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TRENDS IN PRENATAL CARE ACCESSIBILITY IN RURAL MISSISSIPPI AND HOW THESE TRENDS AFFECT UNFAVORABLE BIRTH OUTCOMES

By

Isabella Webb

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of the requirements of the Sally McDonnell Barksdale Honors College.

University, MS
May 2022

Approved by:

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Abstract

This thesis investigated the level of accessibility to prenatal care in rural Mississippi areas and how this affects or has affected Mississippi's high rates of unfavorable birth outcomes. The research questions included specifically looked at how lack of prenatal care in rural areas of Mississippi plays a role, if any, in extremely high rates of unfavorable birth outcomes as well as what policy can be implemented to expand education regarding unfavorable birth outcomes. To understand the effects of accessibility and eligibility of rural women's health care, seven women were interviewed. Interviews were conducted with these women who met the criteria of having given birth within the last twenty-four months to an infant who experienced one or several unfavorable birth outcome(s). Each woman expressed concerns and potential solutions regarding their prenatal care and women's health care experiences. This research found common themes among each woman's experiences, pooling from three different areas in Mississippi: the Clarksdale area, the Oxford area, and the Madison area. This study's findings suggest that policy and additional funding targeting rural specialized health care as well as consistent policy across prenatal education could be beneficial for Mississippi rural areas.

Preface

Growing up in a small town with only two clinics and a small, inadequate hospital, I was able to see first-hand the struggle that young mothers were put through in order to simply care for their bodies and growing babies during pregnancy. Many had to drive 60 miles or more to reach an obstetrician-gynecologist, and it is frustrating to women who give birth to babies preterm or with low birth weights when these issues could have potentially could have been avoided with access to prenatal care. Using my hometown of Iuka, MS as an example, there is also no means of public transportation in many rural areas. Therefore, socioeconomic factors also play a role in availability of prenatal care. Rural areas are usually associated with residents of lower socioeconomic status, resulting in lack of transportation, health insurance, and education. Speaking from experience, living in a small, rural town in a state such as Mississippi can allow its residents to feel more loved, appreciated, heard, and valued than any other place in the world. Rural communities are known for their hospitality and willingness to care for each other in times of need. However, their health care access, especially for women, does not reflect this.

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List of Abbreviations

PNC - Prenatal Care

LBW - Low Birth Weight

PTB - Preterm Birth

Introduction

Mississippi is ranked among one of the top three states in valuing child care after birth. Pediatricians make $258,910 a year on average in Mississippi, and Mississippi pediatricians are the third highest paid in the United States (DePietro 2020). Despite Mississippians' value in infant care and childcare, Mississippi is known for having the highest rate of unfavorable birth outcomes in the United States (CDC 2018). Characteristics of unfavorable birth outcomes include low birth weight births, preterm births, and infant mortality. Low birth weights (LBW) are considered to be when infants are born weighing less than 2,500 grams or 5 lbs. 8 oz. Mississippi typically has the highest low birth weight rates in the nation (ranked first in 2017). The state of Mississippi has a low birth weight rate of 11.6, significantly higher than the state of Alabama's, which is ranked 3rd in the United States for low birth weight rates (CDC 2018). Similarly, Mississippi is generally ranked #1 in preterm birth rates in the United States (ranked 1st in 2017). Preterm births can be described as birth prior to completion of 37 weeks of pregnancy. The state of Mississippi has a preterm birth rate of 13.6, which is significantly higher than Alabama's preterm birth rate (CDC 2018). "Insufficient or no PNC (prenatal care) is associated with unfavorable birth outcomes. Women who delay or receive no PNC are more likely to deliver a low-birth-weight (LBW) infant or have a preterm birth (PTB) compared to women receiving early care, and inadequate PNC is associated with an increased risk for neonatal death" (Cox 2009). It has been demonstrated through many studies, such Cox's, that lack of prenatal care, and lack of consistency in prenatal care visits, can be a cause of unfavorable birth outcomes. According to Lia-Hoagburg, Women with no prenatal care are three

times more likely to have low birth-weight babies than mothers with early and continuous prenatal care (Lia-Hoagburg 2002). This information poses the questions: why do Mississippians seem to value pediatric care so much more than prenatal care? And why are policy makers not doing more about a mothers' lack of accessibility to prenatal care and specialty physicians?

Rural populations face challenges due to lack of resources, such as health care. People in rural communities have been shown to have poorer health status and greater needs for primary health care, yet they are not as well served and have more difficulty accessing health care services than people in urban areas (Ford 2016). This can be specifically applied to women's care. This project reviews and explores existing public health data to further exemplify the correlation between the lack of prenatal care and an increase in preterm births and low birth weight rates as well as include in-depth interviews comparing and contrasting the prenatal care experiences of women in small rural Mississippi communities. Qualitative interviews can be rich in information and knowledge, and they can provide information that many other methods cannot.

The interviews were each prefaced with a consent form. Each of these women had given birth in the last twenty-four months to a preterm or low birth-weight baby. Once each mother agreed to participate and share an in-depth account of their experience, the interview itself began. Questions, as listed in the methods section, were then asked. These interviews took place over a video conference or in person to accommodate participants' comfort level with face-to-face contact due to COVID-19. Seven women were interviewed. These interviews were recorded and transcribed. Inductive coding was the method used in this study and is somewhat of a "ground up" approach regarding qualitative data analysis. Codes and themes were derived directly from

the data I collected rather than preconceived notions. Inductive coding allowed me to develop a theory and specific themes based on the seven participants' experiences without previous bias.

Literature Review

Rural Accessibility Issues:

Major availability issues in rural settings were reported and largely discussed as an insufficient number of health care providers—particularly specialty providers such as OBGYNs and Prenatal Care specialists—and a lack of health care systems that are reachable by individuals given their geographic proximity (Zimmerman, Carnahan, and Molina, 2016). When a woman is pregnant, trying to get pregnant, or has just had a child, she is usually at her most vulnerable. Though this is a nationally recognized issue, and policies have been attempted to be put in place to arrange a better health care situation, many do not see the true necessity of attention on this issue. However, The American College of Obstetricians and Gynecologists has recently been urging OBGYNs to undertake initiatives to increase access to women's health services in nonurban areas. Overall, the United States HealthCare system has failed women located in rural areas in regards to accessibility to prenatal care.

The Zimmerman et al. study was conducted through focusing on the four domains of health care access defined by Norris: availability, eligibility, amenability, and compatibility (Norris 2006). This study found through in-depth research interviews that availability was (and is) limited by the distribution of hospitals, primary and specialty physicians (such as OBGYNs), and other health care providers in rural areas as compared with metropolitan areas. Another prominent issue that this study brought to fruition is that “Eligibility issues in rural settings largely manifested as a complex interplay of concentrated poverty and sparse, geographically dispersed resources” (Zimmerman, Carnahan, and Molina, 2016, p. 210).

Many of these women were, due to the lack of economic opportunities and limited health care safety net options, being forced to choose between spending money on health care or medication and other necessities, such as food and utilities. The authors also point out that these women felt as though they could not rely on grant funding, as this was viewed as problematic due to the fact that the services may go away when the budgets are cut or grants end. Potential solutions set out by the researchers in this study were temporary bonus payments to physicians in rural areas, funding allocated for state workforce development grants, loan programs for providers, and health care workforce training to increase the number of health care workers in rural areas. Each of these are potentially hopeful options, but seeing them through would be more difficult. This study suggests that rural health care is lacking in many areas, especially women's general and maternal health.

Poverty in Mississippi

As policy reform was previously mentioned, an example of national policy reform efforts on the issue would be the implementation of the Patient Protection and Affordable Care Act of 2010 (PPACA). This reform act attempted to initiate a dramatic change in the health care insurance landscape in the United States. The PPACA was developed with the intention of expanding health care coverage and access, but the alleged solutions resulting from this law may have not adequately responded to the voices of all Americans experiencing the hardship of limited health care access and use. The PPACA was analyzed by the Zimmerman et al. study using the four domains of health care access as previously mentioned. Though the PPACA was a great start to gaining attention for the issues of accessibility to health care in the United States, post- PPACA implementation data shows that rural counties have 32% fewer insurance issuers and 20% fewer plans as compared with urban counties, and available insurance plan premiums

for rural populations tend to be more expensive, proving that many of the act's goals were unattained (Zimmerman, Carnahan, and Molina, 2016).

Much research has been done regarding the health care crisis in Mississippi, but most research focuses specifically on the Mississippi Delta. Many of the Delta's people live in poverty and without access to health care. There has also been research conducted regarding food disparities in the Delta along with many other social determinants affecting these people directly by their location and environment. A study done in 2009 focused on how infant mortality in the MS Delta could potentially be credited to the widespread poverty, the lack of accessibility for this specific population, and racial disparities and implicit bias. The people of the Mississippi Delta have experienced chronically higher rates of mortality and morbidity than other Mississippi counties. Central Delta infants were found during the 2009 study to be significantly more likely to die than infants in other areas with the same rates of poverty (Eudy 2009).

Prenatal Care and Birth Outcomes

The Zhang et al. study was performed in order to establish this relationship previously mentioned between certain maternal medical conditions that may contribute to PTB, LBW, and infant mortality and how access to adequate prenatal care can be a possible strategy for reducing said unfavorable outcomes in Mississippi infants. Through the study, certain risk factors were also established that contribute to unfavorable birth outcomes, such as young maternal age, minority race/ethnicity, lower educational attainment, unmarried, and low socioeconomic status. For this study, data was obtained from linked birth and death certificate files for all Mississippi infants delivered between January 1, 1996 and December 31, 2003, specifically from white and black mothers. They found evidence that initiation of prenatal care at any point during pregnancy lowered the odds of LBW and infant mortality, further supporting the idea that maternal care is a

necessity that not all women have access to. "Delivering interventions during preconception health care visits would be preferable, but many Mississippi women have limited/no access to care outside of pregnancy, so PNC visits may be the first opportunity for health care providers to identify risk factors and implement interventions aimed at decreasing the likelihood of LBW, PTB and infant mortality" (Zhang, Cox, Graham, Johnson 2009). Cox et. al found that 1 in 5 Mississippi women receive inadequate prenatal care, greatly contributing to our high rates of LBW births, preterm births, and infant mortality. This article and the study it focuses on further supports the conclusion that prenatal care is essential to foster more favorable birth outcomes and to keep the mother and baby's health as a priority throughout pregnancy and birth. The article goes on to explain that through their population based study, they found that women, specifically women of color, are more likely to not receive prenatal care early enough in their pregnancy or even at all.

Maternal health and nutrition directly affect the neonatal response and fetal health. Similar to non-pregnant adults, the American College of Obstetricians and Gynecologists recommends that pregnant women achieve 20 to 30 min of moderate intensity activity per day on most or all days of the week. (American College of Obstetricians and Gynecologists 2015). Evidence shows that "health behaviors in a first pregnancy are a unique opportunity to improve immediate and long-term maternal and child health" (Catov 2018). Studies have shown that "There is evidence supporting the importance of nutritional status before and during pregnancy to reduce the risk of adverse pregnancy outcomes, especially birth defects, PTD and LBW" (Ramakrishnan 2012). Monitoring maternal health and nutrition during pregnancy may allow providers and researchers to understand how poor health habits can affect unfavorable birth outcomes. Provider encouragement of good health behaviors, nutrition, and added exercise may

lead to better overall pregnancy health which in turn can lead to a lesser chance of unfavorable birth outcomes.

Approximately 10% to 15% of women experience postpartum depression after childbirth, and mothers who have given birth preterm have been shown to be more prone to anxiety and postpartum depression (Liberto 2012). “Preterm birth also induces substantial challenges and distress among the parents of the preterm infants. Hence, preterm birth has been implicated as a risk factor for maternal postpartum depression (PPD)” (de Paula Eduardo et al. 2019). O’brien et al., in a longitudinal study on maternal depression following premature birth, reported that almost half the mothers of premature infants reported depressive symptoms during hospitalization, at discharge, and six weeks after discharge (O'brien et al. 1999). Unfavorable birth outcomes and the fear of experiencing them can be considered added stressors to pregnant women.

Education & Support

Lack of education and resources, even when receiving consistent prenatal care, seemed to be common among mothers in the Mississippi Delta. Especially as first time mothers, many of them did not feel as if their questions were adequately answered. Many of them also did not feel as if they were truly educated on the risks of having a child preterm or LBW.

Research has supported that “antenatal education can reduce maternal stress, improve self-efficacy, and lower the cesarean birth rate and the use of epidural anesthesia…antenatal education should be standardized to elucidate its actual psychological and physical effects” (Hong et al. 2021). A standardized approach to educating pregnant mothers on preterm birth, low birth weight birth, breastfeeding, and all other common pregnancy related concerns is necessary to the United States health care system. While this may not prevent preterm and low birth weight

births, it may reduce maternal stress which could in turn reduce the rates of preterm labor and babies being born at what is considered LBW. In a 2018 study with 8,271 pregnant women and 1,081,151 children, results suggested a significant association between antenatal stress exposure and increasing rates of low birth weight (Lima et al. 2018).

Studies show that when additional resources are given to parents after giving birth to a preterm or low birth weight baby, parent satisfaction and preparedness upon discharge from the NICU have increased. (Berns, S., Boyle, M., Popper, B. *et. al* 2007). In the Premature Birth Need Gap Study, “several concerned topics the parents wished they had received more information about while in the NICU were: to help them after the baby left the NICU. The major topics cited were the development of a premature infant (31%), knowing where to go for support after leaving the NICU (25%), information regarding a specific challenge the baby was facing (21%), cardiopulmonary resuscitation (17%) and how to care for the baby at home (16%).” In addition to these topics parents felt uneducated about, “ A total of 62% of parents stated that they looked for information about caring for their infant from sources other than the baby's physicians and nurses. The major sources of such information were websites (74%), family and friends (62%), and books (44%)” (Berns, S., Boyle, M., Popper, B. *et. al* 2007). This study further supports that consistent education and resource allocation is necessary among providers of both pregnant mothers and babies.

A common theme among mothers who have given birth preterm is the lack of validation and support they tend to feel. This can be termed as “social support.” While they may feel supported in some aspects of their life, they may feel less supported during pregnancy and upon giving birth. “The term social support incorporates research on social integration, social networks, and social support” (House et al., 1988). Social support has been studied mainly as a

perception that others will provide the mother with specific resources during pregnancy if she should need them (Sarason et al., 1987). Alternatively, social support refers to a set of interactions or exchanges with others in which emotional concern, instrumental aid, or information about the environment or one's self are provided (House 1981). Social support is of the utmost importance to women during prenatal and postpartum periods, and additional follow up from providers and other resources such as social workers or case managers.

Rational

Overall, research has demonstrated that initiation of prenatal care at any point during pregnancy lowers the odds of low birth weight, preterm births, and infant death among infants. Research has supported the claim that "Insufficient or no PNC (prenatal care) is associated with unfavorable birth outcomes. Women who delay or receive no PNC are more likely to deliver a low-birth-weight (LBW) infant or have a preterm birth (PTB) compared to women receiving early care, and inadequate PNC is associated with an increased risk for neonatal death" (Zhang, Cox, Graham, Johnson 2009). The Risk factors for low birth weight births include young maternal age, minority race, low socioeconomic status, lack of education, and inadequate prenatal care. According to Lia-Hoagburg, who conducted a study similar to this one in 2002, women with no prenatal care are three times more likely to have low birth-weight babies than mothers with early and continuous prenatal care (Lia-Hoagburg 2002).

Unfortunately, much prenatal care is not available to many rural residents in Mississippi. There are a variety of issues in the rural health care system that account for Mississippi's consistently high preterm birth rates and low birth weight rates. In this study, preexisting disparities among women's maternal health care in rural Mississippi were analyzed as well as how this affects preterm birth rates and low birth weight births in Mississippi. Existing

quantitative public health data was reviewed to further exemplify the correlation between the lack of prenatal care and an increase in preterm births and low birth weight rates as well as include in-depth interviews comparing and contrasting the prenatal care experiences of women in small rural Mississippi communities and larger urban Mississippi communities.

This research project serves as a baseline qualitative study regarding the status of Mississippi rural prenatal care and resource allocation regarding women's health. It also serves as a measure of the lack of accessibility to prenatal care as well as the lack of education and resources available to pregnant women regarding unfavorable birth outcomes. Major research questions being asked in this study are: How does lack of accessibility to prenatal care in rural areas of Mississippi play a role in extremely high rates of unfavorable birth outcomes? How is lack of education on adverse birth outcomes affecting Mississippi mothers? How can policies expand to ensure that rural Mississippi women have the accessibility to health care, the resources needed upon giving birth preterm or to a LBW baby, and the eligibility to utilize it? Overall, this research project and the data collected shows the need for revised policy on rural health care accessibility, resource allocation, and prenatal care quality when accessible.

Methods

The research questions that this project focused on were: How does lack of prenatal care in rural areas of Mississippi play a role in extremely high rates of unfavorable birth outcomes? How can policies expand to ensure that rural Mississippi women have the accessibility to healthcare and the eligibility to utilize it?

An in-depth qualitative interview approach was enforced in which mothers were interviewed from rural areas within the state of Mississippi, specifically focusing on counties within the Mississippi Delta. Rural cities that were considered were located within rural counties, and each of these cities were within a 120 mile radius of Oxford, Mississippi. The United States Census Bureau released in a 2012 article that "rural areas consist of settlements with fewer than 2,500 residents." However, The Census Bureau does not actually define "rural." Rather, rural areas include all geographic areas that are not classified as urban. Examples of rural cities within a 120 mile radius of Oxford could be but are not limited to: Tishomingo County, Alcorn County, Prentiss County, Tippah County, Coahoma County, Yazoo, Issaquena, etc. The United States Census Bureau recorded each of these counties in 2019 with a population size that is considered rural under their standards. Public health data for each specific county was referenced in order to observe unfavorable birth outcome rates of each area. These in-depth, qualitative interviews with rural mothers of infants born preterm or LBW were perceived in order to assess the degree to which prenatal care access was lacking and the effects that said lack of accessibility to prenatal care has had on their child's health, their pregnancy, and the mothers' overall well-being and health. Interviews discussed the health of their infants at birth, asked mothers general questions

about their prenatal care experiences, and inquired about the level of education and understanding they feel as if they received within their prenatal care, if given. Mothers that had given birth in the last 24 months were eligible to participate in the study. To acquire participants for these interviews, I released fliers and informational handouts at businesses and health departments within the cities in focus.

Additionally, the Diaper Bank located near Clarksdale, Mississippi was a prominent resource in recruiting interview participants. The interviews were prefaced with a consent form in which they were asked “Would you like to help an undergraduate student’s research endeavors which pertain to prenatal care and birth outcomes?” When the mothers agreed to participate and share an in-depth account of their experience, the interview itself would take place. The following questions were asked within the interview to each participant.

Questions Regarding Pregnancy Experience and Birth Outcomes:
How long ago did you give birth?
Was your baby born before 37 weeks of pregnancy were completed?
Was your baby’s weight less than 5 pounds and 8 ounces at birth? Have you previously given birth to a preterm or low birth weight baby?
Can you tell me about your health practices and/or behaviors during pregnancy? Such as nutrition, exercise, etc.
Did you engage in smoking or tobacco use during pregnancy?
Did you have any pre-existing health conditions?
Questions Regarding Prenatal Care and Education:
Where is your nearest OB GYN or specialized women’s health clinic?
How often did you visit an OB GYN during your pregnancy, if you did at all?
If you did visit an OB GYN, did you feel as if attending prenatal care visits helped your health throughout pregnancy?
Why or why not?
How far did you have to travel in order to receive prenatal care?
How do you think having limited access to prenatal care has affected your womens’ health

needs?
Do you think limited access to prenatal care affected you throughout your pregnancy or baby's health?
How did you go about searching for prenatal care upon living in a rural area where accessibility may be less?
It is no secret that the health care system has its flaws. How did you go about navigating the system as a mother to be and as a postpartum mother?
Do you feel as if you were aware of the possibilities of giving birth preterm or to a low birth weight baby?
Did you feel educated about pregnancy?
Did you feel educated about the process of giving birth?
Were you supported through the process afterwards?
If you did receive prenatal care, did you feel validated in your questions and concerns?
Did you feel as if your questions or concerns were addressed adequately?
Were you educated about breastfeeding before giving birth or after delivery?
Is there anything that you wish you could tell a pregnant mother who could also give birth to a preterm or low birth weight baby?
Has anyone been monitoring your baby's progress or checking in on you and your baby's health journey? (Do you attend regular baby wellness checks?)
Does the information you receive at these check-ups address specific concerns you have regarding your child's prematurity or low birth weight?
Have you ever been given medical "advice" that felt like medical orders?
Were you put on bed rest at any point before giving birth?
Did you work up until giving birth? If so, why?
Were you allowed maternity leave in your profession, and if not, do you feel like this became a stressor for you? Why?
Potential Solutions to the Issues of Lack of Women's Health Care in Rural Communities:
Would you have attended an OB GYN the recommended amount of times throughout pregnancy if you had access to it?
Do you feel as if this is an important issue within health care today?
What policies or funding could be implemented to bring us closer to solving this issue?
What can the state do to get closer to solving this issue, such as allocate more funding, recruit specialized physicians to rural areas, offer incentives for physicians to move to rural areas, etc.?

These questions sought to provide insight on rural mothers' opinions, ideas, and knowledge about lack of access to prenatal care and the effects it had on their pregnancy, baby's health, and their personal overall health. In addition, they sought to provide insight into the level of education and validation women receive at prenatal care visits if given the opportunity to attend them. Initially, these interviews were pertaining specifically to prenatal care and unfavorable birth outcomes.

As women shared their vulnerable stories of being invalidated or uninformed by their provider, this led to more questions being asked pertaining to education regarding unfavorable birth outcomes, education regarding pregnancy, and the patient-provider relationship. In addition to these gaps in resource allocation as well as health education regarding mother and baby, I was curious as to how supported and validated these mothers felt after having given birth to a preterm baby or LBW baby.

The interviews then inquired participants' views regarding potential solutions to the gaps and issues presented in this study. These questions were geared towards obtaining participants' thoughts and insight on how to make prenatal care more accessible, as these women have endured the difficulties of poor resources and accessibility first hand.

These interviews took place over a video conference due to the lengthiness and personal aspect of them. Seven women were interviewed, and they were audio and/or video recorded in order for researchers to refer back to them for further discussion and direct quotes. Trint, a transcription service, was used to transcribe these interviews. Inductive coding methods were then used to identify themes and subthemes from the qualitative data via Quirkos, an online coding subscription service. Inductive coding is somewhat of a "ground up" approach regarding

qualitative data analysis. Codes and themes were derived directly from the data collected in this study rather than preconceived notions. Inductive coding allowed themes to be developed based on the seven participants' experiences without previous bias.

A goal throughout this process was to foster a relationship with these women in order to refer back to them if needed throughout the project. Another goal was to encourage these women to share their personal experiences in order to further my understanding of how to better the rural health care system among women and specifically among mothers.

Limitations:

This study possesses several limitations. Sample size can be considered a significant limitation, as only seven participants were recruited to participate. This is most likely due to another limitation, which is the very specific and exclusive criteria under which research was being conducted. That being said, a limited number of participants fell under these categories. Another limitation within this study is that research was conducted regarding specific regions of rural Mississippi, limiting the generalizability of participants and candidates for interviews. Lastly, only three rural areas were able to be researched upon, limiting the variability of the study.

Results & Discussion

Theme One: Unfavorable Birth Outcomes	includes preterm births, low birth weight births, & premature death; can lead to other developmental issues and illnesses in the future
Subtheme: Preterm Birth & LBW Baby	preterm births (<37 wks gestation) low birth weight births (<5 lbs 8 oz)
Subtheme: Premature Death	the condition in which a child is either born stillborn or not breathing due to complications of preterm birth
Theme Two: Health Influences During Pregnancy	Health practices, overall health, and social determinants of health regarding a woman's pregnancy
Subtheme: Health Behaviors	prenatal exercise, prenatal health habits, pre-existing health conditions, bedrest, smoking and tobacco use
Subtheme: Stressors and Anxieties	included COVID-19 affects, maternity leave or lack thereof, and other stressors brought on by pregnancy
Theme Three: Prenatal Visits	health care that a pregnant woman receives from a qualified provider; services include dietary and lifestyle advice, screening for fetal development issues, and screening for pregnancy complications
Subtheme: Pre-Existing Conditions and Preventative Measures	accessibility to prenatal care visits allows providers to educate patients on their health and how at risk they may be
Subtheme: COVID-19	COVID-19 has been impactful for many pregnant women and postpartum mothers over the last 24 months with obstacles varying from fear of getting COVID-19, decision to get the vaccine or not, and lack of consistency in visitor policy due to the pandemic

Subtheme: Patient Provider Relationship	a relationship that exists between the patient and provider founded upon a mutual agreement of the patient to trust the provider with his/her healthcare and the provider to trust the patient with serving the patient's medical needs
Subtheme: Validation, Support, & Follow-Up	the provider's job to provide sound medical professional advice, validation, and support; the lack of postpartum follow-up in OB GYN culture
Theme Four: Accessibility to Care	having the timely use of health services to achieve the best health outcomes
Subtheme: Location & Travel	accessibility to health care in terms of how centrally located a women's health care provider/providers may be to a rural area
Subtheme: Lack of Resources	the lack of resources available to women in rural areas of MS as far as specialized women's health clinics, adequate amount of providers per capita, and little to no "easy access" to any efficient healthcare service in case of emergency
Theme Five: Health Education	a type of education designed for individuals or the public at large to gain the knowledge, skills, value, and attitudes necessary to promote, maintain, improve, and restore their, or another person's, health
Subtheme: Lack of Resources and Education	the lack of resources available to MS women regarding health practices, prenatal health, and postpartum health; lack of physical buildings and funding to reach these rural health needs
Subtheme: Gaps in Breastfeeding Education	gaps in breastfeeding education and support at prenatal visits and following birth
Subtheme: Policy, Recruitment, & Retention	the research, draft, finalization, and implementation of new policy to tend to women's health care/prenatal care needs in rural MS which includes but is not limited

	to: Recruitment of providers, retention of providers, funding, resource allocation
Theme Six: Child's Health	the care and treatment of children, specifically children born with unfavorable birth outcomes
Subtheme: Follow-Up	follow up of child's well-being and developmental progress from someone besides their pediatrician
Subtheme: Pediatrics	specialty of medical science concerned with the physical, mental, and social health of children from birth to young adulthood

Theme One: Unfavorable Birth Outcomes

Preterm Birth & LBW Baby

"I'm not sure where I was, because all I did was worry the whole time about having another premature baby."

"Born at 25 weeks… one pound and 11 ounces. You know, I didn't find out I was pregnant until 4 months into pregnancy."

A true epidemic in Mississippi's health care system is the high rates of unfavorable birth outcomes reached each year. The National average of infants born preterm is 9.8%, whereas Mississippi's average is 14.6% of all live births. Additionally, the National average of low birth weight births among all live births is 8.2%, whereas Mississippi's average is 12.3% of births (CDC 2019). Each of the seven women interviewed gave insight as to what it is like to live in fear of giving birth prematurely or to a low birth weight infant. Besides preterm births and low birth weight births, there were patterns in which mothers that had given birth prematurely in the past were then more likely to give birth prematurely again. Each mother that had gone into

preterm labor with a previous child then again went into preterm labor with their most recent pregnancy. In addition, due to not meeting gestational age, each of these infants aside from one were what is scientifically considered LBW. Each of the women who participated in this study explained that they were not made aware of the possibilities of giving birth preterm or to a low birth weight infant. One participant said, *"(They were) trying to hold me out until thirty-six weeks. Overnight they were like, 'No, we can't keep risking this. Your blood pressure is not stable enough. So they went ahead and took the baby… at 4 pounds, 13.5 ounces."* Her experience is not necessarily unique in which she knew she was at risk, was being monitored, and ultimately delivered early. However, prenatal care can be interventional in these ways. Without the opportunities or resources available to receive prenatal care, mothers may not be aware of the possible outcomes of their own health or their baby's.

Premature Death

"I'm a mother of three, I was a mother of four. I had another premature baby, but he passed away right after birth."

Premature death is the condition in which a child is either born stillborn or not breathing due to complications of preterm birth. The infant may not be breathing or may not have developed fully in the womb in order to survive. Only one of the seven women had previously given birth to an infant who suffered from premature death. However, Mississippi ranks the highest in the United States among rates of premature death, with the state's average percent of infant deaths per live births being 8.6% and the National average being 5.7% (America's Health Rankings 2021). Infant mortality is an additional sector of unfavorable birth outcomes that is not focused on as much in this research, but Mississippi is still facing immense challenges with.

Theme Two: Health Influences During Pregnancy

Health Behaviors During Pregnancy:

A common theme among women who have experienced unfavorable birth outcomes was the focus on or awareness of the importance of healthy behaviors. Specifically women mentioned diet and exercise. Several mothers detailed their attempt to alter their diet and/or exercise routine upon suggestions from providers or loved ones. Many of the respondents' awareness of healthy behaviors were a result of their pre-existing conditions, which can be harmful during pregnancy. For example, a mother from Batesville, MS, had experienced hashimoto's thyroiditis for the majority of her life. Knowing this risk, she knew to seek prenatal care and to carefully monitor her health condition throughout pregnancy. *"It really lowers your metabolism so I gained a little more weight than I should have. I was diagnosed with placenta previa…around the point that we found that we were having a boy."* She was ultimately put on bed rest, which severely restricted her physical activity. In contrast, another participant's baby was *"[b]orn at 25 weeks… one pound and 11 ounces."* She did not find out she was pregnant *"until 4 months into pregnancy."* Because this participant was unaware of her pregnancy, she was unknowingly smoking while pregnant. Smoking and tobacco use during pregnancy is a risk factor for low-birth weight and preterm birth.

Stressors and Anxiety (COVID-19, Maternity Leave, etc.)

Anxiety and depression can be triggered by many things during pregnancy. When asked about pregnancy, each of these women referred to various times they were anxious. These anxieties varied from their known risk of having a preterm baby to their fear of their child's health after birth. In addition to these anxieties, the COVID-19 pandemic has been impactful for

many pregnant women and postpartum mothers over the last 24 months. Obstacles created from the pandemic varied from fear of getting COVID-19, deciding to get the vaccine or not, and the continuous lack of consistency in visitor and social distancing policies. One participant spoke upon her thoughts and worries of getting the vaccine. *"I got it (the COVID-19 vaccine) like a week and a half before I went into preterm labor … We had four moms die (at the hospital in which she worked) in two weeks that were pregnant. And so I was like, I'm not risking it. I don't know either way. If I hadn't gotten that, maybe you know she would have made it full term."* The decision alone caused an additional stressor to her pregnancy, and the decision now has raised speculation and guilt.

Absent in the interviews with many of these women was the lack of concern regarding maternity leave. For many women in the US the lack of maternity leave is a significant source of stress and anxiety (Avendano et al., 2015). Five out of the seven women in this sample were allowed maternity leave and were supported through their absence. However, one participant explained that she **"***worked until (she) was about four months and a half."* She gave birth at five months and worked daily packing delivery trucks up until going into preterm labor. She then went on to explain to me that in addition to the overwhelming physical and mental stress her job added, she was not allowed maternity leave and would eventually be required to quit her job. When asked what her advice may be to a mother in a similar situation, she said, *"Try to stay out of a stressful environment because it can lead to an emergency C-section."*

Theme Three: Prenatal Visits

While almost all of the mother's interviewed in this study received prenatal care, the overwhelming consensus was that prenatal care visits are lacking in many areas of education and resources as well as empathy and humanization. A common theme seen in this study regarding prenatal visits includes the recognition of pre-existing conditions and preventative measures through prenatal care visits, offering perspective on those who may not have access to such care. Another common theme in these interviews was how the Covid-19 pandemic affected mothers' and families' experiences with prenatal care. Additional themes include an evaluation of each participant's patient provider relationship as well as their lack of follow up and validation upon mothers' anxieties and concerns.

Pre-Existing Conditions & Preventative Measures

"I didn't have any pre-existing conditions or anything, but it was just a way to monitor and make sure that nothing was going to pop up throughout your pregnancy."

"I went to the clinic for cramping and she was like, Oh, you're fine. Like, you haven't changed. But I think that was like the start of labor."

Patient accessibility to prenatal care visits allows providers to educate patients on their health and how at risk they may be. Several mothers explained their providers' prescriptions of 17P hormone shots throughout their experience with prenatal care visits. This hormone contains progesterone which has been shown to prevent contractions and slow preterm labor. Providers tend to prescribe these during the second trimester of pregnancy, and each of the women in this study that received them did not fully reap their intended effects. *"I also took those shots that you take every week. I was taking (those) pills. Every week I was taking a shot at four. For some*

reason, (the baby) just decided he wanted to come early." Just a short few weeks after finding out about her pregnancy, one participant found herself giving birth preterm. She did not have the time or resources to consistently attend prenatal care visits, and she did not truly grasp the risk she was at giving birth preterm. These are challenges that need to be addressed regarding pregnancy and the curriculum of education regarding birth and first time mothers. Her lack of education regarding the signs of pregnancy as well as her lack of accessibility to prenatal care could have contributed to her preterm labor. *"I think the first time moms experience, you know, their experience is probably the worst."*

<u>COVID-19</u>

"It's just such an emotional thing. It was as hard having to go through all day by myself. He couldn't even go in until I had the baby."

As with pregnancy, COVID-19 had a lasting impact on prenatal care visits and the experiences that coincide with these appointments. Mothers reported this as an added stressor. Though these policies were put into place to allow social distancing and were strictly safety precautions, the fear of being alone at each appointment was anxiety inducing for many. The continuous fluctuation of policy made the fear of having to deliver alone an added stressor as well. One participant noted that her initial worries of preterm labor pushed her to go to the hospital towards the end of pregnancy, and that visit *"was the first time (her husband) was able to even see the ultrasound*" due to the limiting Covid-19 guest policies. This same participant additionally visited a specialist in Memphis once a month during pregnancy, a three hour drive from her hometown. She said, *"I was having to go to Memphis once a month also to check on the baby to a specialist and my husband couldn't go in there. So he would have to drive that far.*

And he would have to sit in the car.” She went on to explain how stressful this was for her, as these visits were highly anticipated by both her and her husband and very anxiety-inducing without his support.

Patient Provider Relationship

***On feeling invalidated* “Now (with) my doctor, I didn't feel that at one time because I told him that I was experiencing really bad migraines (in the beginning of pregnancy) and he wouldn't give me anything…I was like a month or two out (from giving birth) and I'm still complaining about the same headache. Then he was finally like, ``You know, let's try to see what's going on because this headache is still lingering around.”**

“They didn't educate me enough about giving birth vaginally or a C-section because I had a C-section. It wasn't exactly what I expected.”

The patient-provider relationship has become increasingly more important with the evolution of health care. Providers are rigorously trained to be prepared to do their job and to suggest sound medical advice to their patients. The patient-provider relationship can be defined as the relationship that exists between the patient and provider founded upon a mutual trust of the provider with the patient’s health care and wellbeing. OBGYNs, the specific provider of interest in this project, can be defined as obstetrician gynecologists which are specific medical providers specializing in women’s health both prenatal and postpartum.This theme of patient-provider relationships among mothers who have given birth preterm or to LBW infants was consistent throughout the interviews. Support seemed to be a factor that was missing from most patient-provider relationships. With each woman interviewed, there was a lack of support or

mutual respect of the relationship between the patient and provider. There were instances among each participant where the provider did not make the patient feel supported in their decisions or in their options of care. Another recurring pattern among the women was again the lack of validation felt with concerns. Several instances reported the lack of professionalism among providers, while others focused more on the lack of empathy and understanding from provider to patient. The participant from Madison, MS told me upon being asked about feeling validated, *"But I think while I was on bed rest… I wasn't really getting as much information as I thought I would need."* This scenario paints the picture of lack of support from provider to patient during a time of confusion and stress.

Validation, Support, & Follow-Up

An overwhelming pattern within this theme of prenatal care visits was the lack of validation and support pregnant mothers were feeling at their most vulnerable. Through conversations with these seven women, many experienced a lack of validation given to pregnant women in their concerns, thoughts, and questions regarding fetal health and mother's health. They felt unseen and unheard. Support was another key aspect missing in these visits. Providers and care takers at prenatal visits were seemingly inadequate. The women in this study did not always feel supported in their health care decisions and in conversations with providers. *"I went to the clinic for cramping and she was like, Oh, you're fine. Like, you haven't changed. But I think that was like the start of labor."*

Each mother expressed similar concerns. They each liked their provider and were glad they had them to care for them and offer medical advice, but the common theme seemed to be lack of a true relationship. If a true relationship existed, it is fair to say that each patient would

have felt validated and supported. In addition, the lack of follow up for mothers within the field of obstetrics. By definition in the Merriam-Webster dictionary, obstetrics is the branch of medical science that deals with pregnancy, childbirth, and the postpartum period. If this is the case, follow-up and care following pregnancy is considered the responsibility of obstetrician-gynecologists. Each mother expressed concern in the lack of follow-up regarding their own health. *"After birth, you get a pamphlet and a new baby. Here you go. Good luck."* Postpartum depression and anxiety are extremely common, and mothers who have given birth preterm have been shown to be more prone to anxiety and postpartum depression. Because this is a common experience, it would be beneficial for the patient-provider relationship to maintain its strength following birth. The stronger this relationship is, the more comfortable women who are struggling will feel in their care options and in their medical decisions. Each mother expressed feelings similar to this participant's testament; one appointment is not enough.

<u>Theme Four: Accessibility to Care</u>

"I could see how that would really limit some people because, like, it's not possible for them to get there. Like how are you supposed to have your checkups even like annual OB-GYN appointments, if you don't have the means to get somewhere?"

"I definitely feel we need more physicians because they are overbooked. They have more clients than they need and the wait time is ridiculous at our local women's clinic."

<u>Location & Travel:</u>

In this particular study, four out of seven women interviewed were from the Mississippi Delta, two were from the surrounding Oxford area, and one was from the surrounding Madison area. The level of accessibility to care they each had varied among them, and the quality of care, too, varied among them. Accessibility to care can be defined as "having the timely use of health services to achieve the best health outcomes." Much of rural Mississippi does not have true accessibility to health care. Two defining characteristics of accessibility to health care can be considered to be location/transportation and lack of resources. Location/transportation can be defined as the accessibility to health care in terms of how centrally located a womens' health care provider/providers may be to a rural area; how far one may have to travel to reach such care. Lack of resources can be defined as the lack of resources available to women in rural areas of MS as far as specialized women's health clinics, adequate number of providers per capita, and little to no "easy access" to any efficient health care service in case of emergency. The four women from the Mississippi Delta lived in and around the Clarksdale, MS area. Each of them attended The Women's Clinic in Clarksdale. As far as location or means of travel, these women

were each relatively close to the clinic. However, because they each were considered high risk of giving birth preterm, several had to see specialists in separate cities. One participant explained to me the challenges of having to travel so far to a specialist. *"But you know, being that you have so many different hormones going on and different things, it is just challenging when you have so far to go."*

Lack of Resources:

Another common consensus among the Delta women was that the clinic in Clarksdale is overbooked and understaffed. Upon hearing each of their accounts, it seems to be that the Clarksdale clinic is lacking an adequate number of providers per patient capita. *"Everybody had their, you know, they already have their clientele who is quite large. So I'll just say, well, I need to get in to see a doctor to start my care. They'll probably put you at the nurse practitioner until you get to, I'll say seven months, and then you will start seeing OB." Another participant expressed that she "still used the same clinic, but had different nurse practitioners because the doctor that she loves has quite a case load."* These discoveries fall under the category of lack of resources, as despite having access to a clinic and prenatal care, the lack of providers among the population seems to be a confounding issue. *"I definitely feel we need more physicians because they are overbooked, they are overworked. They have more clients than they need and the wait time is ridiculous at our local women's clinic."*

The two women from the Oxford area had similar experiences. They were each within a fifteen mile radius of a women's health clinic and both had the means to get there. However, they offered interesting perspectives for those who may not have the means to travel to their nearest clinic. *"I could see how that would really limit some people because, like, it's not possible for*

them to get there. Like how are you supposed to have your checkups even like annual OB-GYN appointments, if you don't have the means to get somewhere?" This participant added what could have been her potential consequences had she not had the means to attend appointments at the women's health clinic. *"I mean, in my case, if I didn't know that I had placenta previa, I. Probably would have continued to do my normal stuff, but it could have caused me to go into preterm labor or to hemorrhage, and that can cost not only my baby's life, but mine too. Right?"*

The mother from the Madison, MS area, too had an interesting perspective as a first time mother and labor and delivery nurse. She had to travel twenty miles to get to an OBGYN, as she said *"the OBGYN offices around here are all down in Jackson, near like UMMC (a medical school and research hospital located in Jackson, MS)."* She, too, had the means to travel to appointments. As a labor and delivery nurse at a hospital in Jackson, she said *"Sometimes we have women that even, you know, their nerves are so bad that they'll kind of come up with symptoms in their head. Just to get an appointment or get another ultrasound just to check on their baby, so I know, like I know when I worked at St. Dominic's, we would have patients come in like that. They (provider) will look at their past prenatal care, and it will show they hadn't been shown up to their appointments because they don't have rides right there."* While she personally did not have experience with lack of accessibility for socioeconomic factors and reasons, she contributed experiences of other mothers in the area that are common in that they do not have the means to get to prenatal care appointments.

<u>Theme Five: Health Education</u>

"Even as a health care worker and even somebody who has the means to get there. I did a lot of their research myself. Yeah, and there is a lot of stuff that I didn't know. And so I feel like there is a very big lack of education."

"The question they will ask is are there clinics or facilities where they, even if they are all physicians, aren't always wise to the area, are there buildings that are already, you know, right up that they could, you know, start a clinic or start a hospital or whatever is needed."

<u>Lack of Resources and Education:</u>

Another theme that tracked along each interview with each mother was the lack of health education regarding prenatal health, postpartum health, maternal health, breastfeeding, and even child care. Health education generally can be described as a type of education designed for individuals or the public at large to gain the knowledge, skills, value, and attitudes necessary to promote, maintain, improve, and restore their, or another person's, health.

A common consensus among the participants in this study was the lack of resources available to Mississippi women regarding health practices, prenatal health, and postpartum health. With Mississippi historically being the state with the leading numbers in teen pregnancy and unfavorable birth outcomes, resources and education in these areas would benefit the state. First time mothers' education is lacking in Mississippi, according to the participants of this study. They each explained how little they felt they knew as a first time mother. *"Well, the first time was my first pregnancy and I always go back to the first pregnancy, you know, I knew what to expect, but the first pregnancy was not as I was not taught anything about. Breastfeeding, I can't remember if I had a lactation specialist or not."* Providers and health care workers did not make

these women feel comfortable and educated regarding their pregnancy, giving birth, or breastfeeding. *"They didn't educate me enough about giving birth vaginally or a C-section because I had a C-section. It wasn't exactly what I expected."* This participant's lack of knowledge is seemingly common, and giving birth vaginally or by cesarean section is something that sometimes ends up not being a choice they have. Either way, both methods of giving birth need to be learned by expectant mothers. Pregnancy is anxiety inducing on its own, and adding in the lack of knowledge these mothers were given increased anxiety levels. In addition, one mother explained that their provider did not truly make them aware of their possibilities of giving birth preterm or to a LBW baby.

Anxiety and depression during pregnancy is something one mother spoke about as well. *"You can have anxiety and depression while you're pregnant. And that's not talked about, either. So I think education is a really big piece that is missing for sure."* Education in the area of both prenatal depression and anxiety as well as postpartum anxiety and depression, despite their prevalence, have not been implemented into the practice of women's health care providers according to these women.

Gaps in Breastfeeding Education

Gaps in breastfeeding education and support at both prenatal and postpartum visits were also reported by the participants in this study. There were inconsistencies among the mothers receiving a lactation specialist following birth, and many reported that upon meeting with the specialist once, they did not receive guidance again. *"I did have a little experience with an older lactation specialist that was there, and she told me how to do it. But when it was time for me to do it, I did not know why she was a little snippy with me. I need to see it. You can't just tell me*

where I need to see him do it. And like, she got a little irritated because I didn't know how to do it. She had just told me, but you didn't tell me, you just say that your mouth and it's not the same." This participant's experience confirms the inconsistency in breastfeeding education. When asked how this could be improved upon in the future, she said *"To not (make them) feel that everyone should automatically know how to do it or should be able to do it there with you giving them verbal instructions. Maybe even have like a presentation where it don't have to be just one on one. It can be a video you can refer back to."*

<u>Policy, Recruitment, and Retention</u>

Despite the lack of education and knowledge bestowed upon these mothers, several of them pointed out the lack of physical buildings and funding allocation to improve upon Mississippi's health care system and lack of accessibility. These changes can only be made with policy change, or the research, draft, finalization, and implementation of new policy to tend to women's health care and prenatal care needs in rural Mississippi. Policy change and amendment with potential solutions to these educational gaps could be beneficial to mothers like the women in this study. In each interview, they were asked what they felt could be improved upon or done to better the education of mothers and pregnant women. One solution talked about frequently was the recruitment of providers to Mississippi areas that are specifically in need, and recruitment of providers in turn requires retention of providers. One mother said, *"I think definitely offer incentives. You know, money cannot solve every situation, especially if you're, well, you know, you take on this job, we'll give you a sign on bonus or something like that. I think funding is another source."* Incentives to encourage physicians to come to rural Mississippi could be a step in prioritizing women's health care in Mississippi. Funding, as she mentions, is

another area in which the state would need to improve upon to in turn improve upon women's health education and women's health care. Funding and resource allocation would be the barriers to improvements if not reallocated and reconsidered. *"The question they will ask is are there clinics or facilities where they, even if they are all physicians, aren't always wise to the area, are there buildings that are already, you know, right up that they could, you know, start a clinic or start a hospital or whatever is needed."* This participant is correct by speculating that even if Mississippi can recruit and retain providers, facilities and equipment would be necessary to make an impact in rural communities.

Theme Six: Child's Health

"I just asked. Has anyone been checking in on your baby to make sure she's developing well and properly?

I don't know. I had someone to talk to me when she was there, but the baby is not there anymore."

Follow-Up

Upon giving birth preterm to a LBW baby, many mothers in this study explained the worry they felt regarding their child's health. Because the babies were born before full gestational age, there were possibilities of developmental delays, birth defects, difficulties breathing, and other complications. This theme of child's health can be defined as the care and treatment of children. Pediatrics can be defined as the specialty of medical services concerned with the physical, mental, and social health of children from birth to eighteen years of age. Lack of follow-up regarding the child's health was a shared experience among each mother in this study. While they each took it upon themselves to obtain pediatric care, there was no follow-up or check-in regarding progress from the hospital which cared for their children upon birth.

Pediatrics

Their pediatricians were each keeping track of the child's weight gain and development, but no one from hospital care followed up. Each woman was asked about their interactions at the hospital and after being discharged regarding check-ins on their child's health, and most explained that while someone may have been suggested to them or met with them, they had not

seen or heard from that specialist since child discharge. **“I just asked. Has anyone been checking in on your baby to make sure she's developing well and properly?**
I don't know. I had someone to talk to me when she was there, but the baby is not there anymore.” Pediatric care and continuous check-ups for babies born prematurely or at LBW is crucial to their overall health.

Recommendations

In summary, this work evaluated the relationship between unfavorable birth outcomes and rural Mississippi health care accessibility, specifically women's health care. Findings from this work suggest that accessibility as well as quality of prenatal care needs to be improved in Mississippi. Mississippi's history of a high population of impoverished citizens can be seen as a contribution to health care disparities and structural barriers. Extensive research has been done to show that poverty and health care professional shortages are contributors to access and utilization in Mississippi (Connell 2019). Quality of care in rural Mississippi has been shown to be inconsistent through qualitative methods of this study. An additional issue that has been highlighted during the qualitative interviews within this study is that even with facilities and resources in Mississippi prenatal care, there are not enough providers per capita to truly make prenatal care accessible. Education and resources given to pregnant women regarding unfavorable birth outcomes is extremely lacking in consistency in the state of Mississippi. Having access to educational resources regarding the effects of unfavorable birth outcomes both before and after giving birth are necessary.

Based on these findings, potential solutions include:

(1) Reallocation of resources available to rural and impoverished areas in Mississippi. For example, expansion of facilities in rural areas would be a starting place for the lack of accessibility. While expansion of facilities alone is not enough to improve quality, some spaces need even basic services that can be feasible with adequately resourced facilities

as well as funding to match what rural areas need. Another example of how this can be made possible is taking advantage of existing facilities to provide basic services to pregnant women in Mississippi. Even having an ultrasound clinic or dual purpose facility in which an ultrasound machine is already in use could be wildly beneficial and expand upon the current accessibility. Creatively thinking about health care delivery and the means by which this could already be accomplished and accessible to those in need is crucial for the improvement of health care in rural areas.

A health care clinic in Topeka, Kansas recently began innovations within their health care environment to create more of a "team" approach, in which their facility employs a variety of providers who work together to better treat the patient. Through this new means of primary care, they essentially operated more like a small hospital team. The clinic provides mental health services, a social worker, a Medicaid care coordinator, and primary care physicians (Chilson 2018). This innovative approach could be a potential solution for Mississippians, specifically Mississippi women. Obstetric Nurse Practitioners and/or OB GYNS could be employed by these clinics rather than the need to fund and build new facilities in order to make PNC more accessible.

(1) Recruit and retain high quality medical providers in rural spaces. While there are certain programs in place, such as the Rural Physicians Program, these programs are extremely exclusive and selective. They choose eight to ten students each year in which the state fully funds their medical school financial journey (*Mississippi Rural Physicians Scholarship Program Home* 2016). In turn, these students vow to return to rural areas for a contractual five years. While this is a wonderful program, it does not specifically target

obstetrics and gynecology, and it is only completely reliable for five years following residency graduation.

A 2006 study sent out surveys to 28 rural hospital CEOs in the state of Illinois to gain their perceptions of health workforce needs in their communities, as well as views of potential barriers and strategies in the recruitment and retention of health care professionals (Glasser et al. 2006). Nineteen of the 22 CEOs (86%) who responded answered yes to the question of a physician shortage in their town. 64% of the 22 CEOs reported a need for family physicians, and half of the respondents mentioned the need for physicians in obstetrics-gynecology and orthopedic surgery (Glasser et al. 2006). Studies such as these solidify this issue of recruitment, and incentives for physicians to come to rural areas could be a solution to these issues. Two major themes to consider regarding appropriate incentives from this particular study in Illinois are the attractiveness of the community, which includes evaluations in relation to excellence in the school system, the community being a good place to raise a family, and people in the community being friendly and supportive, and how well respected physicians are in the specific community, such as community health professionals getting along and working well together, health care providers and other community sectors working well together, and the view that it is not difficult for rural physicians to achieve their career goals (Glasser et al. 2006). Economic development in the field of health care is also something that physicians considering moving to rural areas may consider, which reinforces the need for the reallocation of resources and funding in rural areas regarding health care.

Retention remains the larger issue among providers in rural areas of many states and even in other countries. In Australia, the federal government has invested in policies

and strategies aimed at addressing rural health workforce shortages since the early 2000s. These policies included increasing the number of government-funded university training places for health students, setting quotas in university health courses for students from rural backgrounds, and offering financial incentives and support to encourage qualified health professionals to "go rural" (Cosgrave 2019). These policy implementations in Australia from almost two decades prior are recommended from this study to be implemented in the United States. While many states may have their own policies and procedures that attempt to encourage retention in healthcare providers, a country-wide health care policy that advocates for rural communities and for health providers in rural communities could be the game changer regarding retention as well as recruitment.

(2) Policy expansion regarding education and resources given to pregnant women regarding unfavorable birth outcomes has been inconsistent in the state of Mississippi. The participants in this study were given varied amounts of information prior to giving birth, regardless of whether the patient was at risk or not. Mississippi is known for having the highest rate of unfavorable birth outcomes in the United States (CDC 2018), which solicites the need for consistent resources due to its commonality in Mississippi. Consistency across women's health care providers could help reduce educational barriers regarding pregnancy.

An example of a way policy could be put into place to improve upon these inconsistencies can be seen in a resource resembling Text4baby. Text4Baby is the first national mobile health service in the United States that aims to provide information to pregnant women to help improve health outcomes. More than 320,000 participants

enrolled in the program between 2010 and 2012 (Olivia Kim et al. 2019). This smartphone-based prematurity education program that "provides anticipatory guidance to parents with preterm birth associated risk factors may enhance the quality of parental health care decisions and improve prematurity care" (Olivia Kim et al. 2019). Mississippians need this resource or a policy implemented education system in women's health care that can enhance the quality of care and accessibility of education.

In addition, research has shown that states that have policies to allow direct entry midwives and certified nurse midwives to practice may increase access to care, especially in under-resourced areas (March of Dimes 2022). Mississippi is not currently one of these states, and policy expansion regarding the consideration of midwifery as a health care profession could expand access in rural areas.

(3) The patient provider relationships observed through this study support the idea that more follow-up is necessary throughout the postpartum process. This recommendation of added follow up procedures goes along with the observations in this study for needs of increased validation and support. Several women reported that they felt either invalidated or made to feel as if their concerns were uncalled for while pregnant. Concerns of these women alone calls for an improvement in how providers interact with patients, specifically women who are pregnant. As previously stated, studies on maternal depression following premature birth have shown that almost half the mothers of premature infants reported depressive symptoms during hospitalization, at discharge, and six weeks after discharge (O'brien et al., 1999). According to a 2021 collection of data by the United States Health Services, 22.1% of women with a recent live birth have reported

experiencing depressive symptoms in the state of Mississippi. This makes us the second leading state in postpartum depression rates.

The current standard per the American College of Obstetrics and Gynecology recommends that all obstetrician–gynecologists and other obstetric care providers complete a full assessment of mood and emotional well-being (including screening for postpartum depression and anxiety with a validated instrument) during the comprehensive postpartum visit for each patient (ACOG 2018). While this is a step in the right direction, additional follow-up is required to ensure patient stability following giving birth. A potential solution could be implementing a specific procedure and policy in which mothers, specifically mothers who gave birth to children with unfavorable birth outcomes, are screened at pediatric appointments as well for the first three months of the infants' lives. In addition, more than one follow-up visit could be beneficial to postpartum mothers, as mental and physical health is continuously changing based on many social determinants.

In a very recent project by Cohen et. al, 523 pediatric clinics screened 273 mothers over a span of six months for postpartum depression during their child's well visits. This study was used to establish a screening protocol for mothers at their infants' well-child checks. For mothers with positive screens, providers referred them to mental health care and updated their child's electronic health record diagnosis to prompt reassessment for future visits. Among those with positive screens, 63.2% of these mothers attended their mental health referral. "By educating providers and staff on the impact and the importance of early screening and interventions, providers can make timely referrals to community resources and mental health services for mothers at risk for

PPD…Pediatric providers have a unique opportunity to identify those at risk and facilitate access to services that will impact the health of the entire family" (Cohen et al. 2022). This study is an example of a consistent protocol that could be implemented into pediatric clinics in Mississippi, as well as potentially expanding to primary care clinics as well as health departments.

Expansion of Medicaid in Mississippi to cover women for pregnancy-related Medicaid coverage for more than the standard 60 days after pregnancy for up to one year could reasonably lower these effects in Mississippi. Extending this coverage typically requires both state legislation and an appropriation in addition to a Section 1115 waiver (March of Dimes 2022). Only three states have done so at this time, but Mississippi's statistics call for this expansion more so than in other states.

Conclusions

Overall, this study has supported the idea that despite Mississippi's focus on the importance of children, little is being done to help educate mothers and parents regarding the risk of unfavorable birth outcomes as well as the potential developmental delays that can happen in relation to these outcomes. It is also apparent that prenatal care accessibility is inconsistent and inaccessible to many Mississippians. Policy change and resource allocation will be the greatest subjects of women's health care reform in these areas, and further research regarding the benefits of additional maternal education during both prenatal and postnatal periods could be beneficial to the future of prenatal care and unfavorable birth outcomes. In conclusion, this study's results call for revised public policy about the health care distribution and education in Mississippi and expansion of access to rural populations.

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