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Examining the Perceived Quality of Person-Centered Maternity Care (PCMC) in Prenatal Telehealth Services during the COVID-19 Pandemic in Georgia: A Qualitative Study

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Examining the Perceived Quality of Person-Centered Maternity Care (PCMC) in Prenatal Telehealth Services during the COVID-19 Pandemic in Georgia: A Qualitative Study

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An abstract of
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Abstract

BACKGROUND: Maternal Mortality is a core health indicator used to track the overall health status of a population. While globally, the maternal mortality ratio has declined over the past eighteen years, the United States (U.S.) maternal mortality ratio has more than doubled since 1987. Georgia has the second-highest maternal mortality ratio in the U.S. To address the maternal mortality crisis and expand access to care, the healthcare model has integrated telehealth. Recently, the COVID-19 pandemic has catalyzed the sweeping adoption of telehealth in maternity care. Yet, there is limited understanding of how providers and healthcare facilities have adapted to prenatal care recommendations and how women have perceived the quality of these changes during prenatal telehealth appointments.

OBJECTIVE: This qualitative study examined the perceived quality of person-centered maternity care (PCMC) in prenatal telehealth services during the COVID-19 pandemic among women in Georgia. Specifically, this study sought to understand how patients experienced the patient-provider relationship within the context of the following PCMC domains: dignity/respectful care, autonomy, privacy/confidentiality, communication, social support, supportive care, and trust.

METHODS: Seventeen women living in Georgia between the ages of 18-45 years participated in semi-structured, in-depth interviews via Zoom. Eligible patients had to receive prenatal care in-person and through telehealth during the COVID-19 pandemic (March - November 2020) in Georgia. Patients were excluded if they did not speak English, were unable to consent, and had no prenatal telehealth experience. Patients reflected upon their experiences and interactions with their prenatal care provider(s) during both in-person and telehealth appointments. Data were analyzed using thematic analysis.

RESULTS: Patients represented both urban and rural counties in Georgia. Most women identified as white (65%, N=11), over a third were college graduates (76%, N=13), and for 47% of women, this was their first pregnancy (N=8). The following three themes emerged: 1) Telehealth is a medium to relieve COVID-19 anxiety during pregnancy care, but it presents challenges to patients perceived privacy and trust of their providers; 2) COVID-19 has changed how prenatal care is accessed and delivered, but the patient-provider relationship remains central to the quality of care; 3) Telehealth increased patient's comfortability accessing prenatal care and communicating with their provider.

CONCLUSION: This study's findings show the emotional, structural, and social impact the pandemic has had on the access and delivery to prenatal care and the perceived quality of PCMC. The findings from this study present an opportunity to create clinical practice guidelines that can guide infrastructure and workforce changes needed to standardize and integrate telehealth into perinatal care models. Also, the findings from this study may provide a model for future researchers to conduct longitudinal studies aimed at measuring the quality of PCMC in telehealth care during pregnancy and postpartum.

Keywords: Telehealth, prenatal care, person-centered care, person-centered maternity care, COVID-19

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"*I want to thank me for believing in me, I want to thank me for doing all this hard work. I want to thank me for having no days off. I want to thank me for never quitting. I want to thank me for always been a giver and trying to give more than I receive. I want to thank me for trying to do more right than wrong. I want to thank me for just being me at all times*."

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Acronyms & Abbreviations

ACOG	American College of Obstetricians and Gynecologists
ACNM	American College of Nurse Midwives
CDC	Centers for Disease Control and Prevention
COVID-19	Novel Coronavirus Disease 2019
PCMC	Person-Centered Maternity Care (PCMC)
PCC	Person-Centered Care

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Chapter I – Introduction

Georgia has the second-highest maternal mortality ratio in the United States (America's Health Rankings, 2019). The leading underlying causes of pregnancy-related deaths in Georgia are due to cardiovascular and coronary conditions, embolism, cardiomyopathy, hemorrhage, preeclampsia and eclampsia, and amniotic fluid embolism (Georgia Department of Health, 2014). Disparities by geographic location, race, and gender further exacerbate pregnancy-related complications. Within rural areas, women are less likely to receive continuous care throughout pregnancy and report poorer communication from their maternal health care providers (Meyer et al., 2016). Black women are disproportionally more likely to die from pregnancy-related deaths than any other race due to socioeconomic factors such as barriers in accessing quality care, limitations in health care coverage, lack of adequate funding for family planning, and discriminatory healthcare practices (Yale, 2019). Most recently the novel coronavirus disease 2019 (COVID-19) has magnified these already existing health disparities seen in maternal mortality and morbidity.

Since April 2021, COVID-19 is linked to over 19,000 deaths and approximately 1 million positive cases in Georgia (The New York Times, 2020). Pregnant women are at an increased risk of severe illness from COVID-19 and are more likely to require hospitalization, intensive care unit admission (ICU), and mechanical ventilation than non-pregnant people (Dashraath et al., 2020; Rasmussen et al., 2020; Ellington et al., 2020). While researchers are still learning how COVID-19 affects the long-term health outcomes of pregnant people and newborns, the American College of Obstetricians and Gynecologists (ACOG) recommends pregnant people maintain physical distancing, limit contact with individuals outside of one's immediate household, wear a mask and recommended personal protective equipment (PPE), and wash

hands frequently (ACOG, 2020b; Centers for Disease Control and Prevention, 2020d). Since COVID-19, ACOG and the American College of Nurse Midwives (ACNM) recommend maternal health providers provide telehealth services across as much prenatal and postpartum care as possible to control the spread of COVID-19 and retain access to routine care (ACOG, 2020b). Since these recommendations, patients have experienced sweeping adoptions to telehealth in maternity care. Many perinatal services typically offered in-person moved to virtual platforms, creating swift changes in provision and access to obstetric and gynecological services (Onwuzurike et al., 2020). Past research underscores American patients' and providers' willingness to access health services virtually and demonstrates that patient telehealth care outcomes are comparable to in-person care outcomes (Butler et al., 2019; Tsai et al., 2018). Recently, a cross-sectional study conducted among patients seeking in-person and telehealth prenatal care found telehealth a useful tool for achieving patient-perceived satisfactory care during the COVID-19 pandemic (Futterman et al., 2019).

Purpose Statement & Research Questions

Although the use of telehealth to deliver care has skyrocketed over the past year, knowledge regarding patients' ability to access this care and their willingness to utilize it post-COVID-19 in Georgia remains inadequate (Koonin et al., 2020). There is limited understanding of how patients have experienced prenatal care services during the COVID-19 pandemic, including the delivery, access, and integration of telehealth to care. Also, there is little understanding of whether the delivery of telehealth services has impacted the perceived quality of person-centered maternity care (PCMC). Therefore, this qualitative study aims to examine the perceived quality of person-centered maternity care in prenatal telehealth services during COVID-19 among women in Georgia. The research questions and sub-questions for the study are:

1. How do women in Georgia perceive the quality of PCMC in prenatal telehealth services during the COVID-19 pandemic?
    a) How do women perceive the patient-provider relationship during prenatal care?
    b) How has the COVID-19 pandemic changed the access to and delivery of prenatal care?

Framework

This study is guided by the Person-Centered Care Framework for Reproductive Health Equity and WHO's framework for the quality of maternal and newborn health care (Sudhinaraset et al., 2017; WHO, 2016a). Person-centered reproductive health care is defined as "reproductive health care that is respectful of and responsive to individual women and their families' preferences, needs and values, and ensuring that their values guide all clinical decisions" (Sudhinaraset et al., 2017). A positive patient-provider relationship and interaction are correlated to healthy behavior, improved quality of life, and higher patient satisfaction (Stewart, 1995; Leiferman, Sinatra & Huberty, 2014; Birkhäuer, 2017). High quality of care throughout pregnancy and postpartum is critical in addressing maternal mortality and improving health outcomes for mothers and infants, yet only less than half of the women in the United States are likely to rate their quality of care as excellent or good (Tunçalp et al., 2015; Gunja et al., 2018).

The Person-Centered Care Framework for Reproductive Health Equity lays out eight domains of person-centered care (PCC) for maternal and reproductive health that link to the quality of care in facilities and broader factors at the community and societal level. These domains include dignity, autonomy, privacy/confidentiality, communication, social support, supportive care, trust, and health facility environment (Sudhinaraset et al., 2017). WHO's comprehensive framework also identifies eight domains aimed at improving and assessing the

quality of perinatal care for mothers and newborns. Three of these domains specifically focus on the experience of care between patients and their healthcare providers (WHO, 2016a). Within this study, the interview guide and thematic analysis process drew from these frameworks and domains centered around the patient and provider relationship.

Significance Statement

This study presents an opportunity to understand further how the COVID-19 pandemic has impacted the perceived quality of PCMC during prenatal telehealth service. It is critical to understand the experiences of pregnant women during the pandemic to ensure women and their families are receiving respectful and responsive prenatal care during the pandemic. The findings from this study present an opportunity to create clinical practice guidelines that can guide infrastructure and workforce changes needed to standardize and integrate telehealth into perinatal care models. Also, the findings from this study may provide a model for future researchers to conduct longitudinal studies aimed at measuring the quality of PCMC in telehealth care during pregnancy and postpartum.

Chapter II – Literature Review

Introduction

United States Maternal Morality

In 2015, the United Nations (UN) developed 17 Sustainable Development Goals, one of which aims to improve and promote health and wellbeing by focusing on reducing the global maternal mortality ratio (United Nations, 2020). WHO defines maternal mortality as "the death of a woman while pregnant within 42 days of termination of pregnancy, irrespective of duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" (WHO et al., 2019). The maternal mortality ratio is an important global core health indicator used to track the population's overall health status (WHO, 2018). The United States has two surveillance systems in place to track maternal mortality cases – the National Center for Health Statistics (NCHS) and Pregnancy Mortality Surveillance System (PMSS). The NCHS is the key agency in the United States that collects maternal mortality statistics via death certificates registered in the vital statistics registry, which follows the international maternal mortality standard definitions of deaths during or 42 days after pregnancy (Hoyert, Uddin, Miniño, 2020). Also, the CDC developed the PMSS in 1986 to monitor the clinical causes of pregnancy-related deaths among women who die during pregnancy or within one year of pregnancy within 50 states and Washington D.C. (CDC, 2020b).

Despite these surveillance systems and global goals, the United States faces many challenges in addressing maternal mortality. While globally, the maternal mortality ratio has declined over the past 18 years, the United States maternal mortality ratio has more than doubled from 7.2 deaths per 100,000 live births in 1987 to 29.6 deaths in 2019 (CDC, 2020b; WHO,

2019; America's Health Rankings, 2019). Even though 60% of these deaths are preventable, 700 women die each year from various pregnancy and childbirth complications like severe bleeding and infections (CDC, 2019; Davis, Smoots, & Goodman, 2019). In comparison to other countries in WHO's latest maternal mortality level and trends report, the United States ranks last amongst other high-income countries, yet spends the most on health care compared to any other high-income country (WHO et al., 2019; Anderson, 2019). In 2017, the average hospital admission cost in the United States for childbirth was $11,200 for standard delivery and $15,000 for a cesarean section (McCarthy, 2020). The United States is the most expensive country to give childbirth. While Medicaid covers 42% of births, only 61.7% of women enrolled in Medicaid received almost all of their expected prenatal care visits (Martin, Hamilton, Osterman, & Driscoll, 2018; Healthy Mothers, Healthy Babies Coalition of Georgia, 2019).

Prenatal Care

During prenatal care, providers and nurses perform routine testing to 1) identify and treat early health complications or birth defects; 2) monitor the health of the mother and baby; 3) provide health education on nutrition and lifestyle; 4) check-in on mental health and birth plans; 5) talk about any questions or concerns regarding the pregnancy, delivery, and baby (American Pregnancy Association, 2015). Typically, it is recommended for low-risk pregnancies to seek prenatal care monthly before 28 weeks, biweekly during the 28-36 weeks, and then weekly until delivery (Office of Women's Health, 2019). Inadequate prenatal care jeopardizes the health of the mother and baby. A lack of prenatal care is associated with increased preterm labor, low birth weight, neonatal death, and perinatal mortality (Vintzileos et al., 2019; Tayebi, Zahrani, & Mohammadpour, 2013; Dickstein et al., 2008). Despite the Affordable Care Act coverage expansion of early and adequate prenatal care access for expectant mothers, 1 in 6 infants are

born to women who received inadequate prenatal care (Health Resources & Services Administration, 2019b; March of Dimes, n.d.).

Georgia Maternal Mortality & Risk Factors

In Georgia, the maternal mortality ratio was more than two times the national average at 66.3 per 100,000 live births in 2019 (America's Health Rankings, 2019; CDC WONDER Online Database, Mortality files). Nationally, Georgia ranks 49th in maternal mortality, making Georgia the second-highest state with the worse maternal mortality ratio (America's Health Rankings, 2019). The five leading causes of pregnancy-related deaths in Georgia are cardiovascular and coronary conditions, embolism, cardiomyopathy, hemorrhage, preeclampsia and eclampsia, and amniotic fluid embolism (Georgia Department of Health, 2014). Although Medicaid covers 51% of all births in Georgia, only 38.2% of women had almost all of their expected prenatal visits (Healthy Mothers, Healthy Babies Coalition of Georgia, 2019; Kaiser Family Foundation, 2019) Disparities in maternal mortality are further exacerbated by race and ethnicity, and geographic location. In 2019, the national maternal mortality ratio for Black women was 63.8 per 100,000 live births, two times higher than for white women in Georgia. The maternal mortality ratio was 95.6 per 100,000 live births for Black women in Georgia and 59.7 per 100,000 live births for white women in Georgia (America's Health Rankings, 2019). Black women are disproportionally more likely to die from pregnancy-related deaths than any other race due to barriers in accessing quality care, limitations in health care coverage, lack of adequate funding for family planning, and failure from the Georgia Maternal Mortality review committee to investigate and build interventions affecting maternal death (Yale University, 2019). These racial health disparities go far beyond the maternal mortality ratio. From 2015-2017, Black infants were about 2-3 times more likely to die during the first year of life in Georgia compared to

Hispanic, white, and Asian/Pacific Islander infants (National Center for Health Statistics, 2020). Although racial disparities in early and adequate prenatal care have improved, discriminatory healthcare practices persist. Discrimination is perpetuated through provider bias, prejudice, and poor communication. As a result, this can deter Black patients from seeking care and treatment (Alexander, Kogan, & Nubkera, 2002; Institute of Medicine (US) Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, 2003; Lee, Ayers, & Kronenfeld, 2009; Attanasio & Kozhimannil, 2015).

Maternity care deserts create similar disparities for women of all races living in rural Georgia. Maternity care deserts are counties with a high prevalence of uninsured women and scarce access to maternity health care services, including hospitals or birth centers offering obstetric care and obstetric providers (March of Dimes, 2020). Of the 159 counties in Georgia, 120 are classified as rural, 93 rural counties have no hospital with a labor and delivery unit, and 72 rural counties lacked both obstetric and gynecologic (ob-gyn) physicians (ACOG, 2012; Georgia Department of Community Health, 2017; Georgia Board of Healthcare Workforce, 2017). Women living in rural counties are more likely to live in poverty and lack health insurance, thus increasing the risk of pregnancy complications and infant mortality (March of Dimes, 2020; Powell et al., 2018). To understand the shortage of rural obstetric care in Georgia, the Georgia Maternal and Infant Health Research Group surveyed ob-gyn residents and certified nurse-midwifery students about their attitudes towards accepting a job in rural Georgia. While only 24% of residents are likely or extremely likely to accept a job in rural Georgia, 88% would reconsider for the right financial incentives (Zertuche et al., 2016).

To address the maternal mortality crisis, Georgia established a maternal mortality review committee, appropriated funds for quality improvement projects and workforce expansion at

rural birthing hospitals, implemented a maternal hemorrhage and hypertension patient safety bundles initiative, and improved perinatal screen and surveillance (Zertuche et al., 2016; Georgia House Budget & Research Office, 2019).

Quality of Care

Despite improvements in prenatal care and higher rates of prenatal care initiation during the first trimester of pregnancy, more prenatal care appointments do not translate to better pregnancy outcomes (Cater et al., 2016). High quality of care throughout pregnancy and postpartum is critical in addressing maternal mortality and improving health outcomes for mothers and infants, yet only less than half of women in the United States are likely to rate their quality of care as excellent or good (Tunçalp et al., 2015; Gunja et al., 2018). WHO defines the quality of care as "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. To achieve this, health care must be safe, effective, timely, efficient, equitable and people-centered" (Tunçalp et al., 2015). To ensure women receive a high quality of care throughout pregnancy, childbirth, and the postnatal period, WHO prepared a comprehensive framework (see **Appendix A**) with eight domains aimed at improving and assessing the quality of perinatal care for mothers and newborns (WHO, 2016a). A key characteristic of WHO's quality of care framework falls on person-centered care (PCC). In WHO's quality of care framework, three of the eight domains specifically focus on the experience during care between patients and their healthcare providers. Standard four aims at improving effective communication for women and their families including receiving clear and accurate information about the care and involvement in decision making with health care providers (WHO, 2016a). Standard five focuses on the respect and preservation of dignity for women and newborns receiving care and encompasses privacy, confidentiality, discrimination,

and physical, sexual, and verbal abuse (WHO, 2016a). Standard six seeks to strengthen the emotional support women experience during pregnancy to promote confidence for childbirth (WHO, 2016a). Building off WHO's framework and other existing frameworks, theories, and literature on quality care, the Person-Centered Care Framework for Reproductive Health Equity (see **Appendix B**) lays out eight domains of person-centered care for maternal and reproductive health that link to the quality of care in facilities and broader factors at the community and societal level. These domains include dignity, autonomy, privacy/confidentiality, communication, social support, supportive care, trust, and health facility environment (Sudhinaraset et al., 2017). Many of these domains are closely related to the patient-provider relationship and interaction.

A positive patient-provider relationship and interaction are correlated to healthy behavior, improved quality of life, and higher patient satisfaction (Stewart, 1995; Leiferman, Sinatra & Huberty, 2014; Birkhäuer, 2017). Among Latina and Black women receiving prenatal care, PCC meant quality patient-provider communication, delivering compassionate and culturally sensitive care, building trust and rapport, and providing support (Leiferman, Sinatra & Huberty, 2014; Lori, Yi, Martyn; 2010). To measure PCMC and the experiences of patients, researchers at the University of California, San Francisco developed the PCMC Scale. The scale identifies ten key quality-of-care domains for respectful person-centered maternity care, including dignity, autonomy, privacy/confidentiality, communication, social support, supportive care, trust, and health facility environment (Afulani, Diamond-Smith, Golub, Sudhinaraset, 2017). While many studies have examined factors associated with PCMC during in-person appointments globally, very few have assessed PCMC during telehealth appointments (Sudhinaraset et al., 2019; Afulani et al., 2017).

Telehealth

Telehealth provides an incredible opportunity to increase the flexibility of patient care, improve communication and engagement with providers, expand access to care, and address the maternal morality crisis (Goldstein et al., 2018, Butler et al. 2019, Tsai et al., 2018; Orlando, Beard, and Kumar, 2020). Recently, the COVID-19 pandemic has catalyzed the sweeping adoption of telemedicine and maternity care. According to the National Institute of Biomedical Imaging and Bioengineering (NIBIB), telehealth is "the use of communications technologies to provide health care at a distance" (NIBIB, 2020). Though telemedicine and telehealth are often used interchangeably, telemedicine focuses on the clinical services centered around "remote diagnosis and treatment of patients", while telehealth refers to broader aspects of health care services like patient education and training, medication prescribing and management, remote monitoring of vital signs, and administrative meetings (HRSA, 2020a; NEJM Catalyst, 2018). Telehealth has been applied to mental health counseling, general health care, eye exams, and perinatal care through synchronous and asynchronous equipment like phone, video, and patient messaging portals. Lately, the COVID-19 pandemic has called for the unprecedented and abrupt application of telehealth across various platforms in obstetric and gynecological services.

In the 1970s, telemedicine was applied to obstetrical services through a Xerox Telecopier, which transmitted fetal monitoring data from regional hospitals to tertiary care centers (Bohem & Haire, 1979). With the advancement of technology, telemedicine and telehealth have expanded to deliver a broad range of prenatal and postpartum related services such as ultrasounds, lactation support, at-home monitoring, diabetes management, and obstetrical counseling and consultation (Odibo, 2013; Weigel, Frederiksen, & Ranji, 2020). While the

timing of prenatal care appointments varies depending on the needs and risks of the mother and her fetus, WHO recommends that all prenatal care involve at least eight regular visits with a health provider throughout pregnancy (WHO, 2016b). Typical telehealth prenatal care programs for low-risk pregnancies alternate between in-person and virtual telehealth visits via videoconference or phone (Weigel, Frederiksen, & Ranji, 2020). For example, the Mayo Clinic OB Nest Telemedicine Program's model schedules low-risk pregnant patients for eight in-person appointments with obstetricians or midwives and six phone/online visits with a nurse; the implementation of telemedicine in their prenatal care increased patient satisfaction and lowered prenatal stress (Butler et al., 2019).

Overall, patients report positive experiences with telehealth because of the convenience, accessibility, comfortability, and cost-effectiveness (Orlando, Beard, & Kumar, 2020; Powell, et. al., 2017). Telehealth provides an incredible opportunity to increase the flexibility of patient care while expanding access; however, significant barriers remain to ensure equitable access to virtual services for all women (ACOG, 2020a). It has been considered a viable alternative to connect patients residing in rural areas to health services and a cost-effective tool to improve pregnancy outcomes for high-at risk pregnancies too (Morrison, 2011; Weigel, Frederiksen, & Ranji, 2020). Through the University of Arkansas Medical Sciences' ANGELS Program and Tennessee's Solutions to Obstetrics in Rural Counties (STORC) program, patients living in rural communities have greater feasibility to consult with maternal-fetal medicine specialists often seen in only urban centers, which in turn has reduced the time and money spent on traveling (Weigel, Frederiksen, & Ranji, 2020; Wood, 2011). Telehealth seems to benefit both communication and engagement between health care providers and patients, especially through real-time videoconferencing (Orlando, Beard, and Kumar, 2020). Also, a prenatal care program in Taiwan

found that telemedicine improved self-efficacy and lower pregnancy-related stress than those women not exposed to the program (Tsai et al., 2018). Lastly, a study completed by ACOG demonstrated that patient health outcomes are comparable via telehealth services compared to in-person visits and are associated with increased patient satisfaction and engagement. While research elucidates willingness to access health services via virtual options among American patients, several significant constraints exist to the growth of telemedicine usage in the United States. These constraints include Medicaid and Medicare coverage, disparities in insurance reimbursement of virtual health services, and patient and provider access to broadband and sufficient technological resources (Frist, 2015).

In the United States, 76% of hospitals use analogous telehealth programs to improve access to vital healthcare services through telecommunication technology such as videoconferencing to connect patients to healthcare practitioners remotely (American Hospital Association, 2019). Nevertheless, a 2014 systematic web-based review of telemedicine care and telemedicine services specific to perinatal care in the United States found that while 61% of states and territories had at least one policy with language referencing telemedicine consultation, diagnosis, and/or treatment, only 3 states (5%) had telemedicine policy language specific to maternal and/or neonatal care (Okoroh, Kroelinger, Smith, Goodman, & Barfield, 2016). There is a lack of knowledge surrounding the logistical expansion of telehealth, such as licensing, cost and reimbursement, and confidentiality of patient information and how it compares to in-person care (Odibo, 2013). Costs become especially unclear from program to program as patients and medical practices must decide how monitoring devices and equipment are purchased (Weigel, Frederiksen, & Ranji, 2020). At-home monitoring of maternal and fetal vitals is essential to implementing a successful telehealth prenatal care program because patients can monitor their

blood pressure, glucose levels, and weight from the convenience of their home. Providers receive these results remotely, which reduces the number of in-person visits needed (Weigel, Frederiksen, & Ranji, 2020).

Expanding access to telehealth is critical in delivering care safely during the COVID-19 pandemic, especially for pregnant women with an increased risk for severe adverse outcomes from COVID-19. Due to COVID-19, ACOG's recent guidelines recommend that pregnant women talk with a doctor to determine how often they should go for in-person visits. Many perinatal services that are traditionally in-person, have been moved to virtual platforms. This new delivery model could highlight and amplify existing disparities in American women's access to care and maternal and infant health outcomes (Onwuzurike, C., Meadow, A. & Nawal, N., 2020).

Novel Coronavirus (COVID-19) Pandemic

On March 11, 2020, WHO declared the COVID-19 outbreak a pandemic due to the alarmingly rapid spread and severity of COVID-19 globally. WHO urged countries to "take urgent and aggressive action" to contain the virus (WHO, 2020). Shortly after the United States declared a state of emergency for COVID-19, many states imposed various social distancing measures (KFF, 2020). Nonetheless, the response has been inadequate and inconsistent (Haffajee & Mello, 2020).

Since January 2020, the CDC reported 34,968 COVID-19 cases among pregnant women (CDC, 2020d; Ellington et al., 2020). Although the risk of death is similar among non-pregnant women and pregnant women, pregnant women were significantly more likely to be hospitalized and at increased risk of intensive care unit admission (ICU) and mechanical ventilation than non-pregnant women (Ellington et al., 2020). While the most reported common symptoms of

COVID-19 are fever and cough, much remains unknown about pregnant women's vulnerability to the virus, treatment, and pregnancy-specific management, long term health outcomes, or vertical transmission (passage of COVID-19 virus from mother to fetus during or after pregnancy) (Dashraath et al., 2020); (Rasmussen et al., 2020). Due to the physiological susceptibility to COVID-19, pregnant women were recommended to maintain physical distancing, limit contact with individuals outside of one's immediate household, wear a mask and recommended PPE, and wash hands frequently (ACOG, 2020b; CDC, 2020d).

Before the pandemic, ACOG acknowledged the increasing use and effectiveness of telemedicine in obstetric and gynecological services, yet only endorsed the use and expansion of telemedicine in prenatal to monitor and assess high-risk pregnant patients (DiVerene, 2017; ACOG, 2020a). Since COVID-19, ACOG and the ACNM recommend maternal health providers provide telehealth services across as much prenatal and postpartum care as possible to control the spread of COVID-19 and retain access to routine care (ACOG, 2020b). As COVID-19 continues to put unprecedented stress on healthcare systems, providers, and patients, many states responded to the pandemic by expanding health insurance policies for COVID-19 testing and treatment and increasing access to telehealth services (KFF, 2020; Haffajee & Mello, 2020). During this public health emergency, the healthcare system has rapidly accelerated the use of virtual technology for prenatal and postpartum care, but not every state, OBGYN, or other prenatal care professional have expanded access to telehealth services equitability in Georgia (U.S. Department of Health & Human Services, 2020). Nonetheless, telehealth might be one solution to address the rising inequities during the COVID-19 pandemic since it provides a unique opportunity for patients to access quality and safe perinatal care from their homes (Onwuzurike, Meadows, and Nour, 2020; Dotters-Katz and Hughes, 2020; Alves et al., 2020).

Purpose Statement

As patients continue to receive virtual prenatal services throughout the COVID-19 pandemic, it is important to examine how patients perceive PCMC. Currently, there is limited understanding of how providers and health facilities have adapted to national prenatal care recommendations due to COVID-19 and how patients experience the patient-provider relationship during telehealth appointments. Therefore, this study aims to examine the perceived quality of PCMC in prenatal telehealth services during the COVID-19 pandemic among women in Georgia. Specifically, this study sought to understand how patients experienced the patient-provider relationship within the context of the following PCMC domains: dignity/respectful care, autonomy, privacy/confidentiality, communication, social support, supportive care, and trust.

Chapter III: Student Contribution

Overview of the EGHI Telehealth Project

The Emory Global Health Institute (EGHI) seeks to be a catalyst for global change by addressing and improving significant public health problems affecting vulnerable populations living in low-and-middle-income countries globally through programs, research, and scholarship opportunities. Through the Field Scholars Awards Program, EGHI funds multidisciplinary student teams to conduct global learning projects in partnership with organizations in other countries (EGHI, n.d.). Due to COVID-19, the 2020 Multidisciplinary Team Field Scholars adapted their projects to meet Emory's COVID 19 protocols. For 2020, EGHI funded my research team's qualitative research project aimed to examine the perceived feasibility, acceptability, and effectiveness of perinatal care via telehealth services during and after the COVID-19 pandemic among patients in Georgia. The primary objectives of this study were to define patients' perceived barriers and facilitators to implementing or accessing perinatal care via telehealth during the COVID-19 pandemic and to describe patients' willingness and intention to participate in perinatal care services via telehealth post-COVID-19 pandemic. The Principal Investigators (PI) for this project were Dr. Pricilla Hall and Morgan Clark-Youngblood from Emory University's Nell Hodgson Woodruff School of Nursing. The project had two graduate researchers, Dominique Ngo and Cindy Rosales from Emory University's Rollins School of Public.

Role of Student with EGHI Project

As one of the graduate research assistants on this project, I was involved in the following activities:

1. Project design

2. Data collection instruments creation
3. Recruitment & Data collection
4. Data analysis

Project Design

Originally, our EGHI team was interested in exploring obstetric violence in Oaxaca, Mexico. However, once the United States declared a state of emergency in response to the COVID-19 pandemic, EGHI asked all 2020 Multidisciplinary Team Field Scholars to re-strategize their projects to meet safety protocols. I assisted the research team in redesigning our research study to explore maternity care in the context of the COVID-19 pandemic. At the time, there was limited understanding of how providers and health facilities have adapted to national prenatal care recommendations due to COVID-19, patients' ability to access this type of care, and perceptions of the feasibility of implementing or accessing telehealth during the pandemic. After several collaborative brainstorming discussions and identifying the health burden within the literature, our team designed a qualitative study based on grounded theory to examine the perceived feasibility, acceptability, and effectiveness of perinatal care via telehealth services during the COVID-19 pandemic among patients in Georgia. Once the research team developed a research question, I assisted in writing the literature review and Institutional Review Board (IRB) application.

Data Collection Instruments

Alongside the other graduate research assistants, I created the data collection tools used in this study and incorporated feedback from Morgan and Dr. Hall through an iterative process. Emory's Institutional Review Board (IRB) #00000869 approved all research protocols and final data collection tools. The data collection tools included an interview guide for patients and

providers (due to recruitment challenges, providers were dropped from the original research question), a quantitative screener to assess interested participants' eligibility, and consent forms. I developed an online database system using REDCap to store the quantitative screener, which automatically assigned each completed survey a unique identifying number.

Recruitment & Data Collection

Morgan assessed the screener survey responses collected on REDCap and assigned eligible participants to each graduate research assistant. Eligible patients had to receive prenatal care in-person and through telehealth during the COVID-19 pandemic (March - November 2020) in Georgia. Patients were excluded if they did not speak English, were unable to consent, and had no prenatal telehealth experience. I contacted thirteen participants for a follow-up in-depth interview via phone call using the contact information respondents provided in the survey. Of the thirteen participants I contacted, I scheduled and interviewed eight participants between August and November 2020. During each one-on-one interview, I asked participants about their experience in accessing perinatal services virtually during the 2020 COVID-19 pandemic, perceived barriers and facilitators to accessing or implementing perinatal services virtually, perceived value, need, and effectiveness of virtual perinatal services, and willingness or intention to participate in virtual perinatal services in the future. After each interview, I uploaded a memo, audio-recoding of the interview, and interview notes to a password-protected folder on Emory Box.

Data Analysis

Dominque and I transcribed the audio files for seventeen interviews. Once the audio files were transcribed, I wrote memos to reflect, summarize, and inquire on emerging concepts from each interview. These memos and case summaries were used to facilitate cross-case comparisons

and to develop a draft code tree. The researcher team came together to compare and discuss differences and similarities among code trees. The code trees were used to draft an initial codebook, which included parent codes, sub-codes, code definition, a quote to represent the code, and additional notes. To test out the reliability and validity of the codebook, each researcher coded four similar transcripts then came back together after a week to reflect and edit necessary codes. Revisions were made to the codebook and three additional transcripts were added to the coding process. After coding seven interviews with a revised codebook, the researcher team ran an intercoder agreement on MAXQDA. After testing for reliability, the research team finished examining the remaining transcripts with a Kappa of 80%.

To complete a thematic analysis and to further understand the data, memos, case summaries, reflections, and code matrices were used to identify emergent themes and linkages between cases. Codes were looked at closely through MAXQDA summary grids and tables to summarize similarities and differences within individual interviews and across patients. Descriptive statistics from REDCap and SPSS were utilized to describe patients' gender, ethnicity, age, pregnancy history, experience with telehealth, insurance type, and place of residence.

Student Contribution to Thesis

Given my involvement in the EGHI Project, I leveraged this opportunity to develop a thesis research question complimenting the research study. Through the guidance of my thesis committee, Morgan Clark Youngblood and Dr. Comeau, my proposed thesis research question would examine the quality of PCMC, specifically within the patient-provider relationship context in prenatal telehealth services during the COVID-19 pandemic. The PCMC Scale Guide identifies the key quality of care domains for respectful maternity care including provider

responsiveness, patient-provider communication, and interpersonal treatment. After reviewing the scale with my thesis committee and creating open-ended interview questions framed by the scale, I submitted a modification to the original IRB on August 17, 2020, that included twelve new PCMC related interview questions.

Chapter IV - Manuscript

Examining the Perceived Quality of Person-Centered Maternity Care (PCMC) in Prenatal Telehealth Services during the COVID-19 Pandemic in Georgia: A Qualitative Study

By

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Introduction

Georgia has the second-highest maternal mortality ratio in the United States (America's Health Rankings, 2019). The leading underlying causes of pregnancy-related deaths in Georgia are due to cardiovascular and coronary conditions, embolism, cardiomyopathy, hemorrhage, preeclampsia and eclampsia, and amniotic fluid embolism (Georgia Department of Health, 2014). Disparities by geographic location, race, and gender further exacerbate pregnancy-related complications. Within rural areas, women are less likely to receive continuous care throughout pregnancy and report poorer communication from their maternal health care providers (Meyer et al., 2016). Black women are disproportionally more likely to die from pregnancy-related deaths than any other race due to socioeconomic factors such as barriers in accessing quality care, limitations in health care coverage, lack of adequate funding for family planning, and discriminatory healthcare practices (Yale, 2019). Most recently the novel coronavirus disease 2019 (COVID-19) has magnified these already existing health disparities seen in maternal mortality and morbidity.

Since April 2021, COVID-19 is linked to over 19,000 deaths and approximately 1 million positive cases in Georgia (The New York Times, 2020). Pregnant women are at an increased risk of severe illness from COVID-19 and are more likely to require hospitalization, intensive care unit admission (ICU), and mechanical ventilation than non-pregnant people (Dashraath et al., 2020; Rasmussen et al., 2020; Ellington et al., 2020). While researchers are still learning how COVID-19 affects the long-term health outcomes of pregnant people and newborns, the American College of Obstetricians and Gynecologists (ACOG) recommends pregnant people maintain physical distancing, limit contact with individuals outside of one's immediate household, wear a mask and recommended personal protective equipment (PPE), and wash

hands frequently (ACOG, 2020b; Centers for Disease Control and Prevention, 2020d). Since COVID-19, ACOG and the American College of Nurse Midwives (ACNM) recommend maternal health providers provide telehealth services across as much prenatal and postpartum care as possible to control the spread of COVID-19 and retain access to routine care (ACOG, 2020b). Patients have experienced sweeping adoptions to telehealth in maternity care. Many perinatal services typically offered in-person moved to virtual platforms, creating swift changes in provision and access to obstetric and gynecological services (Onwuzurike et al., 2020). The research underscores American patients' and providers' willingness to access health services virtually and demonstrates that patient telehealth care outcomes are comparable to in-person care outcomes (Butler et al., 2019; Tsai et al., 2018). Recently, a cross-sectional study conducted among patients seeking in-person and telehealth prenatal care found telehealth a useful tool for achieving patient-perceived satisfactory care during the COVID-19 pandemic (Futterman et al., 2019).

Purpose Statement & Research Questions

Although the use of telehealth to deliver care has skyrocketed over the past year, knowledge regarding patients' ability to access this care and their willingness to utilize it post-COVID-19 in Georgia remains inadequate (Koonin et al., 2020). There is limited understanding of how patients have experienced prenatal care services during the COVID-19 pandemic, including how the delivery, access, and integration of telehealth to care. Also, there is little understanding of whether the delivery of telehealth services has impacted the perceived quality of person-centered maternity care. Therefore, this qualitative study aims to examine the perceived quality of person-centered maternity care (PCMC) in prenatal telehealth services among women in GA during COVID-19. The research questions for the study are:

2. How do women in Georgia perceive the quality of PCMC in prenatal telehealth services during the COVID-19 pandemic?
    a) How do women perceive the patient-provider relationship during prenatal care?
    b) How has the COVID-19 pandemic changed the access to and delivery of prenatal care?

Framework

This study is guided by the Person-Centered Care Framework for Reproductive Health Equity and WHO's framework for the quality of maternal and newborn health care (Sudhinaraset et al., 2017; WHO, 2016a). Person-centered reproductive health care is defined as "reproductive health care that is respectful of and responsive to individual women and their families' preferences, needs and values, and ensuring that their values guide all clinical decisions" (Sudhinaraset et al., 2017). A positive patient-provider relationship and interaction are correlated to healthy behavior, improved quality of life, and higher patient satisfaction (Stewart, 1995; Leiferman, Sinatra & Huberty, 2014; Birkhäuer, 2017). High quality of care throughout pregnancy and postpartum is critical in addressing maternal mortality and improving health outcomes for mothers and infants, yet only less than half of the women in the United States are likely to rate their quality of care as excellent or good (Tunçalp et al., 2015; Gunja et al., 2018).

The Person-Centered Care Framework for Reproductive Health Equity lays out eight domains of person-centered care for maternal and reproductive health that link to the quality of care in facilities and broader factors at the community and societal level. These domains include dignity, autonomy, privacy/confidentiality, communication, social support, supportive care, trust, and health facility environment (Sudhinaraset et al., 2017). WHO's comprehensive framework also identifies eight domains aimed at improving and assessing the quality of perinatal care for

mothers and newborns, three of which specifically focus on the experience of care between patients and their healthcare providers (WHO, 2016a). Within this study, the interview guide and thematic analysis process drew from these frameworks, specifically the domains centered around the patient and provider relationship.

Significance Statement

This study presents an opportunity to understand further how the COVID-19 pandemic has impacted the perceived quality of PCMC during prenatal telehealth service. It is critical to understand the experiences of pregnant women during the pandemic to ensure women and their families are receiving respectful and responsive prenatal care during the pandemic. The findings from this study present an opportunity to create clinical practice guidelines that can guide infrastructure and workforce changes needed to standardize and integrate telehealth into perinatal care models. Also, the findings from this study may provide a model for future researchers to conduct longitudinal studies aimed at measuring the quality of PCMC in telehealth care during pregnancy and postpartum.

Methods

Study Design

This research study aimed to examine the perceived quality of PCMC in prenatal telehealth services among women during the COVID-19 pandemic in Georgia. Specifically, it examined how patients experienced the patient-provider relationship within the context of the following PCMC domains: dignity, autonomy, privacy, confidentiality, communication, social support, supportive care, trust. Patients reflected upon their experiences and interactions with their prenatal care provider(s) during both in-person and telehealth appointments. In addition, the

study explored how the COVID-19 pandemic has changed the access to and delivery of prenatal care.

Sample and recruitment

Women living in Georgia between the ages of 18-45 years participated in semi-structured, in-depth interviews. Eligible patients had to receive prenatal care in-person and through telehealth during the COVID-19 pandemic (March - November 2020) in Georgia. Patients were excluded if they did not speak English, were unable to consent, and had no prenatal telehealth experience.

Considering the specific eligibility criteria, the research team used a purposive sampling strategy to recruit patients. A confidential electronic quantitative screener was disseminated through professional and community organizations and academic institutions via email and social media to identify potential patients. This tool includes questions on patients' sociodemographic and professional information. Screeners were collected before patient interviews to assess interested patients' eligibility to participate in in-depth interviews. Results from the screener questions were analyzed using SPSS statistical software and REDCap. The quantitative data were stored on REDCap and in a password-protected folder on Emory Box. This information is associated with respondents' phone numbers but not associated with their qualitative responses and transcribed data regarding their attitudes, beliefs, and experiences with prenatal care via telehealth from in-depth interviews. Completion of the survey took about 2 to 5 minutes. The research assistants scheduled one-hour in-depth interviews with patients who met the study's eligibility criteria from the screener.

Data Collection

Due to COVID-19 and social distancing protocols, the research team conducted seventeen 30-to-60-minute semi-structured interviews via Zoom from August – November 2020. To establish rapport, each interview began with a general introduction and was followed by specific study information, and ethical protocols to ensure verbal consent, anonymity, and confidentiality. The recording began once consent was provided by each participant. The interview questions were designed to elicit an in-depth understanding of the patient's experience, interaction, and relationship with their provider(s). Samples questions (see **Appendix C**) included: "How did the doctors, nurses, or other health care providers involve you in decisions about your care?"; "How did the doctors and nurses address any anxieties or fears you were feeling?"; "In what ways did telehealth enhance or lessen your trust with your provider?" Also, the interview ended with 4 5-point Likert scale questions aimed to measure the patients' level of satisfaction, comfortability, willingness, and anxiety using telehealth services. Patients were asked to explain why they choose that response for each Likert scale question to provide more qualitative context. Overall, each interview guide was tailored to the discussion and interviewee.

Analytic Method

Recordings from the interviews were uploaded to the software Otter.ai, which assisted in transcribing the interview transcripts. Transcripts were checked against recordings for accuracy. Each interview transcript was uploaded to MAXQDA to facilitate the memo process and thematic analysis of codes. After each interview, interviewers completed an outlined memo to reflect on emerging themes and add any additional interview questions or reflections on the data. Memos were revisited weekly to better understand the data and determine if data saturation was reached. Also, case summaries were created to provide an overview of each interview and

identify key moments and details. These memos and case summaries were used to facilitate cross-case comparisons and to develop a draft code tree. Potential deductive and inductive codes were pulled from common themes and concepts found in the literature review and interview guide as seen in **Table 1**.

Table 1. Examples of Deductive & Inductive Codes

Deductive Codes	**Inductive Codes**
Trust	Telehealth Advantages
Social Support	Telehealth Disadvantages
Communication	COVID-19 Implications
Supportive Care	Mental Health Implications

If overlapping codes were indistinguishable from one another, then they were either grouped as one code or listed as sub-codes of an overarching parent code. This was seen among the codes “in-person advantages/physical contact” and “telehealth challenges/physical connection”, so “telehealth challenges/physical connection” was deleted to avoid confusion. The researcher team came together to compare and discuss differences and similarities among code trees. The code trees were used to draft an initial codebook, which included parent codes, sub-codes, code definition, a quote to represent the code, and additional notes. To test out the reliability and validity of the codebook, each researcher coded four similar transcripts then came back together after a week to reflect and edit necessary codes. Revisions were made to the codebook and three additional transcripts were added to the coding process. After coding seven interviews with a revised codebook, the researcher team ran an intercoder agreement on MAXQDA. After testing for reliability, the research team finished examining the remaining transcripts with a Kappa of 80%.

To complete a thematic analysis and to further understand the data, memos, case summaries, reflections, and code matrices were used to identify emergent themes and linkages

between cases. Codes were looked at closely through MAXQDA summary grids and tables to summarize similarities and differences within individual interviews and across patients. For example, the analysis began by looking at the code "telehealth advantages" on MAXQDA summary grids. As each interview with this code was summarized, other established codes like "COVID-19" and "mental health" emerged. This led to the following theme: telehealth services increase accessibility and comfortability while navigating prenatal care, especially during COVID-19 when ambiguity and restrictions jeopardize the physical and mental wellbeing of pregnant women. A similar matrix was used for the codes under "person-centered care" and "telehealth advantages" to find clusters and understand how person-centered care either links to one's perceived advantages of using telehealth. Descriptive statistics from REDCap and SPSS were utilized to describe patients' gender, ethnicity, age, pregnancy history, experience with telehealth, insurance type, and place of residence.

Ethical Statement

Approval for the study was obtained from Emory's Institutional Review Board (IRB) #00000869. General information was about the study was provided to all participants before obtaining consent. For confidentiality purposes, the research team removed all identifying information from the transcripts, and data files. All files for this study, including transcripts and audio recordings, were saved on Emory's password-protected Box.

Results

For this study, seventeen interviews were transcribed and analyzed. Demographic characteristics of patients with pseudonyms are presented in **Table 2**. Patients represented both urban and rural counties in Georgia. Most women identified as white (65%, N=11), over a third were college graduates (76%, N=13), and for 47% of women, this was their first pregnancy

(N=8). While each patient's experience navigating prenatal care has been unique, overlapping perceptions and challenges emerged as influencing factors impacting the quality of care and the patient-provider relationship. Three emergent themes are discussed: 1) Telehealth is a medium to relieve COVID-19 anxiety during pregnancy care, but it presents challenges to patients perceived privacy and trust of their providers; 2) COVID-19 has changed how prenatal care is delivered and accessed, but the patient-provider relationship remains central to the quality of care; 3) Telehealth increased patient's comfortability accessing prenatal care and communicating with their provider.

Table 2. Demographic Characteristics of Patients

Respondent Name	Age Range	Residence County	Race/Ethnicity	Education	Type of Provider	First Pregnancy?
Jennifer (J16)	37-40	Rockdale County	Black	Associate Degree	OBGYN	No
Sonia (S173)	23-26	Coffee County	White	High School	OBGYN	Yes
Susan (S139)	34-37	DeKalb County	White	Masters Degree	OBGYN	No
Lili (L112)	37-40	Coweta County	White	Bachelor's Degree	OBGYN	No
Rebecca (R15)	27-30	Houston County	White	Master	Midwife	No
Chloe (C75)	27-30	N/A	Asian/Pacific Islander	Bachelor's Degree	OBGYN	No
Julia (J119)	34-37	Franklin County	White	Bachelor's Degree	OBGYN	No
Isabel (I102)	27-30	Floyd County	White	Bachelor's Degree	Midwife	Yes
Stephanie (S53)	27-30	Muscogee County	White	Bachelor's Degree	General Practitioner/ Family Doctor	Yes
Sally (S28)	27-30	DeKalb County	White	Doctorate	OBGYN	Yes
Molly (M80)	18-22	Colquitt County	White	Associate Degree	OBGYN & Midwife	Yes
Blanca (B116)	27-30	Camden County	White	High School	Midwife	Yes
Ana (A83)	31-34	Fulton County	Black	Masters Degree	OBGYN, Midwife, & Nurse practitioner	No
Sofia (S27)	27-30	DeKalb County	Black	Bachelor's Degree	OBGYN	Yes

Tammy (T52)	37-40	Fulton County	Black	Doctorate	OBGYN	Yes
Donna (D167)	34-37	DeKalb County	Black	Doctorate	OBGYN	No
Catherine (C77)	31-34	Bryan County	White	High School	OBGYN & Midwife	No

Theme 1. Telehealth is a medium to relieve COVID-19 anxiety during pregnancy care but presents challenges to patients perceived privacy and trust of their providers.

In general, almost all of the women expressed perceiving an increased level of anxiety amplified by COVID-19. While some of the women acknowledge the normality of experiencing pregnancy-related anxiety, many emphasized an elevated feeling of fear and anxiousness triggered by uncertainty surrounding the risk of infection and changes to their perinatal care:

> *"To be honest, I overall I the whole process or the whole, I guess journey of being pregnant during COVID was not fun and, and there are a lot of things that I was upset about." (Blanca - B116)*

> *"Um, mostly, just kind of confirming or confirming that, you know, any of the normal pregnancy anxieties I have, or, you know, totally normal to have. And, you know, I'm not the only person to have these fears, and that it is a weird time to be having a baby in a pandemic and that, like, it's normal to feel a little bit more right now. I think just sort of like, reassuring that having a little extra anxiety right now. It's totally normal." Stephanie (Stephanie - S53)*

Some of the perceived anxiety felt by the patients were associated with the thought of attending in-person appointments:

> *"Because I had much more anxiety going into the doctor's office, knowing that it was in a hospital building. And there was not a lot of information on what the Coronavirus did. And and I didn't know how people were taking precautions, because I know that it was really bad in Georgia, and it didn't seem like people cared very much." (Rebecca - R15)*

Susan explains how her fears of catching COVID-19 at her appointments affected her ability to ask questions and advocating for herself:

> *"Um, I have a lot of fear about like, catching COVID even though I realize it's an OB GYN office, it's like a very, in terms of a medical setting, a much lower risk for that. And so like, my first inclination is just to try to get out of there as quickly as possible. So, I think one of the things I need to do better is like write down the questions I have, and not be afraid to*

sort of ask those questions or, or sort of like, you know, poke and prod and say, "Hey, like, I know, you guys are like trying to phase out appointments. But I really think for me, somebody like me, it's really important on both mentally and physically to be able to come in like every four weeks…." (Susan - S139)

For those patients who expressed anxiousness with in-person appointments, telehealth became a safe alternative to accessing care. However, it soon became apparent that a perceived challenge to prenatal telehealth care was the lack of reassurance in their care and confidence in the competence of their providers:

"I feel like telehealth was a good thing for me to have available. I'm not sure that it augmented my relationship in a positive or negative way. Because everybody was trying to figure it out. No, nobody knew what they were doing with telehealth. And and I think that maybe maybe decreased trust a little bit because because they didn't ask the things that I would hope that they would ask or monitor the things that I would hope that they would monitor. But, but I felt like they trusted me to watch it, which is fine, trusting me, but I don't necessarily think that that's the safest course of action for all prenatal care. (Rebecca - R15)

Though there are several perceived benefits for telehealth and opportunities for meaningful patient-provider interactions, many still yearned for the physical contact of seeing a provider in-person. Telehealth lacked in-person services like fetal heart monitoring and physical examinations, which eases many pregnancy concerns:

"In terms of, you know, having prenatal appointments, at home, I didn't really like the idea of it, because usually at my prenatal appointments that I, at least from my previous pregnancy, umm you know, during these appointments, they're tracking the heartbeat, and, you know, umm checking to see if I'm having any symptoms or issues. I mean, they'll ask you about it, but I feel like it's different doing it face to face, especially the heartbeat portion, when you know, when you're a mother in that early stages, your anxiety is through the roof, and you're always wondering, you know, is my baby, okay..." (Ana – A83)

While privacy and confidentiality were not an issue heavily mentioned across all of the interviews, it did emerge among a few patients and should be examined closely moving forward. From crying toddlers to barking dogs, finding privacy at home can be a bit challenging, as seen through Catherine's experience:

> *"I have three kids, but my husband was home through most of my appointments. So, I have to go out there, shut the door, close them out from the screaming. That part was, was challenging when he wasn't home. The two older ones will sit and watch TV, the one-year-old will follow me everywhere." (Catherine -C77)*

During prenatal appointments, delivery, and postpartum care, providers should respect the privacy and confidentiality of patients at all times. This can become difficult to uphold during telehealth appointments, when some patients may not have the capacity to find privacy at home, and providers need to discuss private health information.

Theme 2. COVID-19 has changed how prenatal care is delivered and accessed, but the patient-provider relationship remains central to the quality of care

The COVID-19 pandemic has caused unprecedented changes to the structure and process of delivering and accessing prenatal care. To minimize the spread of the virus, healthcare facilities modified various facility policies and practices, including limiting in-person visits, and expanding telehealth services. For those patients with in-person visits they described the new empty clinic environment as "somber" and "ghost towns". While telehealth was provided as an option for social distancing and ensuring the safety of patients and healthcare workers, the swift and unexpected changes triggered confusion and anxiousness among some patients. When asked about her experience using telehealth, first-time mother Molly said,

> *"It [telehealth] somewhat increased my anxiety simply because I didn't, I didn't know what to expect." (Molly – M80)*

How patients adapted to these changes varied across interviews. For one patient, the unexpected restrictions and lack of transparency from her provider caused her to forgo one month of prenatal care:

> *"I didn't get like the proper communication. Like what kind of [COVID-19] precautions are we taking like, you know, I expected someone to call me and let me know what was*

> *happening and, you know, how are we going to do this or whatever, so I missed. I missed two of my appointments because of that I probably went like a whooole [emphasis on "whole"] month without seeing someone during COVID time because I was scared." (Sofia –S27)*

Although this situation is unique to Sofia's experience, all patients were impacted by facility policies restricting or reducing the number of visitors able to accompany them during their appointments. It is not uncommon for patients to seek the support of partners, family members, and friends during prenatal care appointments. However, to guarantee proper social distancing, healthcare facilities limited the number of visitors patients could bring, which left many patients feeling upset and scared:

> "*So I just wanted to get in and over with, um, I think, for me, as somebody with anxiety going in without my, my partner with me, it was really hard. And just because, you know, you never know what's going to happen at that first appointment."* (Susan - S139)

Though many patients reported feeling more anxiety and less social support from family and friends while receiving care, patients described providers as being more attentive to their questions and needs during this time:

> *"My concerns have been, at least um addressed, like, they've listened to it and, you know, been able to provide me advice. I've had questions about COVID. And, you know, my risk of passing it down to my, you know, my unborn child, or what would happen to me, you know, I do catch it and how the hospital um is handling patients in delivery? And if, you know, oh, one of the mothers does have it, how are they handling that? And they've answered every single question that I have. And so, it's made me feel a lot more comfortable in the scary time." (Ana -A83)*

The perceived quality of patient-centered maternity care is sustained as more emphasis is placed on the patient and provider interaction. One way patients experience supportive care is through the length of time allocated during in-person and telehealth appointments. When Isabel was asked how she felt about the amount of time her midwife allocated to her during her telehealth appointments compared to the in-person appointments, she described her provider as "more focused" since she had a "dedicated timeslot" to accomplish everything she needed thus

felt less “rushed”. Similarly, Blanca expressed her happiness with the time her midwife spent with her:

> *“I was very happy with the time I had with my midwives. My first son, I did have a traditional OB, and that they were much more rushed. Of course, I never had telehealth appointments then they were all in person. But compared to that, I felt like my midwife gave me a lot of time, and I didn't feel like it was any shorter for her on her end. With a telehealth compared to the in person, I feel like they were just as open to talk if I wanted to, or whatever, answer my questions and all of that.” (Blanca – B116)*

During the pandemic, providers adapted to the needs and safety of their patients to ensure the delivery of timely, compassionate, and supportive care even when the structure of prenatal care changed.

Theme 3. Telehealth increased patient’s comfortability accessing prenatal care and communicating with their provider

When the pandemic was declared a national emergency, healthcare facilities reduced in-person appointments and increased COVID-19 screenings. As a result, accessing prenatal care became an additional obstacle for pregnant women. For example, one participant experienced “really long lines” and “three checkpoints” to get into the hospital to see her OBGYN. Among urban and rural patients, telehealth services increased accessibility to prenatal care by reducing travel and in-direct costs, such as daycare services. As one participant stated,

> *“I mean, they [telehealth appointments] were really quick and easy to do. Yeah, I had the space and the time by myself…So it was very streamlined. I didn't have to, you know, in the in-person appointments, you kind of sit there and wait for the doctors to see the next person and there's just a lot of waiting time. Where with the phone call, you know, you can do whatever you need to do wait for the phone call to happen. And then it only took you know, 15 or 20 minutes at the most and then you were done. It was very quick and easy to just to get the easy appointments out of the way.” (Catherine -C77)*

Once providers integrated telehealth services into their practice, patients reported using them for routine care, emergency matters, and/or supplemental education (i.e., lactation classes).

Patients who used telehealth had the option of accessing care from the convenience of their home at any time of the day for any concerning matters:

> *"When you when you need to speak with a doctor about something less urgent, and you, you know, you don't think that a whole trip to the physician is necessary, I think that telehealth is um definitely advantageous in that aspect. And, um you know, so you don't necessarily have to waste all that time doing face to face, especially, you know, when it comes to having to take off work, and all those other things. Doing telehealth um is definitely more helpful and I think a more better use of your time." (Blanca - B116)*

For some participants, being in the comfort of their own home helped them ask more questions, engage in more dialogue, and express more concerns. One patient even described her telehealth appointments as "a little more laid back". At one point, another participant was able to establish a friendlier connection with one of her nurses because of telehealth:

> *"Every time I have my appointments. I think there's only one nurse that I've seen more than once, and she was, she was one of the telehealth providers. And then I saw her in person, I think, the next appointment, and I felt probably more comfortable with her. Because, you know, we kind of had this candid conversation and you know, she was at home and I was at home, and then, you know, we came in together for this uh face to face appointment. So I think that it might have um helped with my comfort level. And I guess maybe that kind of ties into trust as well. So I would say it probably enhanced it a little bit." (Ana – A83)*

When asked about the advantages to telehealth, Lili shared how telehealth has helped her open up about her mental health. She even goes as far to compare her level of comfortability and confidence using telehealth to ending a relationship:

> *"Um, I think talking about like, mental health over the phone is easier. Because when I'm in person, I tend to I'm like, very empathetic. So if I see that somebody or if I'm talking about my sadness, or my anxiety, it shows more in person. And I break down more like cry in person. But over the phone, I was a lot more confident and comfortable in talking about my mental health struggles…Um, I'm sure it'd be the same for like a millennial generation, you know, do you want to break up with your boyfriend in person? Or do you want to do it over text? Like over text? It's easier, right? So whatever that is, I don't know what that's called. But, you know, I guess kind of hiding behind the screen. It's a little bit easier to be open" (Lili - L112)*

Patients most commonly agreed telehealth had no impact on the type of verbal information received from their providers such as details to their treatment or conditions. However, as healthcare facilities increased social distancing and the use of personal protective equipment (PPE) like mask use during in-person appointments, patients described their in-person appointments as "colder", with nonverbal communication often "lost in translation":

> *"Um, she had goggles and gloves on the whole, you know, nine yards. She was so like, very friendly and personable, but, you know, you can't see somebody smiling, like and that kind of stuff. And then the, the head nurse midwife came in, and she had on a full face shield. There's no handshaking or anything like that, which is totally to be expected and fine. Um, but they, you know, just kind of sit a little farther back than they normally would. They were just not as, you know, as warm and personable as like, I feel like they could be and I think part of that is she can't see people's faces. Yeah, yeah. So, I think that was sort of the biggest differences. (Susan - S139)*

Nevertheless, some patients felt telehealth improved their ability to capture nonverbal cues and behaviors associated with communication, including facial expressions and gestures:

> *"… you don't realize how much your lip reading off of a person until you have to wear a mask, and you're trying to understand somebody…But with a telehealth appointment, I can read their faces, and I can understand what's happening. So, I don't have as much um lost in translation issues, as I normally would" (Julia - J119)*

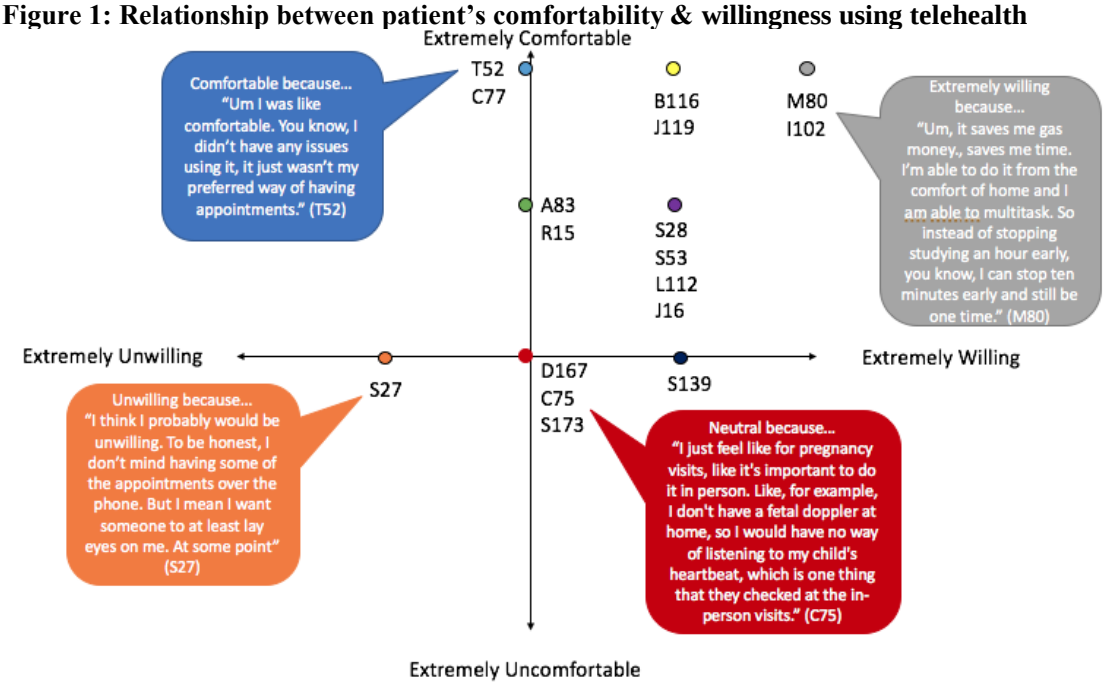
> *"So, this changed for everyone not being able to shake hands, not having physical human contact. In fact, I think being via video may have benefited that psychological aspect of it, because I was seeing their actual face and not seeing them behind a mask that hadn't been in person would have been a person without facial expressions that I couldn't read or see smile or etc. Whereas at least via video, I can see that they were smiling…" (Isabel - I102)*

Before this study and prenatal telehealth appointments, a majority of the women had prior experience using telehealth in the healthcare setting. Some women used telehealth during urgent situations for themselves and their children calling it "a godsend, as a parent". Other women used telehealth in the past to access mental health care. None of the patients interviewed mentioned feeling uncomfortable using telehealth.

"So I'm pretty well versed with like technology. I do like having, you know, the immediate access to contacting my doctor and the time in which they contact me back." (L112)

Future utilization of prenatal telehealth services was often associated with the patients' comfortability and willingness to use telehealth services. All patients were asked to rate their level of comfortability using telehealth and willingness to use telehealth through a Likert scale with the following responses: extremely willing/comfortable, comfortable/willing, neutral, unwilling/uncomfortable, and extremely unwilling/uncomfortable. **Figure 1** presents each patients' willingness and comfortability using telehealth. After presenting two Likert-scale questions related to willingness and comfortability, patients were asked to explain their answers as well. As seen below, patients' willingness and comfortability varied drastically.

Figure 1: Relationship between patient's comfortability & willingness using telehealth



Discussion

The purpose of this study was to examine the perceived quality of person-centered maternity care in prenatal telehealth services among women in Georgia during COVID-19. Specifically, this study sought to understand how patients experienced the patient-provider

relationship within the context of the following person-centered care domains: dignity, autonomy, privacy/confidentiality, communication, social support, supportive care, and trust. Our study found telehealth as a safe method of delivering care and relieving COVID-19 anxiety during pregnancy, but it raised new challenges to how patients perceived privacy and trust with their providers. Also, a key finding from this study demonstrated that while COVID-19 changed the delivery and access to pregnancy care, the patient-provider relationship remained central to the quality of person-centered care. Lastly, telehealth increased patient's comfortability in accessing prenatal care and communicating with their provider. As patients continue to receive prenatal telehealth services throughout the COVID-19 pandemic, this work advances the evidence-base for future research and clinical practice guidelines centered around telehealth and person-centered maternity care.

In our study, the women expressed a perceived increased level of pregnancy-related anxiety during the COVID-19 pandemic. They shared concerns about the risk of COVID-19 infection, feelings of uncertainty, and disruption in prenatal care and delivery plans due to the pandemic. Our findings are consistent with Moyer et al. (2020) who found a significant increase in anxiety among pregnant women during the COVID-19 pandemic in the United States due to the anticipated threat of infection and harm to pregnancy, food availability, and loss of job, income or childcare. Notably, our study found telehealth to be a safe alternative to accessing prenatal care during the pandemic and even relieved pandemic-related stress among women who were anxious about getting infected in a hospital or clinical setting. Similarly, telehealth was perceived as a useful and adequate clinical tool for prenatal care among Hispanic patients in New York City during COVID-19 (Futterman et. al., 2021). Nevertheless, the participants in our study desired more in-person care and felt without physical contact (hands-on exams, ultrasounds,

etc.), they questioned their provider's competency and the quality of their care. From this work, more research is needed to understand how monitoring equipment via telehealth can impact the perceived quality of care and trust among providers.

Our results also showed the significant disruption the COVID-19 pandemic had on the healthcare system, including the access and delivery to prenatal care. During our interviews, the women described various ways in which their healthcare clinics and providers modified facility policies and practices to ensure the safety of patients and healthcare workers. These changes included the enforcement of social/physical distancing in waiting areas, a reduction or complete ban in the number of visitors during appointments, and the implementation of telehealth appointments. It is important to highlight Semaan et al. findings which revealed that two-thirds of maternal and newborn healthcare providers worldwide did not receive adequate training on COVID-19 from their health facility and only 19% felt completely knowledgeable of providing care to COVID-19 maternity patients. However much remains unknown about how these factors and changes impacted the quality of person-centered maternity care. While women in our study expressed an increased perceived level of anxiety and feeling of less social support during in-person appointments, they described how providers adapted to their needs to ensure the delivery of timely, compassionate, and supportive care. Therefore, as the quality of patient-centered maternity care is challenged, the social support experienced from the patient and provider relationship during in-person and telehealth appointments remains a central aspect of quality care.

A key finding from our study showed how telehealth services increased accessibility to prenatal care by reducing travel and indirect costs, such as daycare services. Besides, all participants were able to access care from the convivence of their homes. Our study found that

women felt comfortable being home, and they expressed no level of discomfort using telehealth, which improved their communication with providers. This finding is likely due to the perceived feeling that they had more time to ask questions, engage in dialogue, and express concerns. These findings are consistent with previous literature that showed the application of mobile/digital health technology in prenatal care enhanced patient satisfaction and increased engagement (Marko et al., 2016). Much remains unknown about the impact PPE like masks have on no-verbal cues and gestures associated with communication, but some women in our study expressed how telehealth helped capture facial expressions and gestures often lost due to PPE.

Strengths & Limitations

This study has several strengths and limitations. In terms of strengths, this is the first study to explore PCC in prenatal telehealth services during a pandemic. The study not only assessed patient perceptions of quality care but also explored the experiences of patients' interaction with prenatal care providers during in-person and telehealth appointments, which is critical in ensuring and maintaining high-quality perinatal care services. Another strength of this study was the design of the data collection instruments. The interview guide leveraged an already existing patient-centered framework and a validated patient-centered maternity care scale. Lastly, this study had a strong representation of rural and urban women across different counties in Georgia.

Regarding limitations, this analysis only focused on seventeen interviews, which is a relatively small sample size. The results may be missing some key themes due to the small nature of the sample size. Even after meeting saturation, results from this qualitative study cannot be generalized to all women using prenatal telehealth services during COVID-19. Future work should build upon this study with increased sample size. Also, as a woman with no prenatal care

experiences, I was likely to have brought some biases into this project, which may have influenced my approach to data collection, analysis, and reporting. However, the research team took intentional efforts to acknowledge and address any personal biases they may have brought on to this project. Reflexivity was a central part of data production and analysis. Interview memos allowed the team to explore issues related to how our identity and positioning as interviewers may have influenced our interactions with participants during interviews. We also noted variability in the numbers of telehealth appointments the patients had, ranging from one to four. This introduced challenges in analyzing the full impact of telehealth among these women. To fully capture the prenatal telehealth experience, future studies should include more concise eligibility criteria that select participants with higher numbers of prenatal telehealth appointments.

Future implications ideas

This study presents an opportunity for future research to understand how healthcare providers perceive the quality of PCMC in prenatal telehealth service and an opportunity to measure women's perceptions of respectful and responsive maternity care delivered by telehealth through a longitudinal study. In addition, the findings have implications to set clinical practice guidelines that can guide infrastructure and workforce changes needed to standardize and integrate telehealth into perinatal care models.

A Call for Evidence-Based Telehealth Guidelines

Telehealth can provide a variety of prenatal healthcare services during and after pregnancy, including consultations with specialists, virtual prenatal care visits, and lactation/nutrition education support (Weigal et al., 2020). While the American College of Obstetrician and Gynecologists has provided physicians with logistical guidance on how to

implement telehealth in practice, their main recommendations focus on credentialing, licensure, billing, and equipment (ACOG, 2020a). The findings from this study demonstrate the vast variation in the implementation, delivery, and access of prenatal care via telehealth. The varied experiences among patients are indicative of the lack of existing clinical practice guidelines available to standardize efficient and effective best practices for prenatal telehealth services. Therefore, Emory University Nell Hodgson Woodruff School of Nursing and the Atlanta Birth Center (ABC) have partnered to implement a quality improvement initiative that will inform the development of clinical practice guidelines (CPGs). These guidelines are critical for the expansion of perinatal telehealth services in Georgia and necessary for decreasing variations in patient care. Notably, it is also important to extend and implement structured telehealth guidelines for postpartum care given the increasing rates of maternal deaths during this period (Mogos et al., 2020). Clinical practice guidelines provide clinics with standard measurement tools to monitor and evaluate the quality of integrated telehealth services and improve PCC in any context. Once clinical guidelines are established and put into practice, it is important to continue training providers on PCC approaches during in-person and telehealth appointments.

A Call for Future Research

The findings from this study provide several directions for future research on PCMC delivered through telehealth services. Regardless of global emergencies like a pandemic, the need for telehealth services will endure. First, future studies should explore how healthcare providers perceive PCMC during telehealth. The perspective of providers is important to examine because they influence pregnancy outcomes. Given the rapid implementation of remote antenatal care in response to COVID-19, there remain many uncertainties on how clinicians integrated telehealth into practice and whether these changes had any impact on the quality of care or patient-provider

relationship. A previous study exploring providers' and women's perspectives on PCMC in Kenya found high disagreement between both groups regarding PCC experiences and recommended future studies to assess PCC at a larger scale (Sudhinaraset et al., 2019). Nonetheless, few studies have compared these perceptions, let alone within the context of telehealth services.

One of the main limitations of this study was the variability in the number of telehealth appointments each patient had, ranging from one to four. Also, the resource guide was not designed to measure PCMC, even though it was framed around a validated PCMC scale. This introduced challenges in examining and analyzing the full impact of telehealth on the quality of PCMC among these women. Therefore, future studies should include more concise eligibility criteria to select higher numbers of telehealth appointments since many of the participants only had one appointment or were too early into their pregnancy to completely capture the prenatal telehealth experience. Also, future studies should consider conducting a mixed-methods, longitudinal study that follows women through pregnancy and postpartum in order to fully assess the impact of telehealth on PCMC and the patient-provider relationship.

Conclusion

As patients continue to receive prenatal telehealth services throughout the COVID-19 pandemic, this work advances the evidence-base for patients' perception of PCMC and provides a foundation for future research in telehealth. Currently, there is limited understanding of how providers and health facilities have adapted to national prenatal care recommendations due to COVID-19 and how patients experience the patient-provider relationship during telehealth appointments. This study's findings show the emotional, structural, and social impact the pandemic has had on prenatal care. More specifically, the pandemic created an opportunity to

expand the use of telehealth within the healthcare system. Changes to the delivery and access to care from telehealth have impacted many domains associated with the patient-provider relationship. Telehealth will remain a key component of the healthcare delivery model long after the pandemic, thus we must ensure the quality of care and patient-provider relationship is not compromised.

Chapter V – Public Health Implications

This study presents an opportunity for future research to understand how healthcare providers perceive the quality of PCMC in prenatal telehealth service and an opportunity to measure women's perceptions of respectful and responsive maternity care delivered by telehealth through a longitudinal study. In addition, the findings have implications to set clinical practice guidelines that can guide infrastructure and workforce changes needed to standardize and integrate telehealth into perinatal care models.

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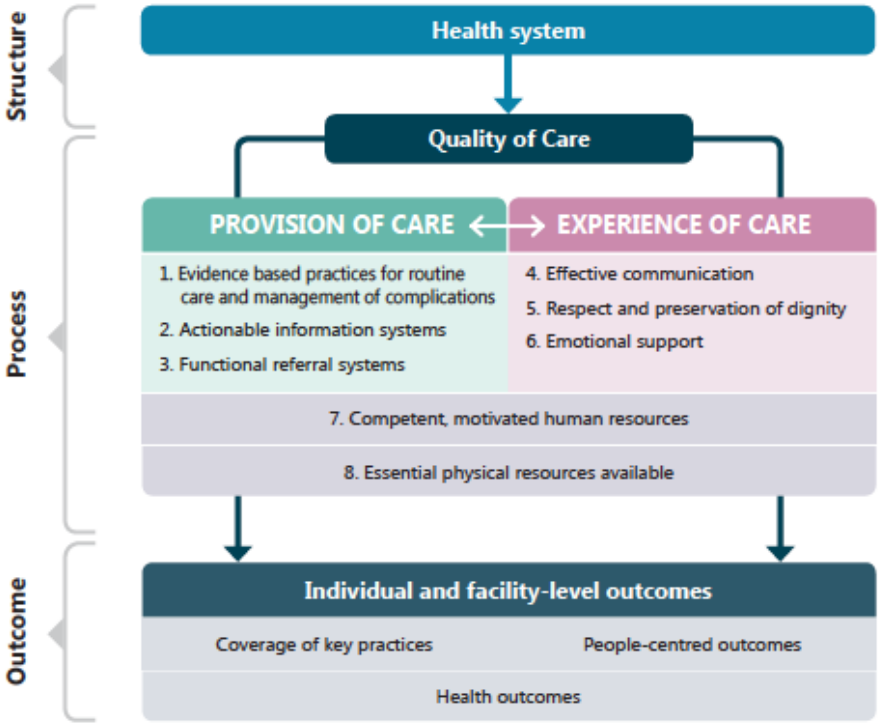
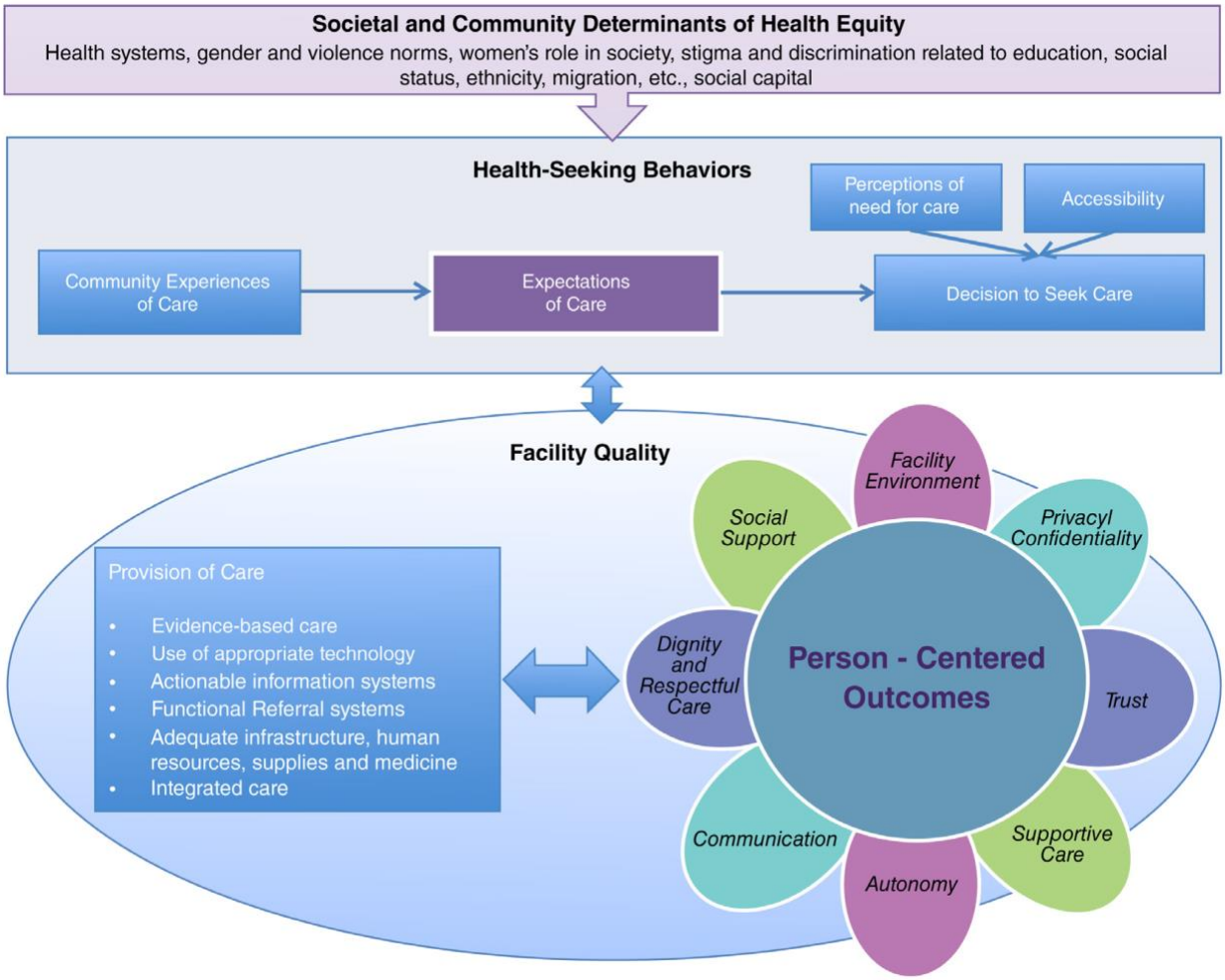
Appendix A – WHO framework for the quality of maternal and newborn health care



Appendix B - Person-Centered Care Framework for Reproductive Health Equity



Appendix C – Interview Guide

Instructions for interviewer to read:

Good morning/afternoon. Thank you for agreeing to be interviewed today. My name is (NAME OF THE INTERVIEWER _____) and I am a MPH student at Emory. As I mentioned in the informed consent, this questionnaire is part of a study on your experience with prenatal and postpartum care and telehealth over the past few months. As the informed consent mentioned, your identity and responses will remain confidential.

As a reminder this interview is being recorded as part of the study. his recording will not be shared with anyone outside of the research team and will be kept confidential. Do you agree to let me audio record this interview? Do you agree to be interviewed for my study?

During this interview I am most interested in learning about your personal experiences with pregnancy care during your most recent pregnancy and opinions on telehealth services. Please do not feel shy in sharing your views as they are extremely valuable to us. This is not a test; therefore, there are no incorrect or correct answers. Your responses and answers will not be shared outside the research team or with your provider. Please respond honestly and sincerely for each section.

Your participation is completely voluntary. You may skip any question you wish to as well as choose to end the survey at any time. The information you provide will be anonymous and completely confidential. The interview will last approximately an hour and I will read you some questions on different topics related to your views and experiences with prenatal care and telemedicine. If you have any questions or doubts, please let me know.

If this all sounds good to you, are you ready to start?

<u>Warm-up</u>

1. **Tell me about your latest pregnancy?**
    a. Probe:
        i. How has your pregnancy been or how did your pregnancy go?
        ii. How far along are you? Or when did you give birth?
        iii. Or have / did you have any complications during your pregnancy?
        iv. What kind of appointments have you had so far?
            1. For patients who have given birth: Have you had any postpartum appointments with your provider since your birth? If so how many? How many weeks after birth did you have these appointments?
2. **What type of provider did you see for your pregnancy care?**
    a. Obstetrician/gynecologist? Certified Nurse-Midwife? Or both?
3. **Did you have all your prenatal appointments at the same clinic or hospital? Which one(s)?**

a. For patients who have give birth: Did you have your postpartum follow-up at the same clinic or hospital where you received prenatal care?

4. **Please describe your prenatal appointments with your provider before COVID-19 pandemic? If you have experienced different types of appointments (ie telehealth or appointments with your doctor or midwife on your computer or a phone call, home visits, in a clinic or hospital, mobile services), please explain all of them.**
    a. **Probe**
        i. For example, what worked well/did not work well in this appointment
5. **Please describe your appointments with your provider during COVID-19? If you have experienced different types of appointments, please explain all of them. This can be both prenatal and postpartum care appointments.**
    a. **Probes**
        i. For example, what worked well/did not work well in this appointment
    b. **Sub Questions**
        i. How did your appointments change or stay the same given the circumstances?
        ii. Has where or how you saw your provider or receive prenatal care changed?
            1. **Probe for interviewer:** For example, drive thru services at clinic? Appointments on the phone or computer? At home visits?
6. **Telehealth services is care you receive from your doctor or midwife on your computer or on the phone. What experience, if any, have you had with telehealth for prenatal and postpartum care during this most recent pregnancy?**
    a. **Probe**
        i. Such as telephone appointments, video appointments, or at-home monitoring.
        ii. What type of services did they provide?

<u>Questions for Patients w/ telehealth experience during pregnancy</u>

7. **Describe your telehealth appointment from start to end. If you have multiple different types of appointments, please explain each of them.**
    a. **Probe**
        i. How were you contacted by your provider
        ii. How did the doctors, nurses, or other health care providers introduce themselves during the appointments?
            1. How did your provider address you during the appointments?
        iii. Did they see anyone else during the visit?
        iv. Were they required to do any test, ultrasounds, or monitoring before or after the appointment?

v. How did you feel about the amount of time the doctor/nurse provided for you during your appointments?

b. If a patient also had postpartum care: How did your postpartum care appointments differ from your prenatal appointments with your provider?

8. **Describe the relationship with your provider during telehealth visits compared to in-person appointments.**
    a. **Probe**
        i. How can telehealth services impact or change your relationship with your provider?
        ii. How did the care or information you received via telehealth differ from your in-person prenatal visits?

    b. **Additional questions to ask related to patient-provider relationship:**
        i. What are ways you felt respect was given by your provider?
        ii. Please explain how the doctors, nurses, or other health care providers involved you in decisions about your care?
        iii. How comfortable were you asking questions or concerned with your provider? What made it easy/difficult?
        iv. Tell me about a time when you experienced any language or communication problems with your doctor or nurse during your prenatal care appointment?
            1. Could you describe any moments where the provider's communication came off as rude? Or even any moments where you felt not listened to or disrespected?
        v. How did the doctors and nurses address any anxieties or fears you were feeling?
        vi. In what ways did telehealth enhance or lessen your trust with your provider?
        vii. In general, to what extent is it important for you to have a provider of the same race?
            1. What is your experience with a provider of the same/different race?

9. **What do you think are challenges to telehealth in relation to in-person appointments?**
    a. **Probe**
        i. What challenges did you have?
        ii. What kind of system issues or provide issues made it less effective?
    b. For patients who have accessed postpartum care: Are there different challenges in using telehealth specific to prenatal care vs postpartum care?
10. **What do you consider the biggest challenge to telemedicine in relation to in-person appointments?**

11. **What do you think are advantages of telehealth in relation to in-person appointments?**
    a. **Probe**
        i. What were some advantages of accessing prenatal care online or on the phone?
    b. For patients who have accessed postpartum care: Are there different advantages in using telehealth specific to prenatal care vs postpartum care?
12. **What do you consider the biggest advantage to telemedicine in relation to in-person appointments?**

13. **How can telehealth services for pregnancy care be improved?**
    a. What support or tools would have made it work better?
        i. Is there something your provider could have done to make the process easier for you?

Questions for Patients without telehealth experience during pregnancy

7. **So you said that you did not use telehealth (or care via computer or phone calls) , what were some of the reasons you did not use telehealth?**
    a. Probe: Such as that providers didn't offer, couldn't offer? Refused to do telehealth? complications that required in person visits?
8. **What would make you more willing to use telehealth service during pregnancy?**
    a. **Or if their provider did not offer services:** Would you be willing to access prenatal care using telehealth?
9. **What do you think are challenges to telemedicine in relation to in-person appointments?**
    a. **Probe**
        i. Such as what aspects of the appointments or receiving care
10. **What do you consider the biggest challenge to telemedicine in relation to in-person appointments?**
11. **What do you think are advantages of telemedicine in relation to in-person appointments?**
    a. **Probe**
        i. Such as what aspects of the appointments or receiving care
12. **What do you consider the biggest advantage to telemedicine in relation to in-person appointments?**

Mixed Methods Questions for patients that used telehealth services

13. **Which best describes your current satisfaction with your pregnancy care appointments?**
    a. Extremely satisfied
    b. Satisfied
    c. Neutral

d. Dissatisfied
e. Extremely Dissatisfied

14. Please explain to me why you chose this level of satisfaction in Question 13.

15. Which best describes how comfortable you currently feel with using telehealth?

a. Extremely comfortable
b. Comfortable
c. Neutral
d. Uncomfortable
e. Extremely uncomfortable

16. Please explain to me why you chose this level of comfort in Question 15.

17. Do you feel using telehealth for your pregnancy changed your level of anxiety about your pregnancy?

a. It really increased my anxiety
b. It somewhat increased my anxiety
c. It had no impact
d. It somewhat decreased my anxiety
e. It really decreased my anxiety

18. Please explain to me why you chose your answer to Question 17.

19. How willing are you to use telehealth services during prenatal care in the future?

a. Extremely willing
b. Willing
c. Neutral
d. Unwilling
e. Extremely unwilling

20. How has your experience with prenatal care during COVID impacted your willingness or interest to use telehealth services to access pregnancy care in the future?