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## ABSTRACT

## RESEARCH PROPOSAL: COVID-19 PANDEMIC AND BIRTH EXPERIENCES: DESCRIBING THE RELATIONSHIP BETWEEN POLICIES AND THE BIRTH EXPERIENCES OF GEORGIA MOTHERS

By

KATHERINE RAECHEL THORNBURGH  
B.S., KENNESAW STATE UNIVERSITY

December 5, 2020

INTRODUCTION: A pandemic such as COVID-19 increases stress during pregnancy or early development that can have an adverse effect on the health of an individual. Additionally, COVID-19 affects pregnancy and birth experiences by reducing the number of support personnel and the number of in-person appointments, and possibly potentially separating mother and newborn in the case of a suspected or confirmed COVID-19 status.

The purpose of this capstone is to present a compelling research proposal titled, “COVID-19 Pandemic and Birth Experiences: Describing the Relationship Between Policies and the Birth Experiences of Georgia Mothers” with the following aims:

Specific Aim 1: Describe mothers’ perspectives of COVID-19 policies on their birth experiences and birth plans. To meet this aim, a semi-structured interview will be conducted that inquires on the changes made to mothers’ intended birth plan and how COVID-19 policies affected mothers’ birth experiences—both negatively and positively.

Specific Aim 2: Describe mothers’ perceptions of fair and equitable treatment during pregnancy. To meet this aim, a semi-structured interview will be given to respondents that inquires on personal perceptions of fair and equitable treatment. To meet this aim, respondents will be asked if they felt that all of their questions regarding their pregnancy were being answered, if they felt adequately prepared for labor and post-partum care, and whether they felt their birth experiences met their expectations.

This qualitative data will describe general themes in perception of quality of care and equitable care for various racial, socioeconomic, and insurance coverage status groups.

METHODS: A descriptive, cross-sectional study will be conducted in Georgia, statewide, to describe mothers’ perspectives of COVID-19 policies on their birth experiences, birth plans, and their perceptions of fair and equitable treatment during pregnancy, labor and delivery and post-partum. The study sample will be acquired via an adapted State Electronic Notifiable Disease Surveillance System (SENDSS) case investigation form. Semi-structured interviews will be conducted.

RESEARCH PROPOSAL: COVID-19 PANDEMIC AND BIRTH EXPERIENCES: DESCRIBING THE  
RELATIONSHIP BETWEEN POLICIES AND THE BIRTH EXPERIENCES OF GEORGIA MOTHERS

by

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A Capstone Submitted to the Graduate Faculty  
of Georgia State University in Partial Fulfillment  
of the  
Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA  
30303

APPROVAL PAGE

RESEARCH PROPOSAL: COVID-19 PANDEMIC AND BIRTH EXPERIENCES: DESCRIBING THE  
RELATIONSHIP BETWEEN POLICIES AND THE BIRTH EXPERIENCES OF GEORGIA MOTHERS

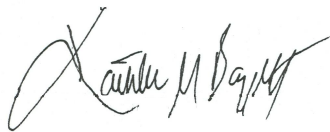
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Approved:

A handwritten signature in black ink, appearing to read "Sarah Mccool".

x  
DR. SARAH MCCOOL-Committee Chair

A handwritten signature in black ink, appearing to read "Kathleen Baggett".

DR. KATHLEEN BAGGETT-Committee Member

December 15, 2020

### Acknowledgments

Dr. Sarah McCool, my committee chair, and Dr. Kathleen Baggett, I cannot express enough gratitude for your continued support and encouragement during this unprecedented time. I offer my sincere appreciation for the mentorship you have provided. My completion of this capstone could not have been accomplished without your support and guidance.

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### Author's Statement Page

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KATHERINE THORNBURGH

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## Introduction

### Aims

Stress during pregnancy, particularly stress caused by a pandemic, can impact the delivery experience and increase the risk of negative health outcomes in both mother and infant. The purpose of this capstone is to present a compelling research proposal titled, “COVID-19 Pandemic and Birth Experiences: Describing the Relationship Between Policies and the Birth Experiences of Georgia Mothers”. A large component of this research is focused on describing the relationship between COVID-19 policies and mothers’ perceptions of birth experiences and changes to their birth plans and their implications for the health of mothers in the state of Georgia. Stress, at any point along the life course, but particularly during pregnancy or early development, can have an adverse effect on the health of an individual; this can be extended to stress related to the COVID-19 pandemic. The COVID-19 pandemic affects the pregnancy and birth experience by reducing the number of support personal in appointments and during labor, reducing the number of in-person appointments, and possibly separating mother and newborn in the case of a suspected or confirmed COVID-19 status. Pregnancy is life-altering, and the lack of support during this time has serious implications for maternal and child health. Numerous hospitals have instated a limit on the number of visitors per labor and delivery patient to one visitor per patient (Arora, Mauch, & Gibson, 2020), it has been advised by the Centers for Disease Control and Prevention (CDC) that mothers with suspected or confirmed infection of SARS-CoV-2 should take measures to minimize the risk of transmission to their neonates and should consider temporarily separating mothers and neonates (Bartick M. , 2020), and prenatal care visits have been altered to offering mostly virtual appoints to reduce in-person contact (Michigan Medicine, 2020). While these policies could have an adverse effect on maternal and



infant health, these policies aim to limit the spread of the virus, protecting both mother and infant. It is important to consider the relationship between maternal and infant health and the administration of these policies in this research. In this proposed project, I aim to describe mothers' perspectives of COVID-19 policies on their birth experiences and birth plans and mothers' perceptions of fair and equitable treatment during pregnancy. I propose the following specific aims:

**Specific Aim 1:** Describe mothers' perspectives of COVID-19 policies on their birth experiences and birth plans. To meet this aim, a series of open and closed ended survey questions will be presented to respondents that inquire on the changes made to mothers' intended birth plan and the relationship between COVID-19 policies and mothers' birth experiences.

**Specific Aim 2:** Describe mothers' perceptions of fair and equitable treatment during pregnancy. To meet this aim, a semi-structured interview will be given to respondents that inquires on personal perceptions of fair and equitable treatment. To meet this aim, respondents will be asked if they felt that all of their questions regarding their pregnancy were being answered, if they felt adequately prepared for labor and post-partum care, and whether they felt their birth experiences met their expectations.

This qualitative data will describe general themes in perception of quality of care and equitable care for various racial, socioeconomic, and insurance coverage status groups.

### **Significance**

In an effort to reduce exposure to SARS-CoV-2, hospitals and care providers across the United States have implemented various policies and procedures for labor and delivery that have potential implications for the health of mothers. Examining the relationship between these policies and procedures and mothers' perceptions of their birth experiences, their birth plans, and

the implications of these policies and procedures on the health of mothers in the state of Georgia is important because pregnancy and childbirth is life altering. The current guidelines for prenatal care are to limit the number of support personnel in the room with the mother during antenatal visits and during labor and delivery, encourage the utilization of telehealth visits, and require a negative COVID-19 test prior to having contact with the newborn (American College of Obstetricians and Gynecologists, 2020). Denying mothers control over their maternity care has a significant impact on the security and safety a mother feels during her pregnancy (Waldenström, Hildingsson, Rubertsson, & Rådestad, 2004). Stress at any point during the life course can have an adverse effect on one's health, but stress during pregnancy, labor, and delivery, even more so (Coussons-Read, 2013). Little data and evidence exist to inform current policies that seek to reduce the spread of SARS-CoV-2, but even less data exists to inform policies and procedures to protect expecting mothers and their newborns.

Various longitudinal studies such as the COVID-19 and Reproductive Effects project (CARE) seek to analyze how the COVID-19 pandemic is related to expecting mothers' prenatal care decisions and birth experiences. It was determined that COVID-19-related financial stress is, in fact, associated with an increased risk of depression amongst expecting women in the United States (Thayer, et al., 2020). An online convenience survey examining how expecting mother's birth plans were altered in response to COVID-19 and 42.5% of respondents reported that they had to alter their birth plans in some way in response to COVID-19 (Thayer, et al., 2020). It is important to note that the study's sample size consists of only 2300 mothers; thus, minority groups who are disproportionately affected may not be represented in the study in a way that considers the disproportionate effects of the COVID-19 pandemic.

A pandemic, such as the COVID-19 pandemic, can elevate stress during pregnancy. COVID-19 policies affect pregnancy and birth experiences by reducing the number of support personnel, the number of in-person appointments, and potentially separating mother and newborn in the case of a suspected or confirmed COVID-19 status; thus, increasing stress experienced by mothers during pregnancy. Stress during pregnancy has been shown to negatively affect mothers' behavior toward their children (Haushofer & Fehr, 2014), is associated with declines in childhood cognitive, behavioral, and motor development (Aizer, Stroud, & Buka, 2016), and is linked with reduced birth weight and increased probability of prematurity (Eskenazi, Marks, Catalano, Bruckner, & Toniolo, 2007); (Camacho, 2008).

Additionally, the COVID-19 pandemic disparately affects some groups of people more than others. American Indians, Hispanic or Latinos, and Black or African Americans are 2.8, 2.8, and 2.6 times more likely to contract COVID-19 respectively, than white, non-Hispanic people (Centers for Disease Control and Prevention, 2020d).

Describing mothers' perspectives of COVID-19 policies on their birth experiences and birth plans, and mothers' perceptions of fair and equitable treatment during pregnancy is critical. By comparing birth experience descriptions against respondent race, ethnicity, socioeconomic status, and insurance coverage status, general themes in mothers' perception of quality of care and equitable care can be identified. A focus on qualitative data is crucial as the identification of novel trends in birth experiences and perception of equitable care will provide a basis for future research and will provide advancements in health equity by identifying trends and themes that may not have been captured by quantitative data. Quantitative data can often overlook key information essential to informing policy decisions that otherwise would be captured by qualitative data.

There is limited data on mothers' perceptions of their birth experiences and changes to their birth plans as well as mothers' perceptions of equitable care. Even more scarce is information on mothers' perceptions of the effects of COVID-19 policies on their birth experiences, and perceptions of equitable care. This proposed research would address the current limitations and gaps in body of knowledge regarding how COVID-19 policies affect these domains, and would provide a basis for future research by identifying domains within obstetric practice where improvements in quality and respectfulness of care should be made.

### **Research Questions.**

**RQ1.** What are mothers' perspectives of COVID-19 policies on their birth experiences and birth plans in Georgia?

**RQ2.** What are mothers' perceptions of fair and equitable treatment during pregnancy during the COVID-19 pandemic in Georgia?

**RQ3.** Do mothers' perceptions of fair and equitable treatment differ based on socioeconomic status, race, ethnicity, and insurance coverage status?

## Literature Review

### Maternal Stress

Maternal stress has been shown to negatively affect mothers' behavior toward their children (Haushofer & Fehr, 2014). Maternal stress is also linked with "less positive parenting, lower levels of cognitive stimulation, and more aggression with children" (Crinik, Greenberg, & Slough, 1986); (Nievar & Luster, 2006); (Gutman, McLoyd, & Tokoyawa, 2005). A 2016 study by Aizer, Stroud, and Buka reported that in-utero exposure to elevated cortisol levels is linked to declines in childhood cognitive, behavioral, and motor development (Aizer, Stroud, & Buka, 2016). Information on adult education, employment, income, disease, and other characteristics between 2002 and 2004 was collected from a subset of 1093 children born to mothers enrolled in the National Collaborative Perinatal Project (NCPP) comprised of 55,908 pregnancies between 1959 and 1965 across 12 cities from public clinics and academic medical centers (Aizer, Stroud, & Buka, 2016). Maternal blood obtained during the third trimester was analyzed for cortisol levels (Aizer, Stroud, & Buka, 2016). It was found that "elevated maternal prenatal cortisol negatively affects offspring human capital accumulation as measured by highest grade completed" (Aizer, Stroud, & Buka, 2016). It has been observed that stress in-utero also "reduces birth weight and increases the probability of prematurity" (Eskenazi, Marks, Catalano, Bruckner, & Toniolo, 2007); (Camacho, 2008). A 2014 study by Dancause, et al. evaluated how a natural disaster, such as the Iowa flood, can predict childhood adiposity by increased stress during pregnancy (Dancause, et al., 2014). It was observed that antenatal depression and an increase in second trimester maternal corticotropin-releasing hormone (CRH) are associated with smaller body size, increased adiposity at age three (Dancause, et al., 2014). Dancause, et al. observed significant increase in total adiposity between the age of two-and-a-half and four years; thus,

“greater subjective maternal distress” predicts greater adiposity at two-and-a-half and four years (Dancause, et al., 2014).

### **Negative Birth Experiences and Respectful Maternity Care**

A positive birth experience is commonly associated with control and self-efficacy during labor—which have been shown to have a “protective effect on labor pain”—, a considerate and supportive care team, and “physical and mental preparation” prior to labor and delivery in the form of courses that prepare expecting mothers with breathing/relaxation techniques and psychological and physiological preparation for birth (Karlstrom, Nystedt, & Hildingsson, 2015). Conversely, a negative birth experience is characterized by unanticipated medical problems including “operative delivery, induction, augmentation of labor, and infant transfer to neonatal care”, absence of support from partner, an undesired pregnancy, pain during labor, absence of control and self-efficacy during labor, and insufficient antenatal checkups (Waldenström, Hildingsson, Rubertsson, & Rådestad, 2004). Negative birth experiences have been shown to have a significant effect on the health of both mother and child (Smarandache, Kim, Bohr, & Tamim, 2016). Negative birth experiences have been associated with posttraumatic stress disorder (PTSD), an increased incidence of Cesarean Delivery (CD), and post-partum depression (PPD) (Smarandache, Kim, Bohr, & Tamim, 2016). A qualitative descriptive study consisting of semi-structured interviews of 32 women from parent support groups and social media groups was conducted with the aim of describing women’s perceptions of a traumatic childbirth experience (Rodriguez-Almagro, et al., 2019). Through a thematic analysis, five themes were identified: “Birth Plan Compliance”, “Obstetric Problems”, “Mother-Infant Bond”, “Emotional Wounds”, and “Perinatal Experiences” (Rodriguez-Almagro, et al., 2019). Most participants

expressed feelings of “being misinformed”, “being disrespected and objectified”, lacking support, “fear, loneliness, traumatic stress, and depression” (Rodriguez-Almagro, et al., 2019).

A foundation for medical decision making is autonomy and self-efficacy, and while that philosophy should be extended to childbirth, often, it is not (Lothian, 2008). In 2007, a book titled “The Painful Truth About Childbirth and Modern Maternity” by Jennifer Block was published, and expressed that antenatal education and birth planning “are a façade” (Block, 2007). This is a concerning, but true fact—expecting mothers face restrictions on the number of support personnel they may have during labor and delivery, restrictions on eating, drinking, walking, choice of care provider, place of birth, and expecting mothers face the withholding or framing of information by care providers to further shape the birth experience (Lothian, 2008). “Women are coerced, steered, or manipulated to choose what others want and expect them to choose” (Lothian, 2008). COVID-19 policies are further restricting women’s autonomy during childbirth.

Expecting mothers have a fundamental right to receiving respectful care before, during, and after labor and delivery. The Respectful Maternity Care (RMC) model is acknowledged as a necessary approach to improving the quality of maternity care and is defined by “emphasizing the fundamental rights of women, newborns, and families (Moridi, Pazandeh, Hajian, & Potrata, 2020). Both negative birth experiences and lack of RMC are associated with adverse maternal and infant outcomes—both physical and psychological (Morton, 2019). Solitude and fear during labor leads to an increase in the production of the stress hormone, cortisol, which has been shown to prolong labor, cause insomnia, manifest abnormalities in blood pressure, and could potentially lead to PTSD and depression (Morton, 2019). RMC on the other hand, shows promise in reducing “maternal deaths and complications”; however, more research is needed as there is

limited evidence on the efficacy of RMC (Morton, 2019). A descriptive, cross-sectional study was conducted in 2019 to determine women's perceptions of RMC during childbirth by obtaining interviews from 150 women admitted to Nepal Medical College and Teaching Hospital's maternity ward (Pathak & Ghimire, 2020). It was reported that 30% of participants were shouted at, 28% did not speak positively about pain relief, 22.7% experienced a delay in service, and 18.7% were slapped (Pathak & Ghimire, 2020). It is critical to understand the women's birth experiences and to identify areas for improvement in respectful care as it has been observed that a lack of respectful care can result in underutilization of care (Bowser & Hill, 2010) and negative birth outcomes (Barrett & Stark, 2010).

### **Coronavirus Disease 2019**

Coronavirus Disease 2019 (COVID-19) is defined by any of the following symptoms: fever, chills, muscle aches, sore throat, runny nose, cough, shortness of breath, trouble breathing, fatigue, nausea, vomiting, and loss of taste and smell (Centers for Disease Control and Prevention, 2020a). Cases are determined via laboratory criteria such as detection using molecular amplification of severe acute respiratory syndrome coronavirus 2 ribonucleic acid (SARS-CoV-2 RNA), or the detection of antigens (Centers for Disease Control and Prevention, 2020a). The COVID-19 RT-PCT test is generally more sensitive than antigen tests—antigen tests demonstrate sensitivity ranging from 84.0% to 97.6% compared to COVID-19 RT-PCR (Centers for Disease Control and Prevention, 2020b). The specificity of the antigen tests, however, is generally as high as the COVID-19 RT-PCR—the reported specificity of the antigen test was reported to be 100% (Centers for Disease Control and Prevention, 2020b). From January 2020 to October 12, 2020, the United States alone has reported 7,740,934 cases—that is 2,339 cases per 100,000 people (Centers for Disease Control and Prevention, 2020c). States such as



Arizona, North Dakota, South Dakota, Iowa, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, South Carolina and Florida have seen, on average, more than 3,000 cases of COVID-19 per 100,000 people from January 2020 to October 12, 2020 (Centers for Disease Control and Prevention, 2020c). American Indians, Hispanic or Latinos, and Black or African Americans are 2.8, 2.8, and 2.6 times more likely to contract COVID-19 respectively, than white, non-Hispanic people (Centers for Disease Control and Prevention, 2020d).

COVID-19 affects groups disparately and expecting mothers could be at higher risk for infection of SARS-CoV-2 due to the upregulation of angiotensin-converting enzyme 2 (ACE2) during pregnancy which is the mechanism by which SARS-CoV-2 enters the cell (Narang, et al., 2020). So far, studies have reported greater risks of complications during pregnancy such as premature birth, preeclampsia, and increased rates of cesarean delivery (CD) which could be the result of the COVID-19 pandemic in the United States (Narang, et al., 2020).

### **Institutional Factors Affect Maternal Health**

Changes in policies and procedures due to the COVID-19 pandemic include a reduction in the number of support personnel in labor and the separation of newborns from their mothers in the case of suspected or confirmed maternal COVID-19 status (Davis-Floyd, Gitschow, & Schwartz, 2020); (de Carvalho, Gibelli, Krebs, Calil, & Johnston, 2020) and the adoption of telehealth or virtual meetings in place of in-person prenatal appointments (Michigan Medicine, 2020). The current guidelines for prenatal care as developed by the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) encourages the use of telehealth for prenatal visits (Narang, et al., 2020). Screening for patients' contact history, history of travel, and symptoms is recommended prior to in-person visits, and presumptive cases should be referred to a testing facility for a SARS-CoV-2 qRT-PCR test (Narang, et al., 2020). Both

patients and health care personnel should wear personal protective equipment (PPE) while in contact with patients (Narang, et al., 2020). It is stressed that only one asymptomatic individual may accompany the mother during labor and delivery to provide support (Narang, et al., 2020). Hospital stays should be limited to one day for a vaginal delivery (VD) and two days for a Cesarean delivery (CD) to reduce exposure to SARS-CoV-2, and visits post-partum should be conducted via telehealth (Narang, et al., 2020). In the instance of a suspected or confirmed mother with COVID-19, the CDC has recommended that institutions should “consider temporarily separating the mother from her infant” until the mother has surpassed her infectious period and is no longer deemed contagious while encouraging the mother to express milk to feed the newborn by an asymptomatic caregiver (Stuebe, 2020). In contrast, the WHO recommends that in the instance of a suspected or confirmed mother with COVID-19, she and her infant “should be enabled to remain together and practice skin-to-skin contact, kangaroo care, and to remain together and practice rooming in throughout the day and night” (Stuebe, 2020).

The separation of mothers and newborns, particularly after being diagnosed with a contagious disease, may have significant negative implications, for example, the disruption of skin-to-skin contact and kangaroo care of mother and infant can disrupt the physiology of the newborn (Stuebe, 2020). Higher respiratory and heart rates have been observed in newborns that have been separated from their mother (Stuebe, 2020). Interruption of breastfeeding prevents the newborn from acquiring immune protection from the antigens present in human milk that appear within the first seven days postpartum (Stuebe, 2020). It has been shown that early separation can cause an increased risk of hospitalization from pneumonia due to lack of breastfeeding (Stuebe, 2020). Overall, breastfeeding duration is decreased when mother and infant are separated (Stuebe, 2020). According to the 2018 Breastfeeding Report Card released on August

20, 2018, 83.2% of the four million babies born in 2015 start out being breastfed; however, at six months of age, only 25% were still being exclusively breastfed (Centers for Disease Control and Prevention, 2020a). It is recommended by the American Academy of Pediatrics that babies are breastfed exclusively for the first six months and a mixture of breastfeeding and the introduction of food for a minimum of one year (The American Academy of Pediatrics, 2012). A 2010 study found that if 80% of mothers did in fact comply with the current medical recommendations regarding breastfeeding, the United States would save approximately \$10.5 billion annually and prevent 741 deaths in excess (Bartick & Reinhold, 2010). The financial burden on the health care system is virtually doubled when separating mother and infant as isolating the mother from her newborn “requires twice the resources: two hospital rooms, two provider teams, and two sets of personal protective equipment (PPE) each time a provider enters or leaves the room” (Stuebe, 2020). Another aspect to consider is that even if strict separation protocols are followed during the maternity stay, exposure following discharge is not addressed.

Companionship and support during pregnancy is critical. It is recommended by the WHO that all pregnant women have companionship during labor as it could potentially improve birth outcomes (World Health Organization, 2016). Mothers who experienced social support during labor, not only have shorter delivery times, but are better able to manage pain without medical intervention (Geneva: World Health Organization, 2013).

Stress during any important point in the life course can have a negative impact on the health of an individual; thus, pandemic-related stress during these important times during the life course, in particular, pregnancy and early development, are likely to result in a negative impact on human health (Gildner & Thayer, 2020). An important determinant of maternal and child health is the access to quality prenatal care (Kozhimannil, Hardeman, & Henning-Smith, 2017);

(Loveland Cook, Selig, Wedge, & Gohn-Baube, 1999). Also, lack of in-person labor and delivery courses, and the restrictions discussed during labor and delivery could prevent mothers from “feeling well-informed and supported by their providers and others” (Gildner & Thayer, 2020). Separation of mothers from their newborns can negatively affect both maternal and newborn health, “including temperature regulation for newborns, increased risk for postpartum depression for mothers, and decreased breastfeeding success” (Stuebe, 2020).

The COVID-19 and Reproductive Effects project (CARE) is a longitudinal study that is designed to evaluate how the COVID-19 pandemic is related to expecting mothers’ prenatal care decisions and birth experiences and will, when finished, address the current limitations and gaps in body of knowledge regarding COVID-19 policies and procedures the effects on maternal and childhood health (Gildner & Thayer, 2020). A convenience sample primarily recruited via social media and distributed via email to contacts working in maternity care was obtained (Gildner & Thayer, 2020). Only pregnant women over 18 years of age and living in the United States were eligible to participate, ultimately, over 2300 women, with 91% of women agreeing to be re-contacted for a follow-up post-natal questionnaire were obtained (Gildner & Thayer, 2020). Frequently reported changes included “shortened hospital stays, switching to an out-of-hospital delivery to avoid exposure to the virus in the hospital, and laboring with fewer support people (either due to hospital restrictions or the fact that their partner must now care for their other children instead of attending the delivery)” (Gildner & Thayer, 2020). Evidence obtained by the CARE program suggests that the COVID-19 pandemic is correlated with negative maternal mental health outcomes possibly due to pandemic-related financial stress (Thayer, et al., 2020). Pandemic-related financial stress was found to be significantly associated with an increase in symptoms of depression, and an increase in diagnosed, clinical depression determined by the

Edinburgh Postnatal Depression Scale (Gildner & Thayer, 2020). It was also found that 42.5% of respondents had to alter their birth plans in some way in response to COVID-19 (Thayer, et al., 2020).

Some limitations of this body of knowledge should be noted. SARS-CoV-2 is a novel virus, and while there are existing studies of the effects of natural disaster on childhood health such as how the Iowa flood predicted childhood adiposity, or how in general, increased stress during pregnancy can increase the risk of adverse birth outcomes such as low birth weight and prematurity, it is not yet empirically known how the COVID-19 pandemic affects maternal and infant outcomes (Dancause, et al., 2014); (Eskenazi, Marks, Catalano, Bruckner, & Toniolo, 2007); (Camacho, 2008). Case reporting and surveillance of COVID-19 cases has faced numerous challenges. Cases of COVID-19 are likely underreported as hospitals, care providers, and laboratories were severely overburdened with case reporting (Centers for Disease Control and Prevention, 2020c). Cases may not have complete data on “patient demographics, clinical outcomes, exposures, and [risk] factors” which would impact the understanding of how the pandemic is affecting individuals in general (Centers for Disease Control and Prevention, 2020c). Cases may also be under-reported due to individuals being asymptomatic and not knowing or suspecting that they have a COVID-19 infection; thus, they are not prompted to get tested, and the actual number of COVID-19 cases is not reported (Centers for Disease Control and Prevention, 2020c).

## Approach

### Methods

A descriptive, cross-sectional study is proposed to be conducted in Georgia, statewide, to gather information that will describe mothers' perspectives of COVID-19 policies on their birth experiences, birth plans, and their perceptions of fair and equitable treatment during pregnancy and labor and delivery. Semi-structured interviews will be conducted with 100 mothers that have delivered within the last six months. The use of semi-structured interviews in this proposed study will aid the research team in the collection of open-ended data and the exploration of the participants' experiences and emotions (DeJonckheere & Vaughn, 2019). The qualitative data obtained from the interviews will deepen researchers' understanding of the relationship between COVID-19 policies and birth experiences, aid in the identification of trends, and provide a basis for future research by identifying domains within obstetric practice where improvements in quality and respectfulness of care should be made.

The study sample (n=100) will be acquired via the adapted State Electronic Notifiable Disease Surveillance System (SENDSS) case investigation form. Females, age 18 and older, that had a live birth within the six months prior to being identified as COVID-19 positive in the SENDSS case investigation form will be included. Females that had a still birth, experienced an extreme complication such as a preterm labor, emergency cesarean, amniotic fluid embolism or did not give birth within the six months prior to the start of this study will be excluded from this study.

The data collection will occur by conducting interviews over the phone, via Skype, or via Zoom with each participant based on the participant's preferred method. The interviews will be semi-structured and will describe mothers' perspectives of COVID-19 policies on their birth

experiences and birth plans, and to describe mothers' perceptions of fair and equitable treatment during pregnancy.

### **Measures**

The domains investigated within this proposed study include prenatal experiences with healthcare providers in relation to COVID-19 policies, birth experiences with healthcare providers in relation to COVID-19 policies, post-partum experiences with healthcare providers in relation to COVID-19 policies, and participant demographics. The 22-question survey (see Appendix B) was developed by first reviewing literature on birth experiences to identify common themes that impact women's birth experiences. Then topics specific to COVID-19 policies and their relationship with birth experiences were established to be covered in the survey. These topics included mothers' perspectives of COVID-19 policies on their birth experiences, perspectives of COVID-19 policies on their birth plans, mothers' perceptions of equitable treatment during pregnancy, if mothers felt adequately prepared for labor and post-partum care, and if mothers felt that their birth experiences met their expectations. Both closed and open-ended questions are used. Open ended questions will allow mothers to give a personalized response that describes their experiences without being swayed by preset answer choices. The researcher will utilize scripted probes within the open-ended questions to motivate the participants to elaborate on the topic and provide the researcher with more details on their experiences. Closed ended questions are asked to obtain demographic information. Finally, questions were ordered in a way such that the topic being explored was discussed from a general perspective to more specific. This sequence of general to more specific questions will aid in the flow of conversation and will help the participant recall details of their experiences by

providing an overview to guide their recollections in a logical structure and sequence of events. The research team will receive training in semi-structured interviewing.

Inter-rater reliability will be assessed by using Krippendorff's Alpha. Krippendorff's alpha is used in thematic analysis where textual transcripts are categorized by any number of readers to measure the degree of agreement between readers (Krippendorff, 2011).

Data collected will be used to describe mothers' perspectives of COVID-19 policies on their birth experiences and birth plans, and to describe mothers' perceptions of fair and equitable treatment during pregnancy.

## **Procedures**

The study sample, of proposed size  $n=100$ , will be acquired via the adapted SENDSS case investigation form. Inclusion criteria are females, age 18 and older, that had a live birth within the six months prior to start of this study. Exclusion criteria are females that had a still birth, experienced an extreme complication such as an emergency cesarean, or did not give birth within the six months prior to the start of this study. Respondents who indicate in the SENDSS case investigation form that they have given birth in the prior six months will be contacted by the research personnel with additional questions to determine eligibility. Once informed consent is given by those who meet the inclusion criteria, the participant will be enrolled in the study and a semi-structured interview conducted over the phone, via Skype, or via Zoom based on what method they are most comfortable with (see Appendix A and B). The semi-structured interview that takes place over the phone inquires on the changes made to mothers' intended birth plans, how COVID-19 policies affected mothers' birth experiences, if the mothers' felt adequately prepared for labor and post-partum care, and whether they felt like their birth experiences met their expectations (see Appendix B). Additional visit and delivery information, as well as



demographic information will be collected (see Appendix B) At the beginning of each interview, the purpose of the interview will be reviewed with each participant. The participant will be instructed to inform the researcher if clarification is needed to ensure that the participant understands the questions being asked of them. At the end of the interview, points reported to the researcher will be summarized, and the participant will be asked if the summary is correct. If the participant does not want to answer a question, they will be permitted to skip the question; however, if more than three questions are skipped, the participant will be dismissed from the study—this policy will be reviewed with the participant prior to the interview. Interviews will not exceed 60 minutes. The data will be collected over a period of six months.

### **Analysis**

It is the goal of this proposed study to describe mothers' perspectives of COVID-19 policies on their birth experiences, their birth plans, and mothers' perceptions of fair and equitable treatment during pregnancy. This qualitative data will be compared against respondent race, ethnicity, socioeconomic status, and insurance coverage status to determine if there are any general themes in perception of quality of care and equitable care.

This data will be analyzed using qualitative data analysis software, NVivo, and thematic analysis will be used to identify themes within the responses. Reliability of the data collected will be enhanced by the Constant Comparative Analysis Method (CCA) which will involve recoding and recategorizing data as themes and categories present themselves. Novel categories will be created when codes do not fit into existing categories. Data collected through interviews with Georgia mothers will be transcribed and analyzed in a three-stage procedure, and as a measure of inter-rater reliability, Krippendorff's Alpha will be used. The first stage will be to transcribe the interviews from audio to text, verbatim, by the research team. The audio data from

interviews will be transcribed into Microsoft Word. The second stage will be to import the transcripts into NVivo where the transcripts will be coded. The third stage will be to develop themes in the data. The themes identified within the data will be compared against respondent race, ethnicity, socioeconomic status, and insurance coverage status. This method of qualitative analysis will deepen researchers' understanding of the relationship between COVID-19 policies and birth experiences, aid in the identification of trends, and provide a basis for future research by identifying domains within obstetric practice where improvements in quality and respectfulness of care should be made, particularly during a pandemic.

### **Limitations**

The approach to this proposed study has strengths and limitations. The main strength is that the qualitative data will provide crucial information on novel trends in birth experiences and women's perception of equitable care will provide a basis for future research and will provide advancements in health equity by identifying trends and themes that may not have been captured by quantitative data. The main limitation of this proposed study is that it will not have a measurement scale, so data will not be quantifiable, and will be purely descriptive, and causality will not be determined. An additional limitation is the use of self-reported data and the possibility of response bias—participants may be inclined to provide a socially acceptable answer as opposed to the truth and the wording of questions may have alternate meanings to participants than to the research team.

### **Innovation**

This proposed study will make a statewide approach to drawing out mothers' voices in a state with one of the poorest histories of healthy birth outcomes and with a history of silencing,

rather than soliciting the voices of black and other minority women. Additionally, there is limited data on women's perceptions of their birth experiences and changes to their birth plans. Even more scarce are women's perceptions on the effects of COVID-19 policies on their birth experiences and changes to their birth plans. This proposed study will obtain critical information on women's perspectives qualitatively because it provides women with the opportunity to share their experiences, thoughts, and feelings and it provides researchers with the ability to identify trends and themes that may otherwise be lost when collecting quantitative data. The identification of novel trends in this study will provide a basis for future research and will provide advancements in health equity by identifying trends and themes that may not have been captured by quantitative data.

## Personnel

A principal investigator (PI) and her team of undergraduate (1) and graduate (2) research assistants (RAs) will be responsible for the following: enrollment, data collection, and data analysis. The PI position will require interpersonal skills, communication skills, and the ability to research and evaluate scientific literature and data. A minimum of four years' experience conducting research is required, as well as a master's degree in public health, anthropology, or another related discipline such as health science. The PI position will be a salaried role. The graduate research assistants (GRAs), of which there are two, will work approximately 8-10 hours per week and will be provided a tuition waiver and small stipend. The assistantship may be renewed to cover multiple semesters until the conclusion of the study. The ideal GRA will have the following skills: exceptional writing, critically thinks, detail oriented, highly motivated, independent, and is completing a graduate degree in a related field. The undergraduate research assistant (RA), of which there is one, will work approximately 8-10 hours per week and will be provided either academic credit or will be paid an hourly rate. The ideal RA will have the following skills and interests: exceptional writing, critically thinks, detail oriented, highly motivated, independent, and has interests in infectious diseases, maternal health, public health, anthropology, or another related discipline.

## **Human Subjects**

This research study will involve human subjects. Potential risks incurred by subjects may include loss of confidentiality, legal action, and potential distress from verbalizing potentially highly emotional events. Only information that is essential to the study will be collected. If PII is to be obtained, encryption measures will be taken immediately to ensure the confidentiality and protection of the PII. Information and data will be stored on password protected computers and only the research team will have access to the devices. Data will be destroyed after one year. If interviewers learn of maternal self-harm or suicide, domestic abuse, or intent to harm, the research team is obligated to report to law enforcement officials or emergency medical services. There is a possibility that while discussing stressful and sometimes traumatic experiences, a participant may become distressed during interview. Procedures have been developed to remediate a variety of situations from distress to crisis. If a participant experiences significant distress during the study, they may be released. If a medical or mental health emergency arises, personnel will contact the appropriate facility to provide emergency medical attention.

Despite these risks, the potential benefits of this proposed study significantly outweigh the risks. The risks of this proposed study are minimal as any questions in the interview process are common to routine care and are unlikely to cause distress among participants. This research would address the current limitations and gaps in body of knowledge regarding how the COVID-19 policies and procedures are affecting maternal health and would serve to inform future policy and decision makers with key information to make better informed decisions about maternal care in future pandemics.

### **IRB Approval**

Prior to the initiation of this proposed study, IRB approval will be obtained.

## References

- Aizer, A., Stroud, L., & Buka, S. (2016, November 6). Maternal stress and child outcomes: evidence from siblings. *Journal of Human Resources*, 3(51), 523-555.
- American College of Obstetricians and Gynecologists. (2020). COVID-19 FAQs for Obstetrician-Gynecologists. Retrieved from ACOG: <https://www.acog.org/clinical-information/physician-faqs/covid-19-faqs-for-ob-gyns-obstetrics>
- Arora, K. S., Mauch, J. T., & Gibson, K. S. (2020, May 22). Labor and delivery visitor policies during the COVID-19 pandemic. *The Journal of the American Medical Association*, 2468-2469.
- Barrett, S. J., & Stark, M. A. (2010). Factors associated with labor support behaviors of nurses. *Journal of Perinatal Education*, 12-18.
- Bartick, M. (2020, March 31). COVID-19: Separating infected mothers from newborns: weighing the risks and benefits. Harvard Medical School: Trends in Medicine.
- Bartick, M., & Reinhold, A. (2010). The burden of suboptimal breastfeeding in the united states: a pediatric cost analysis. *Pediatrics*, 1048-1056.
- Block, J. (2007). *The painful truth about childbirth and modern maternity care*. Cambridge: Da Capo Press.
- Bowser, D., & Hill, K. (2010). USAID: Exploring evidence for disrespect and abuse in facility-based childbirth: report of a landscape analysis. Washington, DC: USAID=TRAction Project.
- Camacho, A. (2008). Stress and birth weight: evidence from terrorist attacks. *American Economic Review-papers and proceedings*, 511-515.

Centers for Disease Control and Prevention. (2020a, September 17). Breastfeeding Report Card.

Retrieved from Centers for Disease Control and Prevention:

<https://www.cdc.gov/breastfeeding/data/reportcard.htm>

Centers for Disease Control and Prevention. (2020a, April 5). Coronavirus Disease 2019 (COVID-19) 2020 Interim Case Definition, Approved April 5, 2020. Retrieved from National Notifiable Diseases Surveillance System (NNDSS):

<https://wwwn.cdc.gov/nndss/conditions/coronavirus-disease-2019-covid-19/case-definition/2020/>

Centers for Disease Control and Prevention. (2020b, September 4). Using Antigen Tests.

Retrieved from Centers for Disease Control and Prevention:

<https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/antigen-tests-guidelines.html>

Centers for Disease Control and Prevention. (2020c, October 12). CDC COVID Data Tracker.

Retrieved from Centers for Disease Control and Prevention: [https://covid.cdc.gov/covid-data-tracker/#cases\\_casesper100k](https://covid.cdc.gov/covid-data-tracker/#cases_casesper100k)

Centers for Disease Control and Prevention. (2020d, August 18). Hospitalization and Death by Race/Ethnicity. Retrieved from Centers for Disease Control and Prevention:

<https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>

CISION PR Newswire. (2020, March 13). MTX to provide U.S. school districts free access to a health monitoring and control app to help fight the spread of the Coronavirus. Retrieved from CISION PR Newswire: <https://www.prnewswire.com/news-releases/mtx-to-provide-us-school-districts-free-access-to-a-health-monitoring-and-control-app-to-help-fight-the-spread-of-the-coronavirus-301023093.html>

- Coussons-Read, M. E. (2013). Effects of prenatal stress on pregnancy and human development: mechanisms and pathways. *Obstetric Medicine*, 52-57.
- Crinik, K., Greenberg, M., & Slough, N. (1986). Early stress and social support influences on mothers' and high-risk infants' functioning in late infancy. *Infant Mental Health Journal*, 19-33.
- Dancause, K. N., Laplante, D. P., Hart, K. J., O'Hara, M. W., Elgbeili, G., Brunet, A., & King, S. (2014, December 11). Prenatal stress due to a natural disaster predicts adiposity in childhood: the Iowa flood study. *Journal of Obesity*, 2015, 1-10.
- Davis-Floyd, R., Gitschow, K., & Schwartz, D. A. (2020). Pregnancy, birth and the COVID-19 pandemic in the United States. *Medical Anthropology*, 1-15.
- de Carvalho, W. B., Gibelli, M., Krebs, V., Calil, V., & Johnston, C. (2020). Expert recommendations for the care of newborns of mothers with COVID-19. *Clinics*.
- DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine and Community Health*.
- Eskenazi, B., Marks, A., Catalano, R., Bruckner, T., & Toniolo, P. (2007). Low birth weight in New York City and upstate New York following the events of September 11th. *Human Reproduction*, 3013-3020.
- Geneva: World Health Organization. (2013). *Counselling for maternal and newborn health care: a handbook for building skills*.
- Georgia Department of Public Health. (2020). State Electronic Notifiable Disease Surveillance System. Retrieved from SendSS: <https://sendss.state.ga.us/sendss/login.screen>



- Gildner, T. E., & Thayer, Z. M. (2020, July 31). Maternal and child health during the COVID-19 pandemic: contributions in the field of human biology. *American Journal of Human Biology*, 1-6.
- Gutman, L., McLoyd, V., & Tokoyawa, T. (2005). Financial strain, neighborhood stress, parenting behaviors and adolescent adjustment in urban African American families. *Journal of Research on Adolescence*, 425-449.
- Haushofer, J., & Fehr, E. (2014). On the psychology of poverty. *Science*, 862-867.
- Karlstrom, A., Nystedt, A., & Hildingsson, I. (2015). The meaning of a very positive birth experience: focus groups discussions with women. *BMC Pregnancy and Childbirth*.
- Kozhimannil, K. B., Hardeman, R. R., & Henning-Smith, C. (2017). Maternity care access, quality, and outcomes: a systems-level perspective on research, clinical, and policy needs. *Seminars in Perinatology*, 367-374.
- Krippendorff, K. (2011). Computing Krippendorff's Alpha-Reliability. *Penn Libraries*, 1.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001, September). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine*, 606-613.
- Levis, B., Benedetti, A., & Thombs, B. D. (2019). Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis. *BMJ*.
- Lothian, J. A. (2008). Choice, autonomy, and childbirth education. *Journal of Perinatal Education*, 35-38.
- Loveland Cook, C. A., Selig, K. L., Wedge, B. J., & Gohn-Baube, E. A. (1999). Access barriers and the use of prenatal care by low-income, inner-city women. *Social Work*, 129-139.

- Michigan Medicine. (2020). Prenatal care during the COVID-19 pandemic: prenatal patient resources. Retrieved from Obstetrics and Gynecology:  
<https://medicine.umich.edu/dept/obgyn/patient-care-services/prenatal-care-during-covid-19-pandemic-prenatal-patient-resources>
- Moridi, M., Pazandeh, F., Hajian, S., & Potrata, B. (2020). Midwives' perspectives of respectful maternity care during childbirth: a qualitative study. *PLOS ONE*.
- Morton, C. H. (2019). Can respectful maternity care save and improve lives? *Birth*.
- MTX. (2019). Emergency response management solutions. Retrieved from MTX:  
<https://www.mtxb2b.com/s/erm-product>
- Narang, K., Enninga, E. L., Gunaratne, M. D., Ibirogbu, E. R., Trad, A. A., Elrefaei, A., . . . Garovic, V. D. (2020). SARS-CoV-2 infection and COVID-19 during pregnancy: a multidisciplinary review. *Mayo Clinic*, 1750-1765.
- Nievar, A., & Luster, T. (2006). Developmental processes in African American families: an application of McLoyd's theoretical model. *Journal of Marriage and the Family*, 320-331.
- Pathak, P., & Ghimire, B. (2020, July 4). Perception of women regarding respectful maternity care during facility-based childbirth. *Obstetrics and Gynecology International*.
- Rodriguez-Almagro, J., Hernandez-Martinez, A., Rodriguez-Almagro, D., Quiros-Garcia, J. M., Martinez-Galiano, J. M., & Gomez-Salgado, J. (2019). Women's perceptions of living a traumatic childbirth experience and factors related to a birth experience. *International Journal of Environmental Research and Public Health*.
- Smarandache, A., Kim, T. H., Bohr, Y., & Tamim, H. (2016). Predictors of a negative labour and birth experience based on a national survey of Canadian women. *BMC Pregnancy and Childbirth*.

Stuebe, A. (2020). Should infants be separated from mothers with COVID-19? First do no harm. *Breastfeeding Medicine*, 351-352. Mary Ann Liebert, Inc.

Thayer, Z., Gildner, T., Lu, A., Milner, B., Craighead, C., & Alston, G. (2020). COVID-19 and Reproductive Effects (CARE) Study. Retrieved from Dartmouth:  
<https://sites.dartmouth.edu/care2020/findings/>

The American Academy of Pediatrics. (2012, March 2012). Policy Statement: Breastfeeding and the Use of Human Milk. *Breastfeeding and the Use of Human Milk Section on Breastfeeding*.

Waldenström, U., Hildingsson, I., Rubertsson, C., & Rådestad, I. (2004). A negative birth experience: prevalence and risk factors in a national sample. *Birth*, 17-27.

World Health Organization. (2016). *Companion of choice during labour and childbirth for improved quality of care*. World Health Organization.

## Appendix A

### Consent for Participation in Interview Research

I volunteer to participate in a research project conducted by [Name of the Principle Investigator] from Georgia State University. I understand that the project is designed to gather information about birth experiences during the COVID-19 pandemic.

My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty.

1. If I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.
2. Participation involves being interviewed by researchers from Georgia State University. The interview will last approximately one hour. Notes will be taken during the interview by the interviewer, and the interview will be audio recorded. If I don't want to be recorded, I will not be able to participate in the study.
3. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, nor will any identifying information be used in future publications. My confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the confidentiality of individuals and institutions.
4. I understand that this research study has been reviewed and approved by the Institutional Review Board (IRB) for Studies Involving Human Subjects: at Georgia State University. For research problems or questions regarding subjects, the Institutional Review Board may be contacted .

Alison Alesi, JD, CIP

Director, Human Research Protection Program

404-413-3514

aalesi@gsu.edu

5. I confirm that I have read and understand the information provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.
6. I have been given a copy of this consent form.

---

Signature of Participant

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Printed Name of Participant

For further information, please contact:

Dr. [Name of Principle Researcher] [Contact Information of PI]

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Date

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Signature of the Investigator

## **Appendix B**

### Proposed Survey/Questionnaire for Study

1. Please describe your pregnancy experience during the COVID-19 pandemic.
2. Have you had any prior pregnancies? If yes, then what were those experiences like?
3. What does your ideal pregnancy look like?

4. Did your ideal pregnancy occur during the COVID-19 pandemic? Why or why not?
5. What does your ideal birth experience look like?
6. Did your ideal birth experience occur during the COVID-19 pandemic? Why or why not?
7. Multiple measures have been reported to have been taken during pregnancy to reduce the risk of contracting COVID-19. Some of these measures include the following: offering telehealth visits, a reduction in the number of support personnel present during office visits and increased use of personal protective equipment. Were any of these measures taken? If so, which ones?
  - a. If telehealth visits were offered, how did this impact your pregnancy experience?
  - b. If face-to-face/in-person visits were offered, what personal protective equipment was required (masks, gloves, face shield, etc.)? How did this impact your pregnancy experience? Were you allowed to bring a support personnel with you? How did this impact your pregnancy experience?
  - c. Are there additional measures not mentioned above that you feel were taken during pregnancy to reduce the risk of contracting COVID-19? If so, what additional measures were taken?
8. Multiple measures have been reported to have been taken during labor and delivery to reduce the risk of contracting COVID-19. Some of these measures include the following: a reduction in the number of medical support personnel present, a reduction in the number of medical staff present, and increased use of personal protective equipment. Were any of these measures taken? If so, which ones?

- a. If you were allowed to have a support personnel during labor and delivery, was your support personnel present during labor and delivery? How did this impact your birth experience?
  - b. If medical staff was present during labor and delivery, what medical staff was present (physician, physician assistant, nurse, etc.)? What personal protective equipment was worn (masks, gloves, face shield, etc.)? How did this impact your birth experience?
  - c. Are there additional measures not mentioned above that were taken during your labor and delivery to reduce the risk of contracting COVID-19? If so, what additional measures were taken?
9. Multiple measures have been reported to have been taken during post-partum office visits to reduce the risk of contracting COVID-19. Some of these measures include the following: offering telehealth visits, a reduction in the number of support personal present during office visits and increased personal protective equipment. Were any of these measures taken? If so, which ones?
  - a. If telehealth visits were offered, how did this impact your post-partum experience?
  - b. If face-to-face/in-person visits were offered, what personal protective equipment was required (masks, gloves, face shield, etc.)? How did this impact your post-partum experience? Were you allowed to bring a support personnel with you? How did this impact your post-partum experience?

- c. Are there additional measures not mentioned above that you feel were taken during post-partum to reduce the risk of contracting COVID-19? If so, what additional measures were taken?
10. Did you have a birth plan? If so, what was your birth plan?
11. Did you experience changes to your birth plan due to COVID-19? If so, what changes did you experience?
12. What is your race (choose one)?
  - a. Asian
  - b. American Indian/Native American
  - c. Black
  - d. Native Hawaiian/Pacific Islander
  - e. White
  - f. Unknown
  - g. Other (specify)
13. What is your ethnicity?
  - a. Hispanic/Latino
  - b. Non-Hispanic/Latino
  - c. Not Specified
14. What is your annual household income?
  - a. Less than \$19,000
  - b. \$20,000-\$49,000
  - c. \$50,000-\$79,000
  - d. \$80,000-\$99,000



- e. \$100,000 or more
- f. Do not know.

15. What is your highest level of education?

- a. Some high school
- b. High school graduate (high school diploma or equivalent)
- c. Some college,
- d. Associate degree or certificate
- e. Bachelor's degree
- f. Some graduate school,
- g. Master's degree
- h. Doctorate or Professional Degree
- i. Other (specify)

16. What is your insurance status?

- a. Employer-sponsored insurance
- b. Health insurance marketplace insurance plan
- c. Medicaid.
- d. Uninsured.

17. How many in office visits prior to delivery did you have? How many telehealth visits did you have?

- a. Do you feel all of your questions regarding your pregnancy were answered? How so?
- b. Did you feel adequately prepared for labor? How so?
- c. Did you feel adequately prepared for post-partum care? How so?

18. What are your personal feelings on the effectiveness of COVID-19 policies on reducing the risk of contracting COVID-19?
19. Did you perceive COVID-19 policies as being required?
20. Do you feel that COVID-19 policies were excessive?
21. How might COVID-19 policies be changed to better meet your desires during pregnancy, if changed at all? During childbirth?
22. Did your newborn test positive for COVID-19 at any point post-partum?