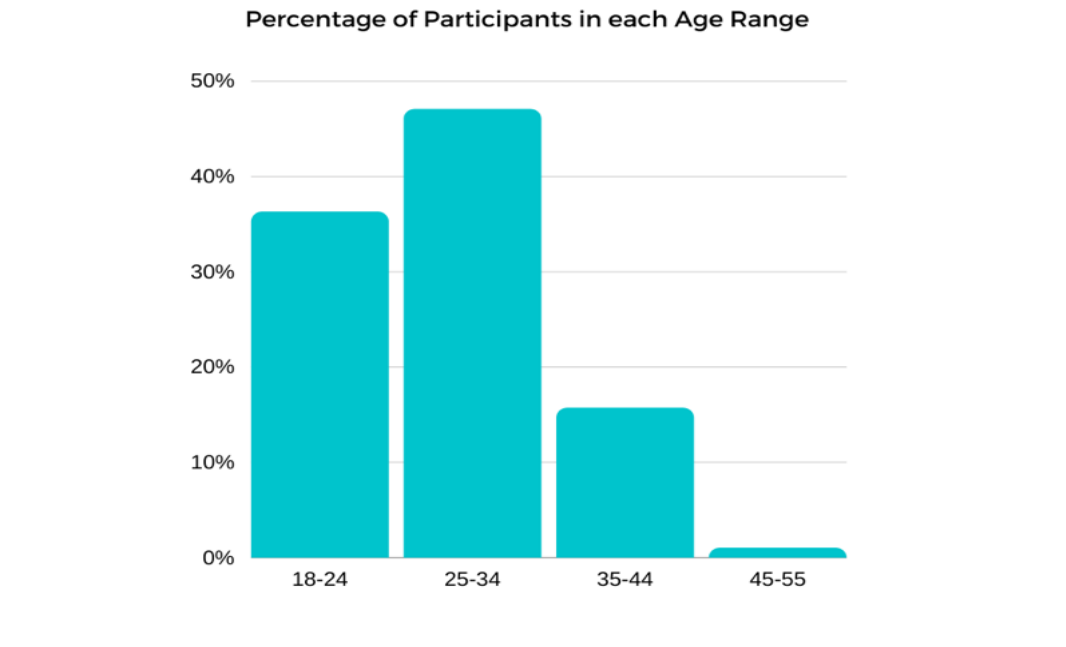
Publishing Schedule	
Instagram Feed	3 times/week
Instagram Stories	5 times/week
Instagram Bio	3 times/week

Chapter 4: Results

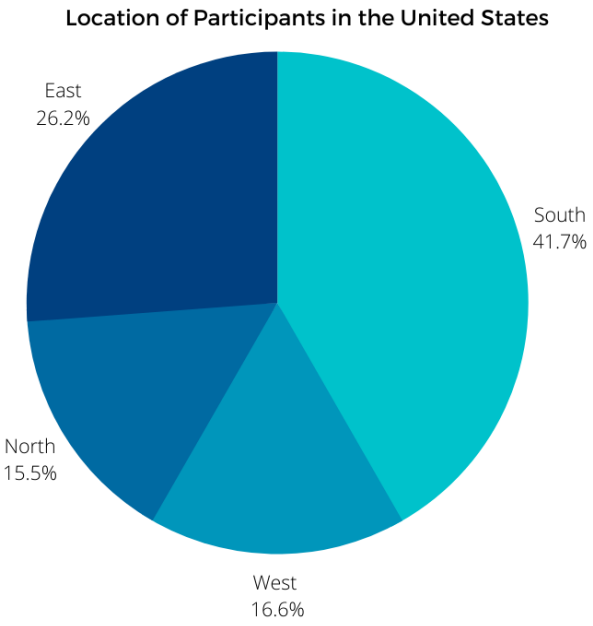
4.1. Results from The Maternal Mental Health Study

The findings in this chapter are from phase one of The Maternal Mental Health Study online survey, which gathered data from 330 Black pregnant and postpartum women. The research was conducted from January to April of 2021. 120 people out of 330 qualified for the online survey and completed it. Due to anomalies in screener and demographic replies, data from 18 individuals was excluded. The survey's results were solely self-reported. Roughly half of the participants were between the age of 25-34 with an average age of 28. About 42% (n=43) of the participants were pregnant and lived in the Southern region of the United States and approximately 51% (n=52) of them self-identified as postpartum during the online survey. Approximately 3% (n=1) of the women in the survey was both pregnant and postpartum during the beginning of the pandemic and delivered a baby as presented in the graphs 1-3 below.

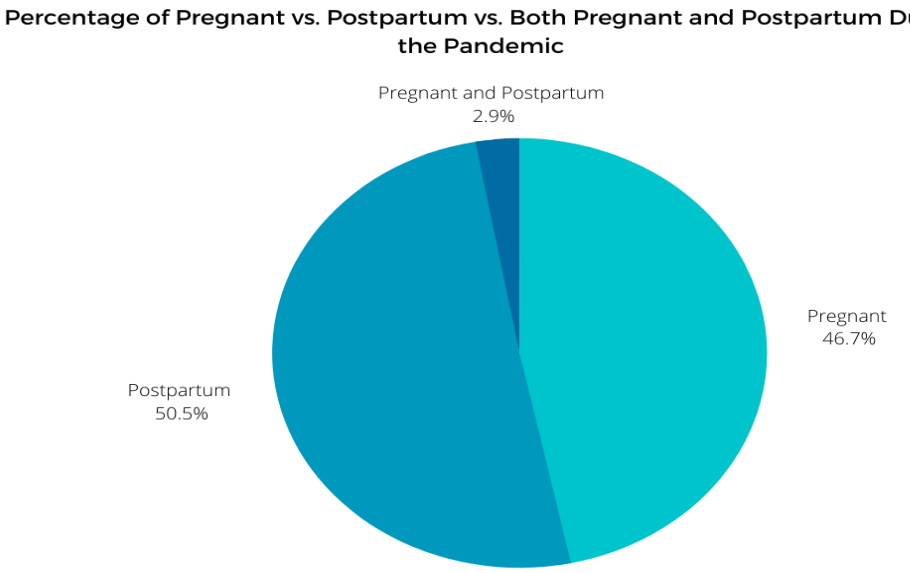
Graph 1: Percentage of Participants in each Age Range



Graph 2: Location of Participants in the United States

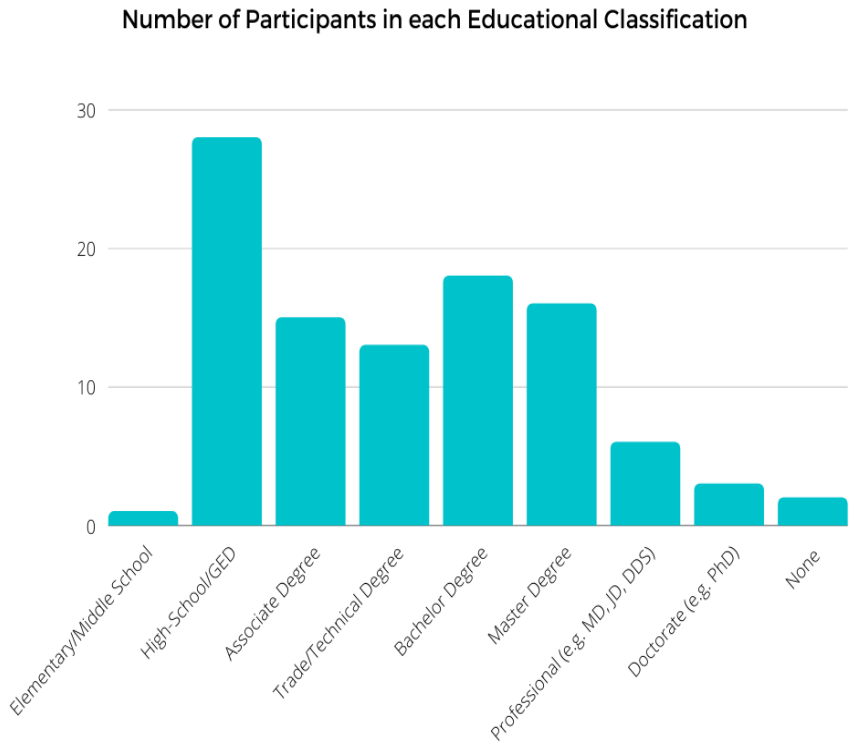


Graph 3: Percentage of Pregnant vs. Postpartum vs. Both Pregnant and Postpartum During the COVID-19 Pandemic



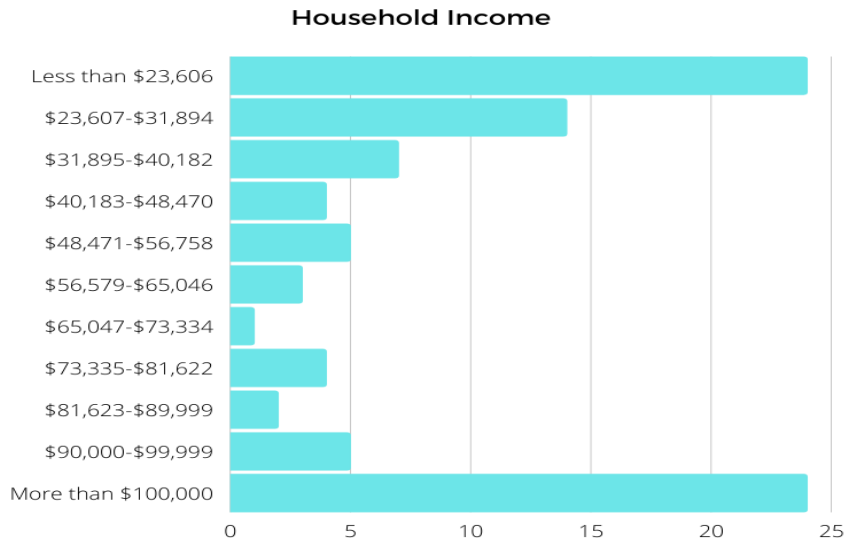
In addition, demographic data such as educational attainment and household income were obtained. About 27% of the participants (n=28) had completed high school, with the highest educational level being a doctoral degree (n=3), which accounted for 3% of the entire sample group.

Graph 4: Educational Attainment Among the Participants



The sample population's household income ranged from the lowest value of $23,606 24,000 to more than $100,000, as seen in graph 5.

Graph 5: Household Income for Participants



The frequency of using digital resources to assist mental health concerns among Black pregnant and postpartum women who participated in the online survey was one of the major outcomes of the study. During the COVID-19 epidemic, social media was mentioned more than half of the time as a source of mental health support for the participants. As stated in table 4, the top four most popular structures utilized by the target demographic were social media, video calls, anxiety/depression/stress apps, and self-tracking gadgets (e.g., Apple watch and Fitbit).

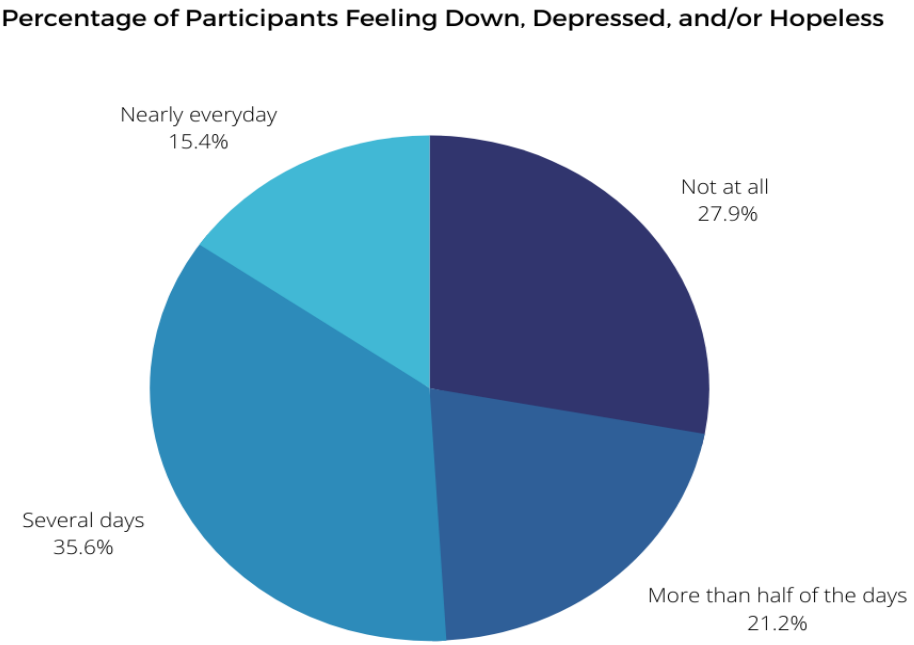
Table 4: Most Popular Mental Health Resources Among the Participants During the COVID-19 Pandemic.

Top 4 Most Popular Mental Health Resources During the Pandemic	
Mental Health Resource	**Numbers of Times Cited**
Social Media	49 times
Apps for Anxiety, Depression, Stress, etc.	46 times
Video Calls	31 times

Self-tracking Devices	29 times

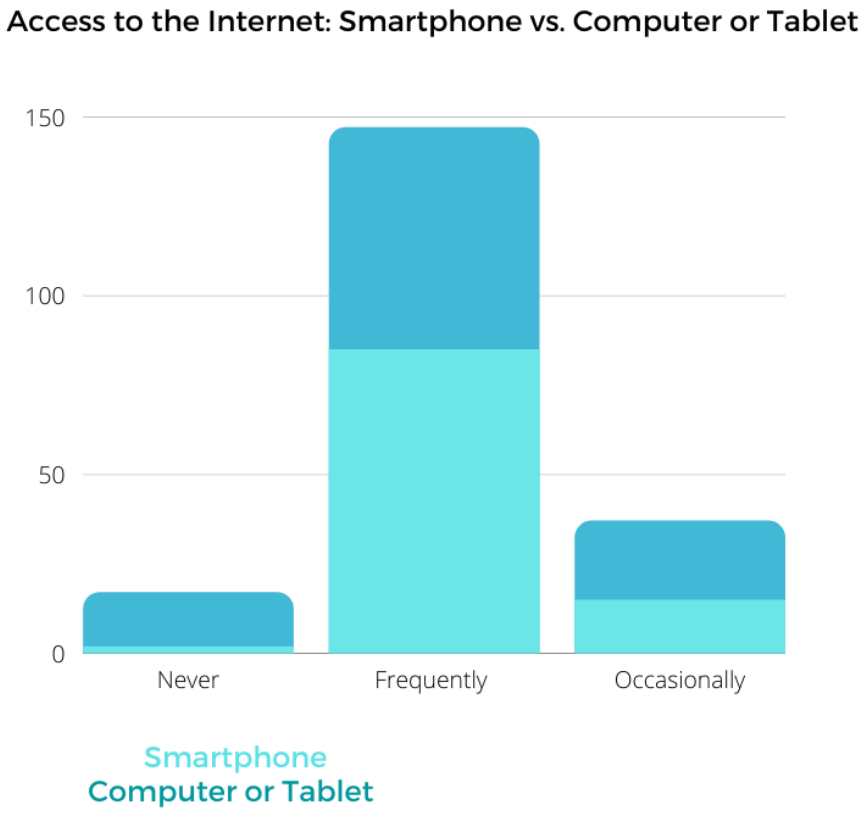
Another important finding of the online survey was the frequency with which participants reported feeling sad, depressed, and/or hopeless in the two weeks leading up to it. According to the data, 72.2% percent of the participants felt gloomy, depressed, and/or hopeless for numerous days in the two weeks leading up to the survey administration while 27.9% of the participants self-reported not at all to the survey questions on feelings of depression and hopelessness.

Graph 6: Percentage of Participants Feeling Down, Depressed, and or/Hopeless During the Last Two Weeks before Taking the Survey.



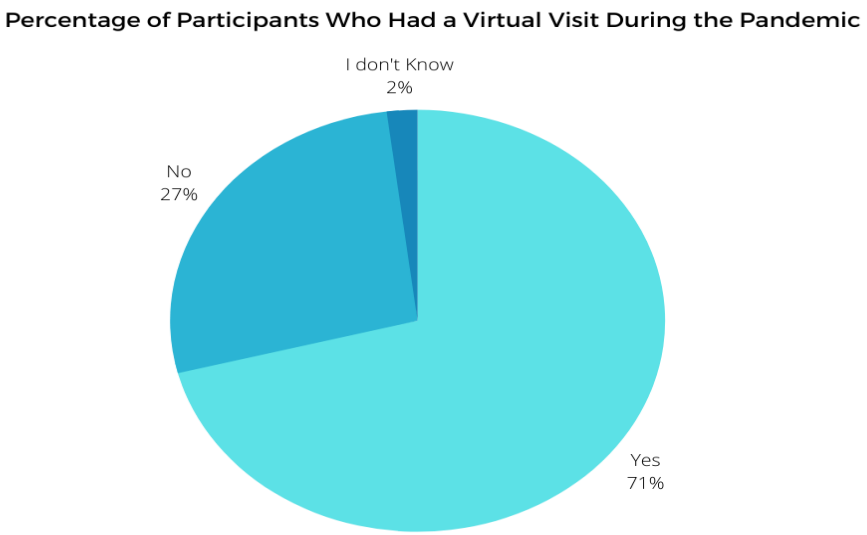
The secondary outcomes investigated the frequency with which people accessed the internet, whether via a smartphone or a computer/tablet. Out of 102 participants, 2 stated that they had never accessed the internet through smartphone, while 15 stated that they had never accessed the internet via computer/tablet. The remaining 85 individuals identified themselves as having frequent internet access through smartphone or computer/tablet.

Graph 7: Access to the Internet from a Smartphone and Computer/Tablet

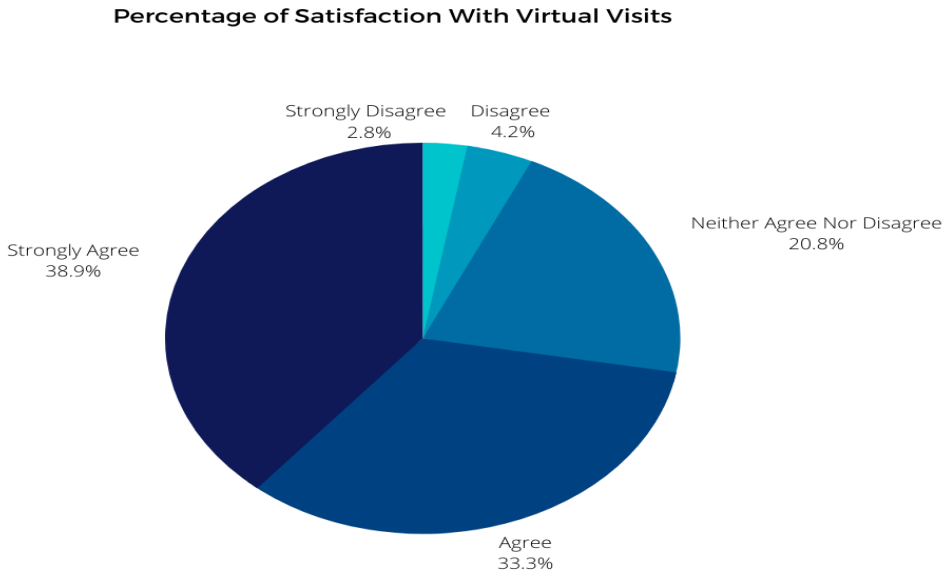


Participants' telehealth virtual visits, whether mental health was covered during the virtual visits, the frequency of telehealth virtual visits, and overall satisfaction with virtual visits were all secondary outcomes investigated in the data. The graphs below show that 72 (71%) of the 102 survey participants were able to finish a virtual visit successfully. Virtual visits with healthcare providers were highly rated by 38.9% (n=28) of the 72 participants who had virtual visits during the COVID-19 pandemic in comparison to the 2.8 % (n=2) who weren't satisfied with virtual visits with healthcare providers.

Graph 8: Percentage of Participants Who Had a Virtual Visit During the Pandemic



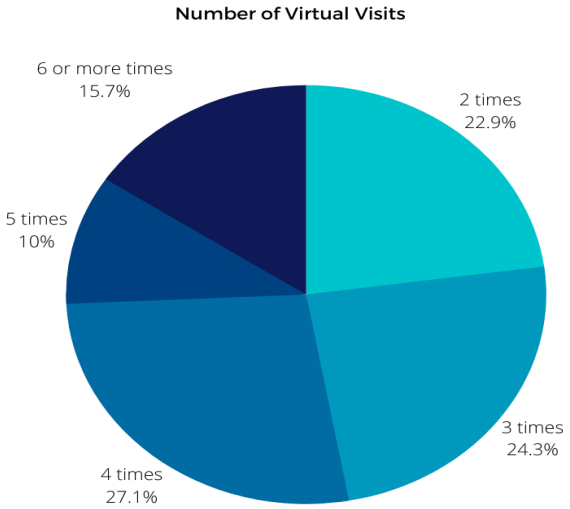
Graph 9: Percentage of Satisfaction with Virtual Visits



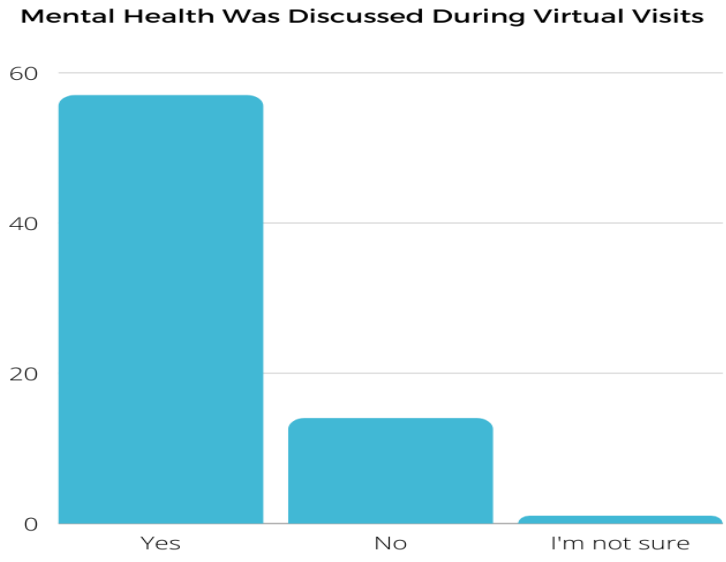
Among the 72 individuals who had telehealth virtual visits, 15.7 % (n=11) had 6 or more visits, the most virtual visits reported in this study, while 22.9 % (n=16) had 2 telehealth visits

during the COVID-19 pandemic, the fewest. With the 72 participants who had virtual visits, 57 participants said that mental health concerns were discussed during the telehealth virtual encounters.

Graph 10: Number of Virtual Visits for Participants



Graph 11: Mental Health Was Discussed During Virtual Visits



Chapter 5: Discussion

5.1. Introduction

The goal of this thesis was to develop a social media strategy geared mostly at Black pregnant and postpartum women to foster community and start a discourse about mental health issues. This section will go over the quantitative survey of the Maternal Mental Health Study's Key Findings. Also, explore the viability of using social media to provide mental health assistance for Black pregnant and postpartum women. Finally, this chapter will go over the limitations, implications, and future research recommendations.

5.2. Interpretations of Major Findings

According to previous mental health research, Black women are the most underserved demographic in the United States when it comes to depression treatment (Nelson et al., 2020). More precisely, just a few research papers looked on Black women's mental health seeking behavior (Nelson et al., 2020). Women also indicated sentiments of neglect and dismissiveness from healthcare providers impacted their pregnancy and delivery experiences, despite the lack of race as a major cause to healthcare provider neglect (Rodríguez-Almagro et al., 2019).
Black pregnant and postpartum women were asked if mental health was discussed in virtual visits during the pandemic in the Maternal Mental Health Study quantitative survey. A large percentage of participants who had virtual visits said that mental health was addressed during the visits. As a result, the findings of this current quantitative survey contradict earlier studies on healthcare providers' dismissiveness in general (Okoro et al., 2020)

Furthermore, qualitative interviews with smaller study population samples have historically been used in research studies focusing on Black women's mental health (Nelson et al., 2020). The Maternal Mental Health Study, on the other hand, was created with a mixed-

methods approach in mind. Recruiting participants for a quantitative survey and then administering a qualitative survey were the first two steps. Quantitative survey data as used in the development of a mental health support network for Black pregnant and postpartum women using social media for this project.

The study's distinctiveness arises from the fact that the COVID-19 pandemic has resulted in an increase in stress and mental health concerns among women (Axia Women's Health, 2020). Anxiety levels among working women in the United States have climbed by 52 percent since February 2020, while depression levels have increased by 83 percent (Total Brain, 2020). Race was not considered in these data. In contrast to the Maternal Mental Health Study, Black pregnant and postpartum women were only asked about feelings of sadness, depression, or hopelessness in the two weeks leading up to the survey. However, the data shows that 72.2 percent of those polled said they felt depressed. Thus, the study's findings align with the evidence that COVID-19 has increased mental health concerns for women.

When it comes to internet access, about 93 percent of adults in the United States utilized the internet in 2020 (Pew Research Center, 2021). The report shows further data into internet use by race and gender which revealed that 91% of Black people and 93% of adult women said that they used the internet in 2020. (Pew Research Center, 2021). The Pew Research Center report didn't provide race/gender-specific information about how Black women specifically utilize the internet. According to the report, roughly three out of every ten adults living in homes with an annual income of less than $30,000 do not own a smartphone. Households with an income of $100,000 or more, on the other hand, have access to modern devices (Pew Research Center, 2021). The most common devices used to deliver telehealth services were cellphones and laptops. The link between household income and internet use during the pandemic is not

supported by this study. Even though all quantitative survey participants had different technological gadgets for internet use throughout the pandemic, only 71 percent completed a virtual visit, according to the statistics.

Social media appeals to Black pregnant and postpartum women who participated in the Maternal Mental Health Study, as discussed in prior chapters. The benefits of social media in encouraging social interaction, promoting engagement and retention in programs, and providing access to peer support networks have all been demonstrated in research on the use of social media to deliver mental health assistance (Naslund et al., 2020). Participants were asked if they used any social media outlets for mental health help during the epidemic in the quantitative survey. As a result, in contrast to past studies, the survey results have been unable to demonstrate those claimed benefits (Naslund et al., 2020).

Similarly, utilizing a co-design strategy focused on social media distribution, social marketing tactics have effectively improved coexisting physical and mental health conditions (Mehmet et al., 2020). As a result, the social media plan created for this project is based on Junto's social marketing approach, which is comparable to that of Junto (Mehmet et al., 2020). However, as of this writing, the planned Juntos social marketing design has not been used to give mental health care; rather, it has been used to evaluate the appeal and attractiveness of using Instagram as a mental health support framework.

5.3. Limitations

There are a number of limitations to understanding Black maternal mental health concerns that should be acknowledged. Methodological limitations were prevalent in this study due to the nature of quantitative surveys in general and the exclusivity of the target population. The purpose of the study was to recruit a sample population who self-identify as Black women,

pregnant and postpartum. This initially posed many challenges because of the lack of established online recruitment algorithms and practices to attract this target audience. This phenomenon is called algorithm bias which contributes to sampling and implicant bias in research (World Economic Forum, 2021).

A dearth of publicly available information and research on Black maternal mental health was another methodological restriction for this study. Even though there is more data on Black maternal health than white women, the literature review has mostly focused on issues of stigma in mental health-seeking behaviors among the wider Black community. Furthermore, because the quantitative survey relies on self-reported data, potential biases such selective remembering and positive attribution should be considered. Furthermore, because this is a quantitative survey based on self-reported data, potential biases including selective remembering and positive attribution can skew the results. Moreover, because this survey was only given to self-identified Black women, there is a risk of selection bias in which the study aimed to minimize by giving a pre-screener to solve this restriction, even though there is a risk of bias in answering those questions that stem from the monetary incentive to take the survey.

The timeframe of the online quantitative survey, which ran from January to April 2021, was influenced by researcher-specific constraints such as time constraints. These time limits were impacted in part by difficulties in recruiting Black pregnant and postpartum women as the study's target demographic. It was also influenced by the lead investigators' journal paper submission date. Finally, there is a lack of generalizability with this demographic due to the lack of a big sample of Black women. Nonetheless, this information does help to explain specific patterns of technology use among Black pregnant and postpartum women during the COVID-19

epidemic. It does not, however, provide a comprehensive grasp of Black maternal mental health difficulties.

5.4. Practical Implications

During the COVID-19 pandemic, this study sheds light on the concerns of Black mother mental health. These concerns have immediate ramifications for practice. The paucity of information and research on Black maternal mental health derives from Black women's lack of access to high-quality, affordable healthcare. As a result, it's critical to investigate how historical, social, political, and economic factors have influenced Black maternal mental health treatment and diagnoses today. This research does not provide a complete picture of the subject. However, during the COVID-19 pandemic, there is an initiative to address questions about Black maternal mental health promotion and technology use.

Due to the granularity of the study topic, we are unable to investigate the role of mental health message promotion among Black pregnant and postpartum women in greater depth. However, due to the paucity of culturally relevant mental health messages directed at this community, this issue needs immediate attention. This information gap could be the foundation and underlying cause of research demonstrating the usage of social media for mental health support. Although beneficial connections and social support have been observed on social media, the problem stems from a lack of structural assistance that debunks mental health misinformation.

The quantitative survey methodologies utilized in phase one of the study did not yield a lot of information on the participants. Given the lack of knowledge about the participants' specific mental health issues, it might be interesting to look for methods to improve access to mental healthcare through policy changes. It is difficult to pinpoint the absence of suitable

mental health resources for Black women, as has been reported in prior studies. It would be good on a policy level if new healthcare policies were enacted. For example, health insurance companies reward customers who visit a doctor for preventive care and mental health treatment. Furthermore, it would be useful on a governmental level if preventative mental health consultations were covered under Medicaid. Black pregnant and postpartum women covered by employer-based healthcare or Medicaid have been encouraged to seek mental health treatment as a result of this policy-focused approach.

5.5. Recommendations for Future Research

One theme that emerges from research on Black Maternal Mental Health is that ethical considerations are at the heart of any public health research. In designing the human subject protocol, a community-engaged approach to address maternal mental health disparities research must include community-based participatory research (CBPR), according to a recent publication (Hernandez et al., 2019). The underprivileged populations' vulnerability to research exploitation and unethical processes may be increased if the CBPR approach is not included during the Individual Review Board (IRB) procedure (Hernandez et al., 2019).

Community healthcare workers (CHWs) have been shown to be effective in addressing a variety of issues in the global public health field and involving CHWs in minority population health could be a crucial step toward addressing overall health inequities and developing more restorative justice-based prevention programs. The New Haven Mental Health Outreach for Mothers (MOMS), for example, is a partnership that aims to develop public health programs to guarantee that pregnant and parenting women in New Haven receive high-quality mental health care (Smith & Kruse-Austin, 2015). This course was designed for community members who do not have clinical experience in maternal mental health but want to work as community health

workers. Future research and investment in community health professionals is needed to address relevant health issues for vulnerable populations using this strategy.

Finally, when it comes to mental health therapy for Black pregnant and postpartum women, it's vital to provide culturally appropriate and responsive mental health care. Mental health practitioners must have special training in order to help people overcome stigma while seeking mental health help and treatment. Being culturally sensitive also assists physicians and patients to build stronger trust, and patients' mental health requirements are met. Furthermore, encouraging Black pregnant and postpartum women to seek mental health support and therapy, as well as asking questions and participating in their treatment plans with mental health practitioners, is crucial. Overall, future Black maternal mental health solutions must include tackling systemic disparities. Future intervention projects and government policies should prioritize the health of Black women and their families.

Chapter 6: Conclusion

The problem of Black maternal mental health as a public health issue was brought to light in this thesis. The Maternal Mental Health Study served as the foundation for this thesis. A quantitative survey was used in the first phase of the study, with Black pregnant and postpartum moms as the target group. The findings inspired the development of a social media-based proposal for address community building and health promotion for Black pregnant and postpartum women to discuss mental health challenges during and post pregnancy. social media when used effectively can be a safe environment for Black women to connect and share mental health challenges.

The burden of the Black Maternal Health Crisis has a significant influence on Black mothers' and families' mental health. The findings presented in this paper come from a variety of research studies in addition to the Maternal Mental Health study used for this thesis. They provide insight into a critical element of the present Black Maternal Mental Health puzzle. As previously indicated, stigma plays a significant role in Black people's perceptions of mental health services. Black women will have the tools they need to overcome such problems with more understanding and access to mental health support. As a result, as explained in this thesis, the ongoing Black maternal health crisis is the result of deep-seated and systemic inequities that are the bedrock of our nation. Addressing those systemic inequities must be part of future strategies to solve this issue. Future intervention initiatives and government policies should prioritize the health of Black women and their families.

Social inequity and structural bias have left their imprint on every aspect of our society. Examining the impact of racism in damaging the health of Black, Brown, and Indigenous people would be crucial for public health practitioners. The lack of recognition and subjugation of

enslaved Black Americans on this territory resulted in injustices that pervaded every social institution. For example, Black women's underlying socioeconomic and health disadvantages date back to the United States' heritage of slavery, and they are inextricably linked to present Black maternal and mental health outcomes. Furthermore, black women face a lack of reproductive justice-based measures to reduce Black maternal death rates, which has an impact on the well-being of Black infants and families.

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Appendix

1. Figures and Tables

Figure 1: Pregnancy-Related Mortality Ratio by Race/Ethnicity: 2014-2017

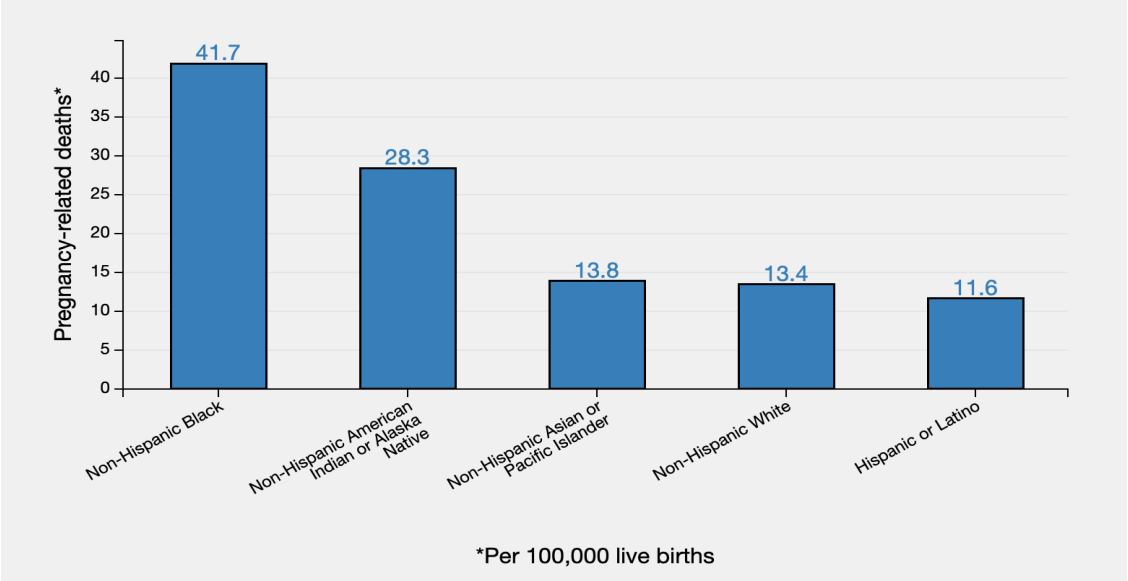

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Figure 2: Socioecological model of African American women sexual and reproductive health influences and outcomes.

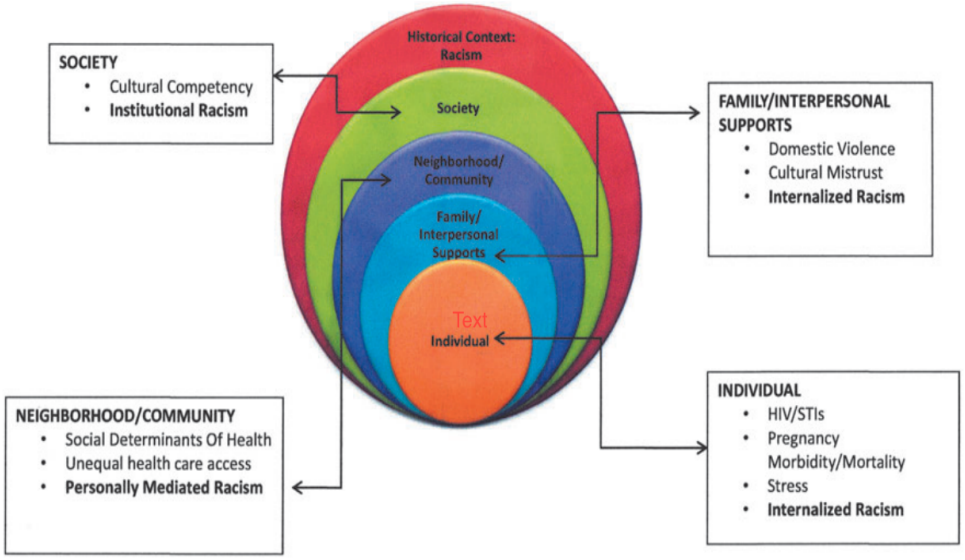

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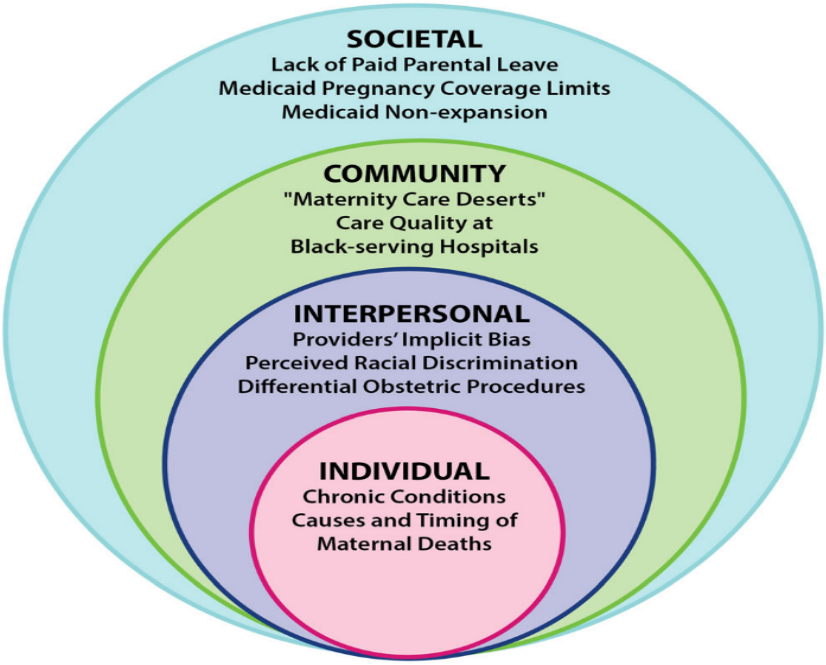
Figure 3: Schematic illustration of Bronfenbrenner's ecological systems theory applied to selected risk factors that contribute to disparities in Maternal Mortality and Morbidity by race.



Noursi, S., Saluja, B., & Richey, L. (2020). Using the Ecological Systems Theory to Understand Black/White Disparities in Maternal Morbidity and Mortality in the United States. *Journal of Racial and Ethnic Health Disparities*, *October*. https://doi.org/10.1007/s40615-020-00825-4

Figure 4: ROOTT Theoretical Frameworks

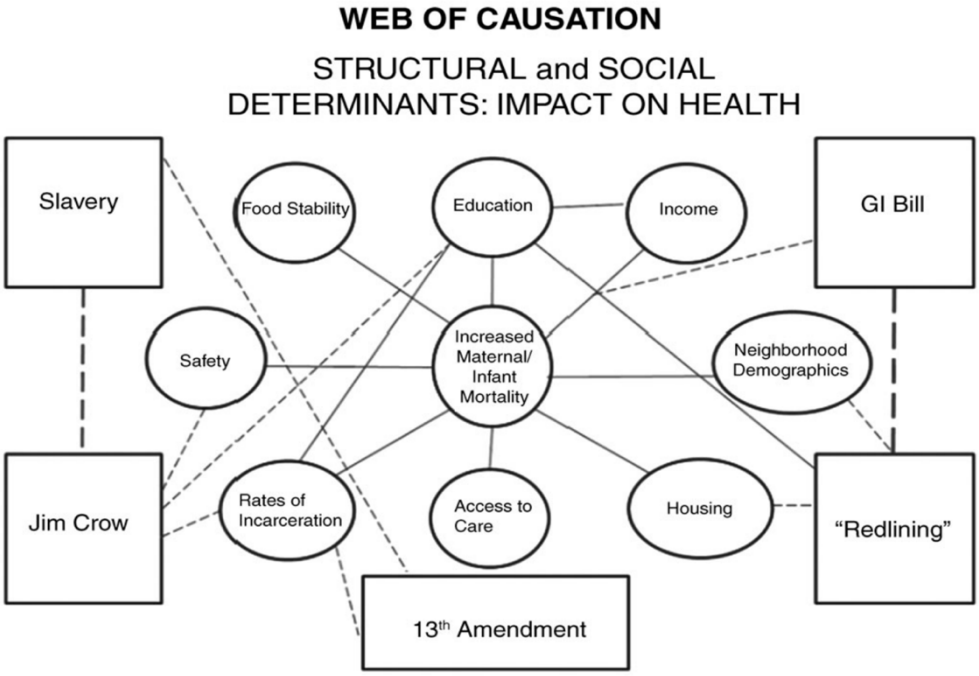


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Figure 5: Preliminary Superwoman Schema Conceptual Framework

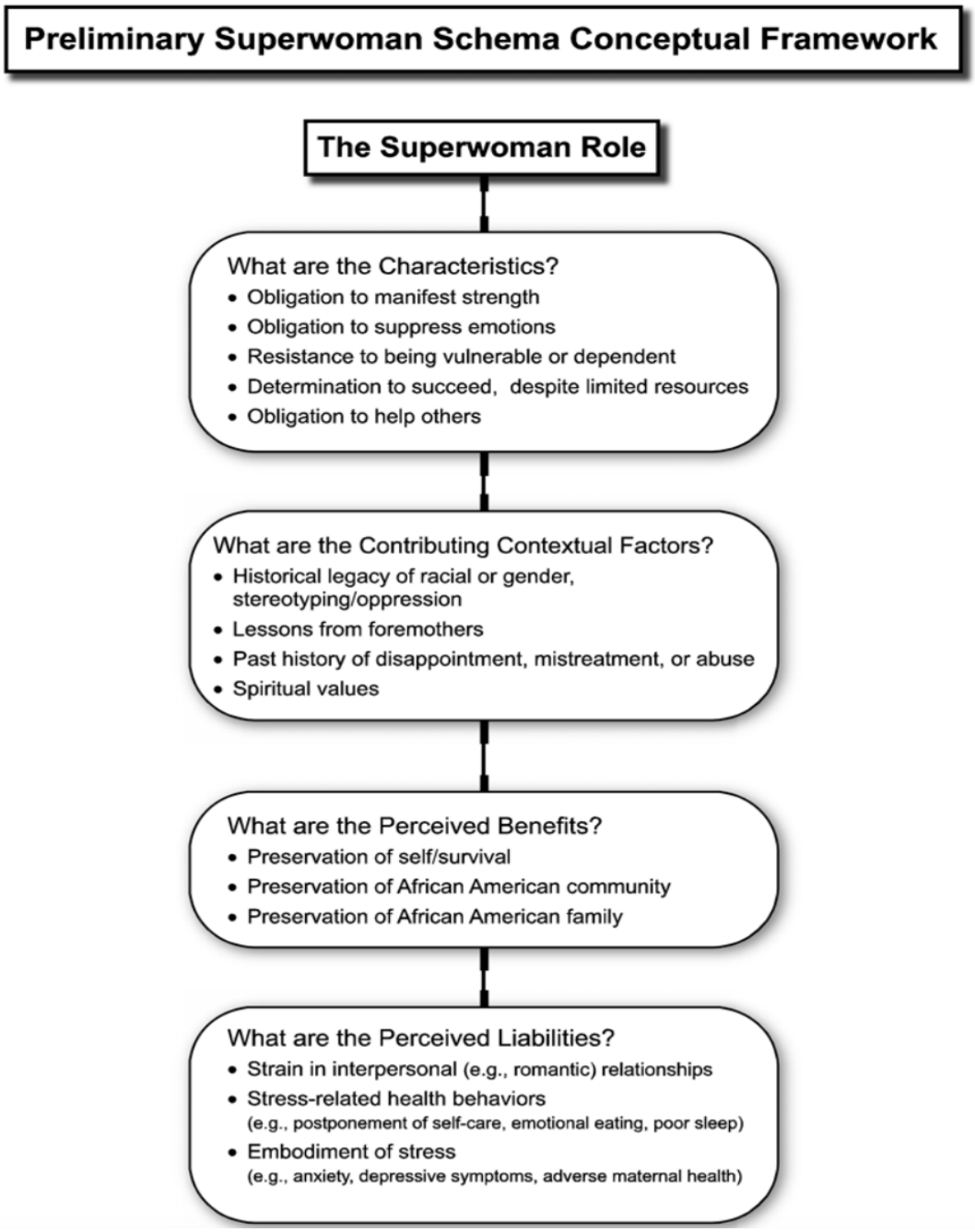

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Table 1: Impact of COVID-19 pandemic on access to care and mental health

Impact of COVID-19 pandemic on access to care and mental health by participant sociodemographic and clinical characteristics.[a] Participants are individuals in the perinatal period, who previously screened positive on Edinburgh Postnatal Depression Scale (EPDS; positive screen defined as ≥10) and participated in an ongoing randomized control trial (RCT) in Massachusetts – the PRogram In Support of Moms (PRISM, conducted 10/2015-present). This sub-study examined participants with at least one interview between March and September 2020.

	Has the pandemic increased your depression?		Has the pandemic increased your anxiety?		Has the pandemic affected your ability to get healthcare?		Has the pandemic affected your ability to get mental healthcare?	
	Not at all (%)	*Any effect (%)*	*Not at all (%)*	*Any effect (%)*	Not at all (%)	*Any effect (%)*	*Not at all (%)*	*Any effect (%)*
All participants (n = 163)	19.3	80.8	11.3	88.8	41.6	58.4	64.1	35.9
>35 years (n = 45)	13.3	86.7	9.1	90.9	37.8	62.2	66.7	33.3
< 35 years (n = 118)	21.6	78.5	12.1	87.9	43.1	56.9	63.0	37.0
College education (n = 72)	11.3*	88.7*	2.8**	97.2**	40.9	59.2	69.8	30.2
Less than college education (n = 91)	25.6*	74.4*	18.0**	82.0**	42.2	57.8	59.4	40.6
Participants of color[b] (n=80)	24.1	76.0	15.4	84.6	43.0	57.0	57.1	42.9
Non-Hispanic White participants (n = 79)	15.4	84.6	7.7	92.3	42.3	57.7	72.4	27.6
Public insurance (n = 74)	28.8**	71.2**	15.3	84.7	43.8	56.2	66.0	34.0
Private insurance (n = 88)	11.5**	88.5**	6.9	93.1	40.2	59.8	63.5	36.5
Married/Partnered (n = 108)	16.0	84.0	5.7**	94.3**	43.4	56.6	63.0	37.0
Unmarried/No partner (n = 55)	25.5	74.6	22.2**	77.8**	38.2	61.8	65.9	34.1
Income <$60,000 (n = 79)	29.5**	70.5**	18.2*	81.8*	41.0	59.0	67.3	32.7
Income ≥$60,000 (n = 68)	7.5**	92.5**	4.5*	95.5*	40.3	59.7	66.7	33.3
Positive EPDS[c] (n = 82)	7.5***	92.5***	1.3***	98.8***	35.0	65.0	53.3*	46.7*
Negative EPDS[c] (n = 79)	31.7***	68.4***	21.8***	78.2***	48.1	51.9	75.4*	24.6*
Positive GAD-7[d] (n = 67)	6.2**	93.9**	3.1**	96.9**	27.7**	72.3**	50.0**	50.0**
Negative GAD-7[d] (n = 96)	28.1**	71.9**	16.7**	83.3**	51.0**	49.0**	75.4**	24.6**
Positive PCL-C[e] (n = 31)	0.0**	100.0**	0.0*	100.0*	33.3	66.7	43.5*	56.5*
Negative PCL-C[e] (n = 132)	23.7**	76.3**	13.7*	86.3*	43.5	56.5	69.2*	30.9*

Table 2:

Unadjusted and adjusted associations of participant characteristics and perceived impact of the COVID-19 pandemic on mental health and access to care. Participants are individuals in the perinatal period, who previously screened positive on Edinburgh Postnatal Depression Scale (EPDS; positive screen defined as ≥10) and participated in an ongoing randomized control trial (RCT) in Massachusetts – the PRogram In Support of Moms (PRISM, conducted 10/2015-present). This sub-study examined participants with at least one interview between March and September 2020.

	Increased depression?				Increased anxiety?				Ability to get healthcare?				Ability to get mental healthcare?			
	OR[a]	95% CI[b]	aOR[c]	95% CI[b]	OR[a]	95% CI[b]	aOR[c]	95% CI[b]	OR[a]	95% CI[b]	aOR[c]	95% CI[b]	OR[a]	95% CI[b]	aOR[c]	95% CI[b]
35 and up (n = 45) (ref: under 35, n=118)	1.26	0.69–2.30	1.23	0.63–2.39	1.05	0.56–1.98	0.93	0.47–1.83	1.39	0.74–2.61	1.32	0.65–2.66	0.95	0.42–2.13	1.63	0.63–4.21
Participants of color (n = 80) (ref: Non-Hispanic White, n=79)	0.63	0.36–1.10	0.55	0.28–1.06	0.68	0.38–1.19	0.58	0.30–1.11	0.97	0.55–1.71	0.78	0.40–1.52	2.03	0.95–4.34	3.25*	1.23–8.59
Income ≥60k (n=68) (ref < 60, n=79)	2.31**	1.28–4.17	2.33*	1.19–4.57	1.96*	1.08–3.56	1.75	0.91–3.37	1.00	0.55–1.80	0.82	0.42–1.61	0.96	0.44–2.12	1.32	0.49–3.52
Positive EPDS[d] (n=82) (ref = negative EPDS, n=79)	3.91***	2.18–7.03	1.81	0.90–3.62	2.65**	1.49–4.71	1.62	0.80–3.27	1.96*	1.11–3.48	1.56	0.77–3.16	2.96**	1.37–6.39	3.25*	1.15–9.17
Positive GAD[e] (n=67) (ref = negative GAD, n=96)	2.77***	1.56–4.90	1.96	0.96–4.02	2.60**	1.45–4.66	2.13*	1.01–4.49	2.66**	1.49–4.76	2.14*	1.01–4.54	3.02**	1.41–6.47	1.94	0.68–5.54
Positive PCL[f] (n=31) (ref = negative PCL, n=132)	3.69***	1.81–7.51	2.79*	1.09–7.13	2.34*	1.14–4.80	1.12	0.43–2.90	1.61	0.79–3.27	1.25	0.50–3.12	2.19	0.95–5.10	1.15	0.35–3.84

Masters, G. A., Asipenko, E., Bergman, A. L., Person, S. D., Brenckle, L., Moore, T. A., Ko, J. Y., Robbins, C. L., & Byatt, N. (2021). Impact of the COVID-19 pandemic on mental health , access to care , and health disparities in the perinatal period. *Journal of Psychiatric Research*, *137*(January), 126–130. https://doi.org/10.1016/j.jpsychires.2021.02.056

2. Maternal Mental Health Survey

Screener

Q17
Please respond to the following screening questions to **determine** your **eligibility participate** inthe study.

Q18 How old are you?

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 or older

Q19: Which of the following applies to you? (Select all that apply).

- I am currently pregnant
- I have delivered a baby in the past 12 months
- I am NOT pregnant and I have NOT delivered a baby in the past 12 months

Q20: How many months pregnant are you?

- 0-3 months (1-12 weeks)
- 4-6 months (13-26 weeks)

O 7 months or more (27 weeks or more)

Q21: How many months postpartum are you (that is, how many months has it been since youhad your last baby)?

O Less than 1 month (0-3 weeks)

O 1 month (4-7 weeks)

O 2 months (8-11 weeks)

O 3 months (12-15 weeks)

O 4 months (16-19 weeks)

O 5 months (20-23 weeks)

O 6 months (24-27 weeks)

O More than 6 months (28 weeks or more)

Q22: What is your gender?

O Male (1)

O Female (2)

O Prefer not to say (3)

O Prefer to self-describe (4)

Q23: How would you describe yourself? (Please check all that apply.)

○ Hispanic or Latino/Latina

○ Black or African American

- ○ Asian
- ○ Middle Eastern
- ○ Native American, Alaskan Native
- ○ Native Hawaiian or Other Pacific Islander
- ○ Indian
- ○ White
- ○ Other _____

Q24: Are you comfortable completing a survey in English?

- ○ Yes
- ○ No

Q25: Do you currently live in Europe?

- ○ Yes
- ○ No

CONSENT FORM (1/3)

Please read this consent form carefully and ask as many questions as you like before you decide whether you want to participate in this research study.You are free to ask questions at any time before, during, or after your participation in this research study. Following the consent form, there will be a short list of pre-screening questionsyou must answer in order to determine your eligibility.

Project Title: Technological Approaches to Maternal Mental Health Promotion Amidst the Pandemic

Investigators:

Andrea G. Parker, PhD

Vanessa Oguamanam, MS

Natalie Hernandez, PhD,
MPH
Rasheeta Chandler, PhD, ARNP, FNP-BC,
FAANPDominique Guilliame, MSN
Sabreen Mohammed

Protocol and Consent Title:
Consent to Participate in Survey

Key Information for this Research Project:

You are being asked to be a volunteer in a researchstudy. We invite you to take part in this research study because you are currently pregnant or had a baby in the past 12 months. This form is to help you decide if you want to take part. Your participation is voluntary. We expect about 500 people across the United States to be in the study. Please carefully read all parts of this consent form. Ask us about any parts or words thatare not clear to you.

The purpose of this research is to help us understand mental health concerns you may have felt during and/or after your most recent pregnancy. We are specifically interested in your experiences during the coronavirus pandemic. This includes your visits with doctors and the quality of care you received, and your mental health experiences more generally. We are also interested in learning how technology can help women manage their mental health during and/or after pregnancy. For example, we are interested in how women are using technology tointeract with their healthcare providers and manage their health during the coronavirus pandemic.
If you take part in this study, you will be asked to complete an online survey asking about your mental health concerns, and if you did have these concerns if you got help. We will also ask you to share your thoughts about how technology has helped you manage your mental health during and/or after pregnancy. The survey will take about 20-25 minutes to complete. You are not likely to benefit from participating in this study. However, for completing this survey,you will receive compensation from the survey recruitment service according to their compensation policy. Also, if you indicate that you would like us to follow-up with you about future research opportunities in the last section of the survey, you may be contacted at a later date to participate in an interview session.

Exclusion/Inclusion Criteria:

To participate, you MUST:
Be 18 and older
Identifyas a female

Identify as Black/African-American or mixed race with Black/African-American being one of the races you identify as

Be pregnant or recently had a baby in the past 12 months

Be able to complete a survey in English

You will NOT be able to participate if you are in a European country at the time ofyour participation.

CONSENT FORM (2/3)

Procedures:

If you take part in this study, you will be asked to take an online survey. The survey will takeabout **20-25 minutes.** Before starting the survey, you will need to go through a checklist to make sure you qualify to take part in the study.

Potential Risks or Discomforts:

You may feel uncomfortable while you take the survey. Some of the questions about your mental health concerns, experiences growing up and doctors' visits during your most recentpregnancy may make you uncomfortable. Please remember that taking part in the study is voluntary. You are free to not answer any questions or stop the survey at any time.

Should you experience any discomfort taking the survey, **mental health resources** in your community are provided **below**:

Georgia Crisis & Access Line: For immediate access to routine or crisis services, please call the Georgia Crisis and Access Line (GCAL) at 1-800-715- 4225. GCAL is available 24 hours a day, 7 days a week and 365 days a year to help you or someone you care for in a crisis.
Disaster Distress Helpline: Call 1-800-985-5990 or text TalkWithUs to 66746.
The Disaster Distress Helpline (DDH) provides crisis counseling and support for anyone in the U.S. experiencing distress or other behavioral health concerns relatedto any natural or human-caused disaster, including public health emergencies.
Crisis Text Line: Text MHA to 741741 and you'll be connected to a trained Crisis Counselor. Crisis Text Line provides free, text-based support 24/7
The Trevor Project: Call 1-866-488-7386 or text START to 678678. A national 24-hour, toll free confidential suicide hotline for LGBTQ youth.

CDC Managing Stress and Anxiety During Coronavirus Pandemic
Parent/Caregiver Guide to Helping Families Cope with Coronavirus

Taking Care of your Behavioral Health During an Infectious Disease Outbreak
The Coping Skills Toolbox
Additional Resources

Potential Benefits:

You are not likely to benefit from participating in this study. By participating in this survey, you w̄ill be providing information that will be useful in developingtools that may help the mental health of pregnant women and new mothers in the United States.

Compensation to You:

You will receive compensation from the survey recruitment service according to their compensation policy.

CONSENT FORM (3/3)

Confidentiality:

Only the survey recruitment service will know about your participation in this study. However, ifyou indicate that you would like to be contacted regarding future research opportunities, then the researchers involved with this project will also know about your participation in this study.
We cannot promise your information will be confidential. We will not give out information about you to anyone without your written consent unless the law says that we must. We respect your privacy. We will not tell anyone facts about you that might reveal you are in this study. Your responses will not be linked to your name and will be kept in locked files. The Georgia Institute of Technology Institutional Review Board -- the committee that approved this research project --may have access to these research records. You will not be identified in any way as being in this research in what we present this or publish.

This survey is being run from an encrypted https server, to minimize the risk that responses could be viewed by unauthorized third parties such as computer hackers. The web page software running the survey will log the IP address of the machine you use to access this page (e.g.,102.403.506.807), but otherwise no other information will be stored unless you explicitly enter it. We will comply with any applicable laws and regulations regarding confidentiality. TheOffice of Human Research Protections may look over study records during required reviews.

Costs to You:

There are no costs to you for being in this study.

In Case of Injury/Harm:

If you are injured from being in this study, please contact Principal Investigator, Dr. Andrea Grimes Parker, Ph.D., at telephone (678) 870-6580. Neither the Principal Investigator nor Georgia Institute of Technology has made conditions for payment ofcosts for an injury resulting from being in this study.

Participant Rights:

Your participation in this study is voluntary. You do not have to be in this study if you don't want to be. You have the right to change your mind and leave the study at anytime without giving any reason and without penalty. Any new information that may make you change your mind about being in this study will be given to you. You do not give up any of your legal rights by signing this form.

Questions about the Study:

If you have any questions aboutthe study, you may contact Dr. Andrea Parker Grimes at telephone (678) 870-6580 or andrea@cc.gatech.edu, or Ms. Vanessa Oguamanam at maternalmentalhealthstudy@gmail.com

Questions about Your Rights as a Research Participant:

If you have any questions about your rights as a research participant, you may contact Ms. Melanie Clark, Georgia Institute of Technology Office of Research Integrity Assurance, at (404) 894-6942 OR Ms. Kelly Winn, Georgia Institute of Technology Office ofResearch Integrity Assurance, at (404) 385- 2175.

Q16: By choosing the "I consent to participate in study", you indicate that you have read (or haveread to you) the information given in this consent form, and you would like to be a volunteer in this study. Please download and/or print a copy of this consent form for your records. Please **select one** of the options below.

Thank you for your time.

- ○ I consent to participate in study
- ○ I do not consent, I do not wish to participate

Q28: First, we would like to understand how the **coronavirus (COVID-19) pandemic** has affectedyour **thoughts and feelings** during and/or after your most recent pregnancy.

Q29

The coronavirus (COVID-19) pandemic may bring up different types of thoughts and feelings during pregnancy. Please read the following statements and answer on the following scale:

	1 - Very Little (1)	2 - Little (2)	3 - Some (3)	4 - Much (4)	5 - Very Much (5)
I am concerned about going to prenatal care appointments due to COVID-19 (1)	○	○	○	○	○
I am concerned that I won't get the prenatal care I need because of COVID-19 (2)	○	○	○	○	○
I am worried that I might get COVID-19 when I go to the hospital to deliver (3)	○	○	○	○	○
I am worried that my baby could get COVID-19 at the hospital after birth (4)	○	○	○	○	○
I feel that COVID-19 is helping me appreciate my pregnancy more (5)	○	○	○	○	○

Q30

Please read the following statements and answer on the following scale:

	1 - Very Little (1)	2 - Little (2)	3 - Some (3)	4 - Much (4)	5 - Very Much (5)
I am worried I will not be able to have someone with me during the delivery (6)	○	○	○	○	○
I am worried I will not be prepared for the birth due to the pandemic restrictions (7)	○	○	○	○	○
I feel that being pregnant is giving me strength during the pandemic (8)	○	○	○	○	○
I am concerned that I am not getting enough healthy food or sleep or exercise because of COVID-19 restrictions (9)	○	○	○	○	○
I am concerned that a COVID-19 infection could harm my baby (10)	○	○	○	○	○

Q31

Please read the following statements and answer on the following scale:

	1 - Very Little (1)	2 - Little (2)	3 - Some (3)	4 - Much (4)	5 - Very Much (5)
I am concerned that a COVID-19 infection could harm my pregnancy (such as miscarriage or preterm birth) (11)	○	○	○	○	○
I am worried that the pandemic could ruin my birth plans (12)	○	○	○	○	○
I am concerned about being separated from my baby after the delivery because of the pandemic (13)	○	○	○	○	○
I think about having a baby to help me get through the pandemic hardships (14)	○	○	○	○	○
I am concerned that people won't be able to help me care for my	○	○	○	○	○

Q32

The COVID-19 pandemic may bring up different types of thoughts and feelings. Please read the following statements and answer on the following scale:

	1 - Very Little (1)	2 - Little (2)	3 - Some (3)	4 - Much (4)	5 - Very Much (5)
I am concerned about going to a postpartum check-up due to COVID-19 (1)	○	○	○	○	○
I am concerned that my baby or I won't get the care we need because of COVID-19 (2)	○	○	○	○	○
I am worried that I might get COVID-19 if I go to a postpartum check-up (3)	○	○	○	○	○
I am worried that my baby could get COVID-19 at a medical check-up (4)	○	○	○	○	○
I feel that COVID-19 is helping me appreciate being a parent (5)	○	○	○	○	○

Q33
Please read the following statements and answer on the following scale:

	1 - Very Little (1)	2 - Little (2)	3 - Some (3)	4 - Much (4)	5 - Very Much (5)
I am worried I will not be able to have visitors during the postpartum period (6)	○	○	○	○	○
I am worried I am not prepared for the postpartum due to the pandemic restrictions (7)	○	○	○	○	○
I feel that being with a new baby is giving me strength during the pandemic (8)	○	○	○	○	○
I am concerned that I am not getting enough healthy food or sleep or exercise because of COVID-19 restrictions (9)	○	○	○	○	○
I am concerned that a COVID-19 infection could harm my baby (10)	○	○	○	○	○

Q34

Please read the following statements and answer on the following scale:

	1 - Very Little (1)	2 - Little (2)	3 - Some (3)	4 - Much (4)	5 - Very Much (5)
I am concerned that a COVID-19 infection could harm me (11)	○	○	○	○	○
I am worried that the pandemic could ruin my postpartum plans or maternity leave (12)	○	○	○	○	○
I am concerned about being separated from my baby because of the pandemic (13)	○	○	○	○	○
I feel that having a baby is helping me through the pandemic hardships (14)	○	○	○	○	○
I am concerned that people won't be able to help me take care of my baby (15)	○	○	○	○	○

Q35: What is one way that you relieve your stress, anxiety, depression, etc.?

End of Block: Pandemic Related Pregnancy/Postpartum Stress Scale PREPS

Start of Block: Super Women Schema Scale SWS

Q70: Now, we would like to learn about **what you believe to be true** about yourself.

Q71 The following is a list of items that may or may not be relevant for you. Some of the questions may sound similar, but each is important. Please read and complete each item to the best of your ability using the response scale provided.

	NOT TRUE for me (1)	TRUE - Rarely (2)	TRUE - Sometimes (3)	TRUE - All the time (4)
I try to present an image of strength. (1)	○	○	○	○
I have to be strong. (2)	○	○	○	○
I feel obligated to present an image of strength at work. (3)	○	○	○	○
I feel obligated to present an image of strength for my family. (4)	○	○	○	○
I display my emotions in privacy. (5)	○	○	○	○
I keep my feelings to myself. (6)	○	○	○	○

Q33 Please read and complete each item to the best of your ability using the response scale provided.

	NOT TRUE for me (1)	TRUE - Rarely (2)	TRUE - Sometimes (3)	TRUE - All the time (4)
My tears are a sign of weakness. (37)	○	○	○	○
I keep my problems bottled up inside. (8)	○	○	○	○
I hide my stress. (9)	○	○	○	○
Expressing emotions is difficult for me. (10)	○	○	○	○
It's hard for me to accept help from others. (11)	○	○	○	○
I have a hard time trusting others. (12)	○	○	○	○

Q34 Please read and complete each item to the best of your ability using the response scale provided.

	NOT TRUE for me (1)	TRUE - Rarely (2)	TRUE - Sometimes (3)	TRUE - All the time (6)
I wait until I am overwhelmed to ask for help. (37)	○	○	○	○
Asking for help is difficult for me. (38)	○	○	○	○
I resist help to prove that I can make it on my own. (16)	○	○	○	○
If I want things done right, I do them myself. (17)	○	○	○	○
I accomplish my goals with limited resources. (15)	○	○	○	○
It is very important for me to be the best at the things I do. (18)	○	○	○	○

Q35 Please read and complete each item to the best of your ability using the response scale provided.

	NOT TRUE for me (1)	TRUE - Rarely (2)	TRUE - Sometimes (3)	TRUE - All the time (4)
No matter how hard I work, I feel like I should do more. (38)	○	○	○	○
I put pressure on myself to achieve a certain level of accomplishment. (36)	○	○	○	○
I take on roles and responsibilities when I am already overwhelmed. (37)	○	○	○	○
I take on too many responsibilities in my family. (22)	○	○	○	○
I put everyone else's needs before mine. (23)	○	○	○	○
I feel obligated to take care of others. (24)	○	○	○	○

Q36 Please read and complete each item to the best of your ability using the response scale provided.

	NOT TRUE for me (1)	TRUE - Rarely (2)	TRUE - Sometimes (3)	TRUE - All the time (4)
When others ask for my help, I say yes when I should say no. (25)	○	○	○	○
I neglect my health (e.g., I don't exercise or eat like I should). (26)	○	○	○	○
I neglect the things that bring me joy. (27)	○	○	○	○
I feel guilty when I take time for myself. (28)	○	○	○	○
The struggles of my ancestors require me to be strong. (39)	○	○	○	○
I keep my problems to myself to prevent burdening others. (40)	○	○	○	○

Q37 Please read and complete each item to the best of your ability using the response scale provided.

	NOT TRUE for me (1)	TRUE - Rarely (2)	TRUE - Sometimes (3)	TRUE - All the time (4)
I do things by myself without asking for help. (31)	○	○	○	○
The only way for me to be successful is to work hard. (32)	○	○	○	○
I am a perfectionist. (33)	○	○	○	○
There is no time for me, because I am always taking care of others. (34)	○	○	○	○
I have to be strong because I am a woman. (35)	○	○	○	○

End of Block: Super Women Schema Scale SWS

Start of Block: Edinburgh Postnatal Depression Scale EPDS

Q54: As you are pregnant or have recently delivered, we would like to know **how you are feeling**.Please select the answer that comes closest to how you have felt **in the past 7 days**, <u>not</u> just how you feel today.

Q55: In the past 7 days, I have been able to laugh and see the funny side of things.

○ As much as I always could

○ Not quite so much now

○ Definitely not so much now

○ Not at all

Q56: I have looked forward with enjoyment to things.

- ○ As much as I ever did
- ○ Rather less than I used to
- ○ Definitely less than I used to
- ○ Hardly at all

Q57: I have blamed myself unnecessarily when things went wrong.

- ○ Yes most of the time
- ○ Yes, some of the time
- ○ Not very often
- ○ No, never

Q58: I have been anxious or worried for no good reason.

- ○ No, not at all
- ○ Hardly ever
- ○ Yes, sometimes
- ○ Yes, very often

Q59: I have felt scared or panicky for no good reason.

- ○ Yes, quite a lot
- ○ Yes, sometimes

- ○ No, not much
- ○ No, not at all

Q60: Things have been getting on top of me.

- ○ Yes, most of the time I haven't been able to cope at all
- ○ Yes, sometimes I haven't been coping as well as usual
- ○ No, most of the time I have coped quite well
- ○ No, have been coping as well as ever

Q61: I have been so unhappy that I have had difficulty sleeping.

- ○ Yes, most of the time
- ○ Yes, sometimes
- ○ Not very often
- ○ No, not at all

Q62: I have felt sad or miserable.

- ○ Yes, most of the time
- ○ Yes, sometimes
- ○ Not very often
- ○ No, not at all

Q63: I have been so unhappy that I have been crying.

- ○ Yes, most of the time

○ Yes, quite often

○ Only occasionally

○ No, never

Q64: The thought of harming myself has occurred to me.

○ Yes, quite often

○ Sometimes

○ Hardly ever

○ Never

End of Block: Edinburgh Postnatal Depression Scale EPDS

Start of Block: General Anxiety Disorder Scale GAD-7/PHQ-4

Q67: Now, we would like to know about your **emotional state** over the **past two weeks**.

Q44 Over the last two weeks, how often have you been bothered by the following problems?

	Not at all (1)	Several days (2)	More than half the days (3)	Nearly every day (4)
Feeling nervous, anxious, or on edge (1)	○	○	○	○
Not being able to stop or control worrying (2)	○	○	○	○
Worrying too much about different things (5)	○	○	○	○
Trouble relaxing (10)	○	○	○	○

Q45 Over the last two weeks, how often have you been bothered by the following problems?

	Not at all (1)	Several days (2)	More than half the days (3)	Nearly every day (4)
Being so restless that it is hard to sit still (7)	○	○	○	○
Becoming easily annoyed or irritable (8)	○	○	○	○
Feeling afraid as if something awful might happen (3)	○	○	○	○
Little interest or pleasure in doing things (10)	○	○	○	○
Feeling down, depressed, or hopeless (11)	○	○	○	○

End of Block: General Anxiety Disorder Scale GAD-7/PHQ-4

Start of Block: Baseline Technology Access Information

Q2: This next section will ask you general questions about your **access to technology.**

Q3: Do you have a computer, tablet, or smartphone?

○ Yes

○ No

○ Prefer not to say

Q4: How often do you have access to the Internet?

○ Never

○ Occasionally

○ Frequently

○ Prefer not to say

Q5 How do you access the Internet? Choose one response from each row . . .

	Never (1)	Occasionally (2)	Frequently (3)	Prefer not to say (4)
From my smartphone (1)	○	○	○	○
From my computer at a public source (e.g., a library) (3)	○	○	○	○
From a computer or tablet at the home of a friend or family member (4)	○	○	○	○
From a computer or tablet at home (5)	○	○	○	○
From a computer or tablet at work (6)	○	○	○	○

End of Block: Baseline Technology Access Information

Start of Block: Technology Use and Satisfaction for Mental Health Resources

Q77: Please answer the following questions thinking about your **experiences** with **using resourcesfor your mental health** (e.g., depression, anxiety, stress, PTSD, etc.), during and/or after yourmost recent pregnancy.

Q78: Have you **used** any of the following **resources to address your mental health** during and/orafter your most recent pregnancy? Please <u>check all</u> that apply.

○ Print resources (e.g., pamphlets, self-help books, etc.)

○ Apps for anxiety, depression, stress, etc. (e.g., Calm, Headspace, etc.)

- ○ Online Therapist Directories (e.g., PsychologyToday, etc.)
- ○ Podcasts (e.g., TherapyforBlackGirls, BlackGirlInOm, etc.)
- ○ Self-tracking devices (e.g., Apple Watch, Fitbit, etc.)
- ○ Email
- ○ Social Media (e.g., Instagram, Facebook, etc.)
- ○ Video Calls (e.g. Facetime, Zoom)
- ○ Other (Please describe)

_____

- ○ Not Applicable/I have NOT used any resources to address my mental health

Q79 Overall, how **satisfied or dissatisfied** are you with these resources?

	Very dissatisfied (1)	Dissatisfied (2)	Neither satisfied nor dissatisfied (3)	Satisfied (4)	Very satisfied (5)
Print resources (e.g., pamphlets, self-help books, etc.) (x17)	○	○	○	○	○
Apps for anxiety, depression, stress, etc. (e.g., Calm, Headspace, etc.) (x4)	○	○	○	○	○
Online Therapist Directories (e.g., PsychologyToday, etc.) (x10)	○	○	○	○	○
Podcasts (e.g., TherapyforBlackGirls, BlackGirlInOm, etc.) (x11)	○	○	○	○	○
Self-tracking devices (e.g., Apple Watch, Fitbit, etc.) (x16)	○	○	○	○	○
Email (x20)	○	○	○	○	○
Social Media (e.g., Instagram, Facebook, etc.) (x7)	○	○	○	○	○
Video Calls (e.g. Facetime, Zoom) (x21)	○	○	○	○	○
Other (Please describe) (x13)	○	○	○	○	○
Not Applicable/I have NOT used any resources to address my mental health (x14)	○	○	○	○	○

Q80 Please characterize **how often you have used** these resources to **address your mental health needs** during the coronavirus pandemic?

	Never (7)	Rarely (6)	Sometimes (1)	Often (2)	Very Often (3)
Print resources (e.g., pamphlets, self-help books, etc.) (x17)	○	○	○	○	○
Apps for anxiety, depression, stress, etc. (e.g., Calm, Headspace, etc.) (x4)	○	○	○	○	○
Online Therapist Directories (e.g., PsychologyToday, etc.) (x10)	○	○	○	○	○
Podcasts (e.g., TherapyforBlackGirls, BlackGirlInOm, etc.) (x11)	○	○	○	○	○
Self-tracking devices (e.g., Apple Watch, Fitbit, etc.) (x16)	○	○	○	○	○
Email (x20)	○	○	○	○	○
Social Media (e.g., Instagram, Facebook, etc.) (x7)	○	○	○	○	○
Video Calls (e.g. Facetime, Zoom) (x21)	○	○	○	○	○
Other (Please describe) (x13)	○	○	○	○	○
Not Applicable/I have NOT used any resources to address my mental health (x14)	○	○	○	○	○

Q81 How much have you **experienced** the following **while using social media** during and/or after your most recent pregnancy? Please state how much you **agree or disagree** with the following statements.

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (7)	Agree (8)	Strongly agree (9)
I have been bullied or harassed by others on social media (1)	○	○	○	○	○
I have felt less alone while using social media (10)	○	○	○	○	○
I have asked for support from others on social media (11)	○	○	○	○	○
I have provided support or encouragement to others on social media (12)	○	○	○	○	○

Q82 How much have you **experienced** the following **while using social media** during and/or after your most recent pregnancy? Please state how much you **agree or disagree** with the following statements.

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (7)	Agree (8)	Strongly agree (9)
I have posted things to impress others (13)	○	○	○	○	○
I have tried to show that I am strong woman through my posts (14)	○	○	○	○	○
I have tried to hide my pregnancy or motherhood challenges from others (15)	○	○	○	○	○
I have tried to avoid negative news or information (16)	○	○	○	○	○

Q83 During and/or after your most recent pregnancy, **how often has looking at others' social media posts** made you feel:

	Never (1)	Rarely (2)	Sometimes (7)	Most of the time (8)	Always (9)
Worried, depressed, or anxious (1)	○	○	○	○	○
A sense of peace or calm (10)	○	○	○	○	○
Badly about myself or insecure (17)	○	○	○	○	○
Good about myself (11)	○	○	○	○	○
Encouraged or supported (18)	○	○	○	○	○
Discouraged (19)	○	○	○	○	○

End of Block: Technology Use and Satisfaction for Mental Health Resources

Start of Block: Baseline Telehealth Experience

Q6: Please answer the following questions about virtual healthcare visits. A **virtual visit** is one thatis *not* in the healthcare provider's office. In a virtual visit, you and your provider talk over the phone, or through a computer, tablet, etc.

Q7: During and/or after your most recent pregnancy, did you have any **virtual visits** with ahealthcare provider?

- Yes
- No
- I don't know

Q8 During and/or after your most recent pregnancy, **who** did you have a **virtual visit** with?(Please check all that apply)

- OB/GYN
- Counselor or therapist
- Primary care doctor
- Other (Please describe) _____

Q9: Which of the following **digital devices have you used to** have a **virtual visit** with your healthcare providers (e.g., OB/GYN, counselor, therapist, etc.)? Please select all that apply.

- Landline telephone
- Cellphone/smartphone
- Tablet/Ipad
- Smartwatch

○ Computer

○ Other (Please describe) _____

○ I have not used any digital devices to have a virtual visit with my healthcareprovider in the past 12 months

Q10: In the past 12 months, how **many times** have you **had a virtual visit** with a healthcareprovider?

○ 1 time

○ 2 times

○ 3 times

○ 4 times

○ 5 times

○ 6 or more times

Q11: Which of the following statements best describes the **overall experience you feel youreceived** during your most recent virtual visit?

○ My virtual visit experience was **worse than** the experience I usually receive from an in-person healthcare visit

○ My virtual visit experience was **about the same** as the experience I usually receive froman in-person healthcare visit

○ My virtual visit experience was **better than** the experience I usually receive from an in-person healthcare visit

Q12: Did you discuss your mental health (e.g., depression, anxiety, stress, PTSD, etc.) duringany of your **virtual visits**?

○ Yes

○ No

○ I'm not sure/I prefer not to answer

Q84: Please answer the following questions thinking about your **satisfaction with your virtual healthcare visits** during and/or after your most recent pregnancy.

Q85 Please indicate how much you **agree or disagree** with each of the following statements about your most recent virtual visit (Choose one response for each row).

	Strongly Disagree (1)	Disagree (3)	Neither Disagree Nor Agree (4)	Agree (5)	Strongly Agree (6)
I was given enough time for my visit (1)	○	○	○	○	○
I felt the healthcare provider listened to me (2)	○	○	○	○	○
The provider was professional and helpful (4)	○	○	○	○	○
Virtual visits make it easier for me to contact my healthcare provider (7)	○	○	○	○	○
Virtual visits are a convenient way to see my healthcare provider (8)	○	○	○	○	○
Virtual visits save me time (9)	○	○	○	○	○

Q86 Please indicate how much you **agree or disagree** with each of the following statements about your most recent virtual visit (Choose one response for each row).

	Strongly Disagree (1)	Disagree (3)	Neither Disagree Nor Agree (4)	Agree (5)	Strongly Agree (6)
I felt the healthcare provider was able to address my mental health concerns (10)	○	○	○	○	○
The virtual visits system was easy to use (11)	○	○	○	○	○
In general, I was satisfied with my virtual visit (13)	○	○	○	○	○
I didn't have to worry about getting sick from other patients (14)	○	○	○	○	○
My medical history is too complex for virtual visits (15)	○	○	○	○	○
I struggled to access the virtual visits platform (16)	○	○	○	○	○

Q87: Did the doctor's inability to physically examine you have an effect on whether or not youwould choose this type of visit again or recommend its use to someone else?

○ Yes

○ No

○ I am not sure

Q88: How comfortable were you with the privacy of the virtual visit and the protection of the information you shared with the doctor?

○ Very uncomfortable

○ Uncomfortable

○ Neither comfortable nor uncomfortable

○ Comfortable

○ Very comfortable

Q89 How likely or unlikely would you be to use virtual visits for each of the following situations (Choose one response from each row).

	Very Unlikely (1)	Unlikelv (2)	Neither Unlikely Nor Likely (3)	Likely (4)	Very Likely (5)
Therapy, counseling, or help for a mental health concern (3)	○	○	○	○	○
Second opinion for a mental health concern (1)	○	○	○	○	○
Follow-up mental healthcare from an in-person visit (2)	○	○	○	○	○

Q90: How likely is it that you would recommend virtual visits to another woman who is pregnantor has recently had a baby?

○ Extremely unlikely

○ Unlikely

○ Neither unlikely or likely

○ Likely

○ Extremely likely

Q91: You have indicated that you have **NOT** had any virtual visits with a healthcare provider during and/or after your most recent pregnancy. In this section, we would like to know more about yourreasons why.

Q92 For each of the following statements, please indicate whether it is a *major reason, minor reason, or not at all a reason* for why you **have not used or are not interested** in virtual visits for healthcare during and/or after pregnancy. (Choose one response for each row)

	Major reason (1)	Minor Reason (2)	Not a reason at all (3)
I never received or don't remember receiving any information about virtual visits (2)	○	○	○
I need more information about what virtual visits are and how they work before I make a decision (6)	○	○	○
I have many unanswered questions about virtual visits and haven't been able to find answers (7)	○	○	○
I lack confidence with the idea of receiving healthcare online (8)	○	○	○

Q93 For each of the following statements, please indicate whether it is a major reason, minor reason, or not at all a reason for why you have not used or are not interested in virtual visits for healthcare during and/or after pregnancy. (Choose one response for each row)

	Major reason (1)	Minor Reason (2)	Not a reason at all (3)
I don't understand how a doctor can examine me using two-way video (22)	○	○	○
I am still deciding how I feel about virtual visits (11)	○	○	○
I have no problem scheduling an appointment with my current doctor when I have an immediate health need (9)	○	○	○
I am still unsure about sharing my health information over an electronic device (12)	○	○	○

Q94 For each of the following statements, please indicate whether it is a major reason, minor reason, or not at all a reason for why you have not used or are not interested in virtual visits for healthcare during and/or after pregnancy. (Choose one response for each row)

	Major reason (1)	Minor Reason (2)	Not a reason at all (3)
I am more comfortable having a doctor who speaks my native language (21)	○	○	○
I have no interest at all in such services, even if it the cost of the visit is covered by my insurance plan (22)	○	○	○
I prefer to see a doctor or other healthcare professional in person (15)	○	○	○
I don't have regular internet access (16)	○	○	○

Q95 For each of the following statements, please indicate whether it is a major reason, minor reason, or not at all a reason for why you have not used or are not interested in virtual visits for healthcare during and/or after pregnancy. (Choose one response for each row)

	Major reason (1)	Minor Reason (2)	Not a reason at all (3)
I have had bad online experiences in the past (17)	○	○	○
I find the technology confusing and difficult for me to use (18)	○	○	○
Someone I know used it and had a bad experience (19)	○	○	○

Q96 How likely or unlikely would you be to use virtual visits for each of the following situations? (Choose one response from each row)

	Very Unlikely (1)	Unlikely (2)	Neither Unlikely Nor Likely (3)	Likely (4)	Very Likely (5)
Therapy, counseling, or help for a mental health concern (3)	○	○	○	○	○
Second opinion for a mental health concern (1)	○	○	○	○	○
Follow-up mental healthcare from an in-person visit (2)	○	○	○	○	○

End of Block: Telehealth Non-User

Start of Block: Demographic Information

Q36: Now, we would like to learn a bit more about you.

Q37: Which of the following applies to you? Select all that apply.

- ◯ I am currently pregnant
- ◯ I have delivered a baby in the past 12 months
- ◯ I am NOT pregnant and I have NOT delivered a baby in the past 12 months

Q38: How many months pregnant are you?

- ◯ 0-3 months (1-12 weeks)
- ◯ 4-6 months (13-26 weeks)
- ◯ 7 months or more (27 weeks or more)

Q39: How many months postpartum are you (that is, how many months has it been since youhad your last baby)?

- ◯ Less than 1 month (0-3 weeks)
- ◯ 1 month (4-7 weeks)
- ◯ 2 months (8-11 weeks)
- ◯ 3 months (12-15 weeks)
- ◯ 4 months (16-19 weeks)
- ◯ 5 months (20-23 weeks)
- ◯ 6 months (24-27 weeks)
- ◯ More than 6 months (28 weeks or more)

Q40: How many children do you currently have?

- ◯ None, I am currently pregnant with my first child
- ◯ 1

- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more
- ○ Other (Please describe)

Q41: How old are you?

- ○ Under 18
- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 or older

Q42: How would you describe yourself? (Please check all that apply.)

- ○ Hispanic or Latino/Latina
- ○ Black or African American
- ○ Asian
- ○ Middle Eastern
- ○ Native American, Alaskan Native

- ○ Native Hawaiian or Other Pacific Islander
- ○ Indian
- ○ White
- ○ Other _____

Q43: What is your gender?

- ○ Male
- ○ Female
- ○ Prefer not to say
- ○ Prefer to self-describe

Q44: Are you currently?

- ○ Married
- ○ Not married but living with a partner
- ○ Separated
- ○ Divorced
- ○ Widowed
- ○ Never married/single

Q45: What is the highest degree or level of school you have completed?

- ○ None
- ○ Elementary/middle school

- ○ High school diploma or equivalent (e.g. GED)
- ○ Trade/technical college
- ○ Associate's degree (e.g. AS, AA)
- ○ Bachelor's degree (e.g. BS, BA, BFA)
- ○ Master's degree (e.g. MS, MA, MFA)
- ○ Doctorate (e.g. PhD)
- ○ Professional (e.g. MD, JD, DDS)

Q46: In which state do you currently reside?

▼ Alabama (1) ... I do not reside in the United States (53)

Q47: Which statement best describes your current employment status?

- ○ Working (paid employee)
- ○ Working (self-employed)
- ○ Not working (temporary layoff from a job)
- ○ Not working (looking for work)
- ○ Not working (retired)
- ○ Not working (disabled)
- ○ Not working (other)
- ○ Prefer not to answer

Q48: What is your total yearly household income? Please indicate the answer that includes yourentire household income in the previous year (for all adults in your household), before taxes

- ○ Less than $23,606
- ○ $23,607 - $31,894
- ○ $31,895 - $40,182
- ○ $40,183 - $48,470
- ○ $48,471 - $56,758
- ○ $56,579 - $65,046
- ○ $65,047 - $73,334
- ○ $73,335 - $81,622
- ○ $81,623 - $89,999
- ○ $90,000 - $99,999
- ○ $100,000 - $149,999
- ○ More than $150,000
- ○ Prefer not to answer

Q49: How many **adults** (18 or older), including yourself live in your household?

- ○ 1
- ○ 2
- ○ 3
- ○ 4

- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10
- ○ Over 10

Q50: How many **children** (under the age of 18) live in your household?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10
- ○ Over 10

Q51: Do you have health insurance?

- ○ Yes, private health insurance

- ○ Yes, government health insurance (Medicare or Medicaid)
- ○ No
- ○ I do not know

Q52: Where have you gone for an in person visit to address a mental health concern (e.g., anxiety,stress, depression, etc.) during and/or after your most recent pregnancy?

- ○ Primary care physician/doctor's office
- ○ OB/GYN office
- ○ Counselor or therapist's office
- ○ An urgent care center
- ○ An emergency room or emergency department
- ○ I have not had an in-person visit for a mental health concern
- ○ Other (Please Specify) _____

Q53: Do you have a serious underlying medical condition (e.g. chronic lung disease, moderate to severe asthma, serious heart conditions, a condition that causes you to be immunocompromised, obesity, diabetes, chronic kidney disease, or liver disease)?

- ○ Yes
- ○ No
- ○ Prefer not to answer

End of Block: Demographic Information

Start of Block: Follow-up Questions

Q65: **Follow-up**

Thank you for your completing this survey. We may want to reach out to you with follow-upquestions and future study opportunities.

May our staff contact you?

- ○ **YES**, you may contact me for follow-up questions and new study opportunities. (7)
- ○ **NO**, you may not contact me for follow-up information or to alert me to new study (8)

Q66: Please enter your contact information so that we may reach out to you with follow-up questionsand future study opportunities.

- ○ Full Name _____
- ○ Email Address _____

End of Block: Follow-up Questions