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Rural Resiliency: The Cause and Effect of Minnesota's Maternal Health Crisis

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Abstract:

The United States is experiencing a maternal health crisis that disproportionately affects those who give birth in rural communities. Rural birthing people have higher maternal mortality rates, increased risk of postpartum hemorrhage, non-indicated cesarean sections, and other adverse health outcomes. Despite the enhanced risks of rural birth, rural communities are losing access to hospital-based obstetric care at an unprecedented rate. Minnesota has vast rural territory, with one-fourth of its population living outside the urban sphere – making it a strategic area of study. As of July, 2021, 31% of Minnesota's 91 rural hospitals were at risk of closing. The repercussions of obstetric loss reverberate through rural communities, leaving indelible physical, emotional, and economic impacts. This paper seeks to identify why American rural communities are experiencing the loss of hospital-based obstetric services and how local communities in rural Minnesota respond to the lack of maternal healthcare. Using a mixed-methods approach, this paper compares findings from a systematic literature review to survey responses and ethnographic interviews with birth workers and birthing people across Greater Minnesota. This research intentionally seeks out and uplifts rural knowledge to highlight the resiliency of Greater Minnesota. Findings from interviews suggest that communities identify macro-level issues as barriers to equitable, high-quality care. Minnesota's rural communities respond to the maternal health crisis with place-based and community-specific public health measures. This study highlights the lived experiences and local knowledge collectively held by rural communities and provides critical insights into the reality of rural birthing across Minnesota.

Keywords: birth, rural, Minnesota, hospital-based obstetric care, closures, local knowledge

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Chapter 1:

Introduction

A maternal health crisis exists within the United States. Despite international perceptions of might and medical prowess, America is the most dangerous high-income country in which to give birth (Tikkanen et al., 2020). Research identifies three categories of Americans who are the most susceptible to adverse outcomes associated with pregnancy and birth: people of color (Hadayat, 2017), low-income individuals, and the focus of this paper, those that reside in rural areas (Maron, 2017). In the United States, 18-million people with uteruses are of reproductive age and live in rural communities, giving birth to half a million babies per year (Henning-Smith et al., 2017). Rural individuals experience a nine percent higher risk of having a dangerous childbirth than their urban equals (Admon, 2019). Rural communities have higher maternal and infant mortality rates compared to their urban and suburban counterparts (Simpson, 2011). Yet, despite the glaring need for further investments in rural maternal healthcare, rural hospitals are closing their obstetric units at unprecedented rates (Hung et al., 2017).

This research is timely because as COVID-19 ravages the United States, healthcare systems are faced with increased strain and are more susceptible to hospital closures (AHA, 2021). This pandemic has illuminated systemic issues in healthcare, but specifically within rural systems. Rural residents are more likely to experience severe illness or death from COVID-19 than their urban counterparts because of the following factors: large population with underlying health conditions, significant elderly population, high rates of under-insurance, and distance from an intensive care unit (ICU) (Dobis and Mcgranahan, 2021).

From 2019 to 2020, 19 rural hospitals across the United States closed, the highest number ever recorded of annual shutdowns (Topchik et al., 2020). As of July 2021, 31% (28 hospitals) of Minnesota's 91 rural hospitals were at risk of closing, with 19 hospitals categorized as at immediate risk of closure (Center for Healthcare Quality and Payment Reform, 2021). From 2000 to 2015, access to hospital-based obstetric units declined by 18% across the state. During this time, 15 hospitals disbanded obstetric care in rural communities, leading to a 38% decrease in access across Greater Minnesota (Richert, 2019).

Similar to the general trends of rural hospital closures, hospital-based obstetric wards nationwide have faced an increased risk and rate of closure. Hospital-based obstetric services refer to a hospital's ability to maintain a labor and delivery unit or birth center. Across the United States, between the years 2004 and 2014, nine percent of rural counties experienced a loss of hospital-based obstetric services, while an additional 45% of counties had no access to obstetric care throughout the entire study period (Hung et al., 2017). The communities most likely to lose or have already lost obstetric care are the least populated and the most isolated (Kozhimannil et al., 2017). This loss of obstetric care is devastating for rural communities. Geographically speaking, the distance that patients must travel increases. Nationally, more than half of those who depend on obstetric care in rural areas must drive for a half-hour or more to reach a hospital with obstetric services, compared to just seven percent of urban people (Rayburn et al., 2012). The presence of 'obstetric care deserts' further intensifies the already present racial and socioeconomic disparities in healthcare and increases the amount of unplanned out-of-hospital births (Kozhimannil et al., 2015).

Structural urbanism, the systemic preference for urbanism, leads to the overlooking of rural communities while money, attention, and research are invested into America's urban spheres. As a result, there is a gap in what is known about how these spaces function. There is a significant lack of high-quality data on rural America (Scally and Burnstein, 2020). When there is relevant scholarship, it is often not intended or accessible to rural people themselves but to scholars. The construction of rural knowledge that is widely distributed (media, governmental reports, research) is often produced in terms of urbanism. For example, rural is often defined as simply not urban. This definition fails to account for variation in rurality. It instead homogenizes rural communities, leading to inaccurate and unbeneficial findings (Scally and Burnstein, 2020). This research aims to combat this by reflecting rural realities and amplifying the often suppressed and overlooked knowledge collectively held in rural communities. Centering this research around local and individual perceptions enhances understandings of the rural maternal health crisis in Minnesota. Producing knowledge sensitive to the experiences of rural birthing communities will significantly improve the ability to pass effective legislation and public health measures to mitigate the difficult realities of giving birth in Greater Minnesota.

Positioning this research around rural healthcare in Minnesota is strategic. From a geographical perspective, the state of Minnesota is divided into two main categories, the Twin Cities and Greater Minnesota. Greater Minnesota represents the communities outside the reach of the seven-county metro area (See figure 1). As of 2017, approximately 27% of Minnesotans live in non-urban areas. Of this 27%, 11% (609,000 people) live in urban-adjacent regions, meaning they are near large towns. Residents of small towns comprise

seven percent (390,000 people) of non-urban Minnesotans, and eight percent (434,000 people) live in remote rural areas (Minnesota State Demographic Center, 2017).

A recent analysis of US Census Bureau data revealed that rural America experienced a decline in the population of 0.5% between 2010 and 2020 (Henderson, 2021). Nationwide, suburban and urban communities saw an eight percent increase in population. Minnesota was one of 25 states that saw increases in their rural population. While smaller than the urban growth rate of 8.6%, rural Minnesotan communities saw an overall increase of 0.1% in their population (Henderson, 2021). This national decrease is in part because of how we measure population change. A community that grows in population is reclassified as increasingly metropolitan. The counties that stay rural are those that are not experiencing an influx in population and either maintain their population or steadily lose it. This means that rurality is identified in counties that have not grown into metropolitan hubs, indicating a sustained or declining population (Lawson, 2020).

Minnesota has a vast rural territory that is currently experiencing a significant transition similar to many rural communities across the country. Minnesota's rural communities are older, whiter, poorer, and experiencing major declines in the population (Minnesota State Demographic Center, 2017). Concurrently, rural areas are becoming increasingly diverse (Frey, 2021) and experiencing shifts in local economies (Ajilore and Willingham, 2020). As agricultural dominance loses its power in the state, Minnesotans move away from rural communities and opt for urban living near or within the seven-county metro area. Since Greater Minnesota has lost its appeal, it is increasingly challenging to attract a younger workforce to reside in rural communities (Minnesota State Demographic Center, 2017).

This phenomenon reverberates through localities, impacting funding and overall vitality. While some towns in Minnesota are struggling to make sense of this transition, many towns, like Cayuga and Red Wing, seek a rebirth by showcasing their natural landscapes and attracting tourists and young residents with amenity-based economies. COVID-19 has negatively impacted many rural communities, but some, like Bemidji, are leveraging the pandemic to attract the newly expanded work-from-home population – offering a hopeful pattern of growth for this rural community.

This research seeks to answer the following questions on a national scale: Why are rural American communities losing access to obstetric care? I will explore the following inquiries: What historical patterns or phenomena have sparked this decline? In Greater Minnesota specifically, how are rural birth workers and birthing people perceiving the cause of the decline? And how are they responding to the vacuum that results from the declining access to maternity care?

This paper argues that key "symptoms" lead to an increased risk of the loss of hospital-based obstetric care. While Minnesota's rural spaces are not homogenous and the phenomena they experience vary across the state, these symptoms generally include staffing concerns, a high prevalence of Medicaid patients, low birth volumes, rising costs of insurance, and certain hospital designations are key indicators of risk of closure. Whereas warning signs are predictive, no one symptom can be flagged as indicative of closure because all symptoms are interrelated and tied to greater rural inequities and the history of birth in America. Both birth workers and birthing people who have experienced this loss of care have varied emotional responses to and explanations of the decline in rural obstetric care, which are highly place-based and personal. While local barriers were

identified as an essential aspect of how professional and personal experts conceptualize the loss of obstetric care, informants identified systemic issues as explanatory. Despite both groups classifying systemic issues as the underlying cause of the rural maternal health crisis, birth workers and birthing people responded to the loss of care with unique and community-based responses. These community-based efforts to maintain a semblance of obstetric care and formal knowledge are successful solutions that work in the short term but ultimately fail to rewrite the system, which perpetuates the loss of care.

The geography and rural population in Minnesota create a natural area of study for this research that is strengthened by the legacy of healthcare in the state. Minnesota is consistently cited as one of the best healthcare systems in the country (Gooch, 2021). Minnesota is home to the Mayo Clinic and the University of Minnesota, two nationally acclaimed research institutions. The University of Minnesota Rural Health Research Center (UMN RHRC) has been paving the path for rural maternal health research (University of Minnesota, 2022). They conduct critical policy-relevant research to support rural communities and improve health equity and well-being across Greater Minnesota and the nation. Minnesota has a unique political scene that is divided on many timely issues such as healthcare, police reform, Line 3, COVID policies and vaccines (Orenstein, 2021). Despite voting Blue since 1972 and having the country's longest Democratic voting record, there is significant ideological variation across Minnesota's political geography (Princeton Gerrymandering Project as cited in 270 to Win, 2021). Together, the geography of Minnesota, the established dedication to improving maternal health across the state, and my connection to the state that grounds this honors project.

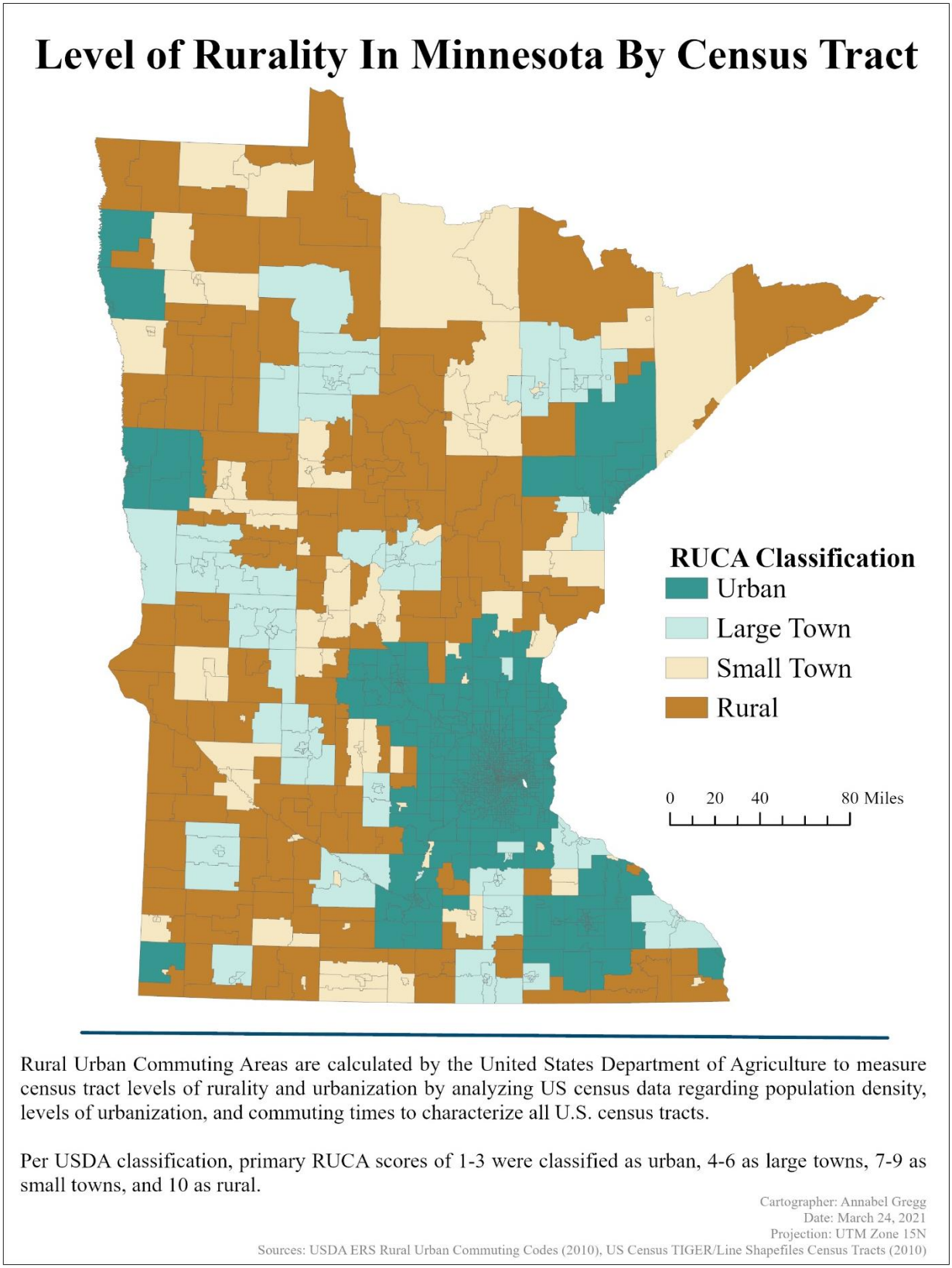

Figure 1. Map of rurality in Minnesota by census tract

In Chapter 2, I share a theoretical framework to ground this paper in the larger conversation regarding rural maternal health. In the next chapter, I discuss the methodology of this research, paying particular attention to its limitations and my positionality. In Chapter 4, I lay the groundwork to understand the history that has written the present-day reality of obstetrics in the US. In the following chapter, I move on to complete a systematic literature review to identify key symptoms or indicators for increased risk of obstetric unit closure in rural hospitals. In Chapters 6 and 7, I analyze, reflect, and make meaning out of the findings from surveys and ethnographic interviews with both professional and personal experts. Finally, I summarize the findings and provide insights into the next steps and considerations for future research regarding Minnesota's rural maternal health crisis.

Chapter 2:

Theoretical Framework

Introduction: At the root of what this paper is exploring is how rural birthing communities navigate the healthcare system as it stands. Births happen every minute of every day across the world, making the process of pregnancy and childbirth both statistically significant and deeply personal. Childbirth is widespread; approximately 86% of those with female-assigned reproductive systems will give birth (Livingston, 2018). However, there are significant variations in access to obstetrics based on demographics, geography, and the systems which influence them.

Childbirth is both for the individual and society. Reproduction can be understood as two-sided. Individual reproduction refers to the creation of families and new life and social reproduction represents the passing of societal norms and culture to the next generation (McCourt, 2014). Because birth has a dual purpose of serving the individual and society, birth workers are also subject to the social and cultural contexts in which they work. In this section, the use of social theories acknowledges and explains that while birth workers and birthing people navigate the intimate aspects of welcoming a new life into the world, they are also subject to and constrained by systemic structures. The navigation of the American healthcare system by birthing people and workers is influenced and explained in this paper by the following theories: social determinants of health, power structures, gendered approach, social network theory, structuration, and structural urbanism.

Social Determinants of Health: Social determinants of health (SDOH) help explain how upstream phenomena impact the outcomes of pregnancy and childbirth. While the term SDOH has become a recent buzzword in public health spaces, the central idea is generally familiar to the public. US Department of Health and Human Services defines SDOH as "conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks" (2022). These factors fit in four main categories: economic stability, education access and quality, neighborhood and built environment, and social and community context. While health-related behaviors (e.g., tobacco use, diet, exercise) affect health and well-being, data suggests that social and economic factors are more influential in predicting health outcomes (Swain, 2017). Social and economic factors are often a product of macro-level realities that influence wellness, like structural racism, workforce shortages, insurance coverage and poverty.

The inclusion of SDOH will be considered throughout this paper as informants mention upstream and systemic determinants such as health literacy, insurance coverage, paid family leave, and numerous other factors. In Chapters 4 and 5, SDOH contextualize how issues of systemic racism, access to healthcare, and private healthcare impact the rural maternal health crisis. The consideration of this theory provides important insights as to how rural systems function within the national healthcare system and what consequences this has on maternal health and well-being across Greater Minnesota.

Power: A body that can give birth must always be understood in terms of power or lack thereof. Anthropologist Mary Douglas explains this by seeing the body as a microcosm (1970). She argues that the social world is imprinted on bodies that can give birth, and

these bodies and reproduction itself become the host of the social world. Because of pervasive social inequality in the United States, some birthing people and babies are disadvantaged from the moment they are born until the day they leave this earth. Powerlessness and birth are evident when considering who is more likely to have negative implications with childbirth. Data shows that birthing people of color, low-income individuals, and those from rural communities are more likely to have an adverse experience with their pregnancy and childbirth. The fact that the mortality rates for Black and Indigenous birthing people are two to three times higher than white birthing people is inexcusable and devastating (CDC, 2022). This paper does not explicitly focus on the racial and ethnic disparities present in birth because most survey and interview respondents identify as white. As addressed in the Strengths and Limitations section of Chapter 3, this is a major weakness of this paper. In order to improve rural healthcare as a whole, policy and programming are necessary to eliminate racial and ethnic disparities in healthcare. However, as Kozhimannil et al. (2017) claims, more information regarding rural hospitals' contributions to these disparities is necessary to thoroughly interrogate the matter.

Issues of power and powerlessness help to frame this research and acknowledge how individual identities and privileges shape the ways in which people navigate the healthcare system. Disadvantaged identities do not stand alone and often compound, harming the individuals in many aspects of life. This paper considers the role of power and how it moves from the healthcare system to insurance providers to healthcare providers to pregnant people. Complex power dynamics are always at play, and this research is intrinsically rooted in this. Because of this, the analysis of power dynamics is essential in

every section, particularly in the history of the loss of obstetric care, racism in maternal health, divides in the approach to birth, and my own power as a researcher.

Gendered Approach: It would be easy to say that this research uses a gendered approach because it is a deep dive into the world of those who give birth. This statement would be ignorant to the nuances of gender and gender inequality in the United States. The use of a gendered approach seeks to be inclusive of all genders and recognize the role that inclusivity and sensitivity can have in uplifting birthing communities and families who may look different than the stereotypes which have become the basis for gendered language in maternal healthcare. At the same time, there are issues of gendered norms that impact those who are giving birth and the birth workers themselves. The use of a gendered approach encompasses the complexities of gender in medicine and is cognizant of societal inequities.

Throughout this paper, the differences between sex and gender are denoted. Gender is an identity that is not interchangeable with sex (Planned Parenthood, 2021). Not all people who give birth identify as women, and not all people who give birth are mothers, and what is even meant by the term "mother." The consistent prioritization of inclusive language that refers to biology instead of gender is an active attempt to improve care for those who are gender-expansive and seek obstetric care. Gender-neutral language is used throughout this paper whenever gender identity is not explicitly stated. In addition, all survey materials do not ask for respondents to report their gender and instead ask individuals, "Have you personally been pregnant / given birth in Minnesota?" To continue to perpetuate the gender binary in maternal health would be to disrupt gender liberation and ignore a diverse group of people with obstetric needs.

It is well-established in scholarship and society that there is significant gender inequality across the United States (Barroso and Brown, 2021; England et al., 2020; Georgetown Institute for Women, Peace, and Security, 2020). We see a history of gendered racism in terms of who is delivering babies in the United States. The overmedicalization of childbirth has led physicians to attend most births today (MacDorman and Declercq, 2019; Merelli, 2017). This modern trend responds to the stripping of midwives' power and knowledge, specifically midwives of color, who attended most births prior to the creation of obstetrics. A fuller account of this history is detailed in Chapter 4.

Social Network Theory: Social network theory was first developed in the 1930s and credited to Romanian American social scientist Jacob Moreno. By the mid-twentieth century, the theory became highly mathematical and by the 1980s it was a leading theory among social and behavioral scientists (Freeman, 2004). This theory incorporates the importance of relationships and considers individuals as "nodes" capable of influence. This theory focuses on understanding social structures, but it is critiqued for not sufficiently accounting for the role of human agency (Scott, 2000). Social network theory considers the importance of social relationships and how these connections relate to the transmission of information. The idea of social network theory is incorporated in my efforts to understand how rural communities disseminate knowledge and resources.

The rural idyll romanticizes rural living as small and close-knit communities (Yarwood, 2005). While this is not universally true, many rural communities have smaller populations that result in smaller social networks, impacting how information is spread. Social network theory is critical in public health because it explains how an individual's community can influence their health decisions, like whether to use tobacco, exercise

regularly, or get vaccinated. In terms of maternal health, the idea of social network theory impacts which providers individuals see, where they decide to give birth, and how they give birth.

Social network theory is used throughout this paper to understand how rural communities are navigating the loss of obstetric care. During surveys and ethnographic interviews it was clear that tight-knit communities of parenting groups, early childhood family education classes, and close personal circles were influential in parents' health care decisions. The idea of social networks also played out during the surveying process, where individuals passed my request for participation onto their social networks, thus creating a web of participants (See Chapter 3 for more details). While social network theory helps to understand how communities influence the individual, it is important to remember that rurality is not uniform, and how information is disseminated varies greatly.

Structuration: Structuration is the theory that the "duality of structure" impacts humans. This concept, most often associated with British sociologist Anthony Giddens, marries ideas of structuralism and humanism into one approach that acknowledges the reach and influence of societal systems and considers individual decision-making and approaches (1986). Structuration allows us to understand structure and action instead of dividing them into separate entities. Giddens separates structure into three categories: signification which creates meaning through structured language, legitimation, which produces moral order via social norms, and domination which can exist through the control of resources. Agency, then, exists in response to these structures at an individual level – each person will navigate these structures differently based on the systems themselves and others' actions.

The lens of structuration is used throughout this research to understand how rural birthing people navigate the healthcare system in the United States. In Chapter 4, the history of obstetrics and the current reality in which pregnant people must navigate and respond to a system that lacks adequate resources is explained. From the survey data and interviews, we can understand how human agency responds to these systems and how it varies between individuals.

Structural Urbanism: The rural-urban divide has been a popular catchphrase that perpetuates a separation of two Americas. The urban sphere represents wealth and well-being, while rural is often synonymous with decline and disparity. In part, Donald Trump won his presidency because of his attention to the polarization and recognition of rural realities (Morin, 2016). Despite the everyday use of the term rural-urban divide, some argue that this division is harming rural America because it erases the livelihoods of those who do not fit the stereotypes of rural Americans. They suggest it devalues rural economies, supports place-based poverty arguments, and perpetuates the idea that rural communities must depend on larger cities to find prosperity (Love and Loh, 2020). However, structural urbanism, frames some of the issues within rural communities as a response to urban hegemony.

Structural urbanism argues that the adverse health outcomes felt in rural communities result from declining access to care in rural America and are exacerbated by systemic preferences for urbanism (Probst, 2019). In healthcare in the United States, there is a bias towards communities with large populations. Probst et al. (2019) argue this is because the privatized healthcare system seeks out a large payer base to provide services, making city centers more likely to implement healthcare successfully. Public health efforts

seek to make changes at the population level, thus allocating more funding to places with larger populations. Finally, areas with smaller populations face issues of inefficiencies where "equal funding can never translate into equitable funding" (2019). The framing of rural disadvantage due to urban superiority takes away the blame from rural communities. Instead, it faults the construction of society and systems for benefiting urban spaces.

The inclusion of structural urbanism intends to understand how rural spheres function and to distance this research from the harm that can be done by perpetuating the rural-urban divide. Instead, I acknowledge the issues in rural healthcare but see them as a response to the construction of systemic preference for larger populations. The use of a structural urbanism lens is felt throughout the paper, especially in explanations of why rural hospitals are closing and how America's private healthcare system aggravates the loss of rural obstetric care. In Chapters 6 and 7, the findings from the personal and professional experts' surveys and interviews uplift rural experiences and center the research around rural living. This effort works to humanize rural communities and rewrite the negative narrative often used to portray them.

Synthesis: SDOH incorporate systemic issues such as underinsurance, cost of care, and numerous other factors to understand how pregnant people navigate the rural healthcare system. Structuration explains that while upstream issues impact these decisions, human agency will impact how individuals and communities negotiate these systems and develop individual responses. Issues of power and powerlessness explain how marginalized communities face increased difficulty receiving high-quality care. The gendered approach explains how the sexist and racist history of obstetrics is dictating health decisions today. Social network theory helps to explain how rural communities are disseminating

information and sharing knowledge in the face of obstetric care scarcities. Structural urbanism explains the rural realities that result from systemic preferences for urbanism.

Chapter 3:

Methodology

Introduction: This research utilizes a two-stage data collection methodology, employing surveys and ethnographic interviews as collaborative qualitative research methods. The methodological choices in this research are informed by the 2018 study from the University of Minnesota Duluth titled "Patient Perspectives on Loss of Local Obstetric Services in Rural Northern Minnesota" (Pearson et al., 2018). Pearson et al. (2018) utilized a mixed-methods approach with quantitative and qualitative survey data to capture the emotional impact of the loss of obstetric care on birthing people near the North Shore in Minnesota. Similar to Pearson et al. (2018), the methodology in this research uses surveys to collect qualitative and quantitative data with structured open-ended questions and supplements with ethnographic interviews.

Ethnographic interviews bolster the survey data. This decision was made in response to the intrinsic limitations of survey data. Quantitative data provides insights regarding patterns and general trends of data, while qualitative data offers nuance and depth that is often not found in quantitative data (Driscoll et al., 2007). The incorporation of ethnographic interviews provides critical context and insights into the conceptualization of the cause and effect of Minnesota's maternal health crisis. The incorporation of the lived experiences of informants uplifts the realities of birth workers and birthing people living and working in Greater Minnesota. These interviews were constructed based on principles taught in Ethnographic Interviewing, a course by Professor Hilary Chart of the Anthropology Department at Macalester College in the Fall of 2021.

This chapter discusses study design, detailing the two-stage methodology and the data analysis process. Then findings from the professional expert surveys are discussed, highlighting recruitment methods, survey results, and ethnographic interview results. In the following section, personal expert findings are shared, including the recruitment methods and survey and interview results.

Discussion of Study Design: In May of 2021, I received approval from the Institutional Review Board at Macalester College to begin data collection with human subjects. The two-stage methodology allowed the survey to act as a recruitment tool for the ethnographic interviews (See Figure 2). Most participants first filled out an anonymous survey in a Google Form regarding their own experiences. Personal expert surveys (See Appendix A for the entire survey) included questions regarding demographics (age, race, income), personal geography, distance to obstetric care, and questions regarding the number of children and years of delivery. The survey asks about the quality of care received, care

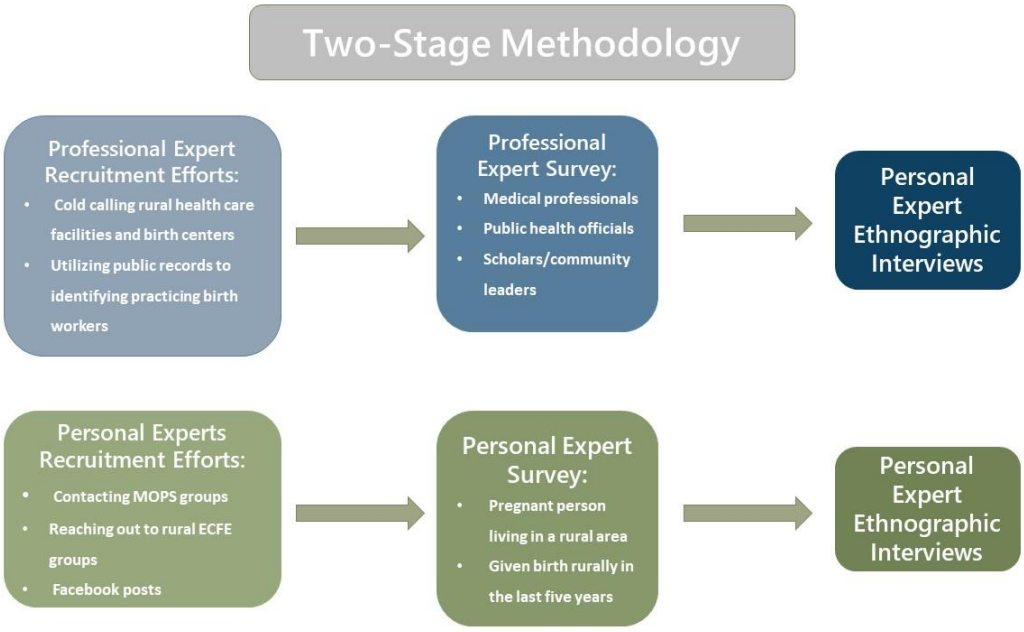

Figure 2. Graphic detailing the two-stage methodology used in this research

providers, and the emotional impact of these experiences. Professional expert surveys (See Appendix B for entire survey) ask about professional history, role as a birth worker, location of practice, and perceived barriers and successes in their line of work and rural Minnesotan obstetric care.

There were a few cases where the survey did not act as a recruitment tool, and informants were interviewed without filling out the survey. Occasionally, past participants had encouraged a friend or loved one to participate in this research and those subjects were directly connected to partake in an interview.

This study's target participants were those impacted by or invested in Minnesota's rural maternal healthcare system. Overall, this group is large and contains a wide variety of Minnesotans. It includes people who have given birth and the professionals who serve them. For this reason, the study population is separated into two categories: *personal experts,* which includes those who have relatively recent experience receiving maternal health care or giving birth (within the last five years) in a location in Minnesota that they perceive as rural. The second group is *professional experts,* which contains a wider variety of individuals. Birth workers such as doctors, nurses, doulas, midwives, and those that support birth workers and birthing people like administrators, scholars, politicians, community leaders were targeted.

The quantitative aspects of the surveys for both professional and personal experts were summarized with descriptive statistics. Personal expert summary statistics such as average income, distance to the hospital, and average quality of care rating are detailed. Professional expert surveys included less quantitative data than personal experts; summary

statistics such as average career length and percentage of exclusively rural practitioners are listed. Qualitative aspects of personal surveys detailed emotions as ‘positive,’ ‘negative,’ or ‘neutral.’ Responses from both groups regarding barriers, solutions, or concerns were grouped into major themes.

Ethnographic interviews consist of one-on-one conversations with a researcher and an informant. This interview style seeks to better understand the informant and the world in which they circulate. Generally speaking, the process of ethnographic interviewing utilizes three primary skills. First and most importantly, the ability to ask questions that prompt a response. In response, the researcher must strategically prepare follow-up questions. The final aspect of ethnographic interviewing is the ability to make sense of the conversation and the world in which the informant operates. The ethnographic approach pays special attention to a researcher’s positionality and seeks human connection and deepened understanding over precision.

Those who participated in the ethnographic interviews expressed interest by providing identifying information and requesting participate in an interview at the end of the survey. If interested, they were contacted via phone or email, as indicated by their noted preference, to invite them to sit down for an ethnographic interview. Written consent was received to be interviewed and recorded. All interviews occurred on Zoom or via telephone if internet connectivity was a concern. During the COVID era, Zoom is an especially relevant tool that allows for virtual connection via cloud-based video conferencing (Zoom Video Communications, 2020).

Since participants who opted to engage in an interview identified themselves in what was previously an anonymous survey, survey data was not linked to interview data. Data containing identifying information (such as name, phone number, or email) was collected and stored separately from de-identified individual-level data. In a practical sense, every interview started with no prior knowledge of the informant other than their name and basic contact information.

The use of ethnographic interviewing brings humanity and nuance to the discussion of rural obstetric health. I spoke to 10 professional experts and 11 personal experts (See figures 5 and 9*)* from across Greater Minnesota. There was a prepared list of questions that was consistent across each expert group (See Appendix C and Appendix D for interview schedules). Each conversation began by inviting the informant to share their professional or personal scope of practice or experience relating to pregnancy and childbirth in rural Minnesota. As I listened carefully, I crafted tailored questions, inviting the informant to share their unique insights. Despite the schedule of questions, the informant led the direction of the conversation. After each interview, Otter.ai software (Liang and Fu, 2016) supported the interview transcription, and then the transcription was uploaded into Atlas.ti (Version, 9.0; ATLAS.ti Scientific Software Development GmbH, 2020), a qualitative data analysis tool used to code the interviews and identify key themes across all interviews.

In Atlas.ti I reread the transcriptions, looking for descriptive quotations that represented key themes. Atlas.ti uses codes to qualify quotations with specific themes. For example, a quotation detailing a long and treacherous drive to a delivering hospital would be coded, “Long Drive.” I read through every transcription, highlighted important quotations, and then coded them with the appropriate theme, thus creating a network of

quotations and codes. At this point, the codes and quotations formed a narrative regarding how personal and professional experts perceived the cause and effect of Minnesota's maternal health crisis. The themes were kept general, allowing the quotations within themes to highlight the variance in thoughts among each category. The findings from the analysis in Atlas.ti are discussed in detail in Chapter 6 and Chapter 7.

For organizational purposes, this chapter mirrors the structure of Figure 2 and discusses the methodology and findings in two sections, Personal Experts and Professional Experts. First, personal expert recruitment efforts are discussed, then the survey findings and the ethnographic interviews. The second section of this chapter follows the same structure for professional experts. Detailed findings for each group of experts are discussed and analyzed in Chapters 6 and 7.

Professional Expert Findings:

Recruitment Efforts: Recruitment efforts included cold emailing and cold calling professionals identified as birth workers or serving birthing people (See figure 3). Using public records, I contacted licensed professionals (doulas, certified professional midwives, public health nurses, ECFE coordinators). Physicians and medical schools serving rural Minnesota were contacted using online profiles and webpages. Using my network, I contacted experts that I have previously connected with.

When I reached out to possible participants, I introduced myself and the research and asked them to support me in improving rural maternal health in Minnesota. It was easier to contact and receive input from professional experts than personal experts. I suspect this is because many professionals identified the value of this

research and were able to make time within their work schedules. Personal experts, however, were asked for the most valuable thing – time from their private lives.

Professional Expert Recruitment Strategies
Using public records to connect with rural doulas
Leveraging preexisting connections with professional experts
Connecting with rural Early Childhood Family Education (ECFE) coordinators
Cold calling/emailing rural clinics, hospitals, and birth centers
Using public records to contact rural county public health nurses
Connecting with medical school faculty who serve rural populations
Asking professional experts to for connections to other professionals

Figure 3. List of recruitment strategies used for professional experts

Survey Results: The professional expert survey received 37 total responses, of which three were not viable for analysis due to practitioners having an urban realm of practice, leaving a total of 34 surveys. These practitioners serve over 40 zip code tabulation areas (ZCTAs) and cover 37 counties across Minnesota (See figure 5). The average professional who filled out this survey was advanced in their career, with ten to fifteen years of experience. Many practitioners served clients/patients from varying geographic areas, including suburban and urban locations, but 61.76% (21/34) of professionals served exclusively rural clientele.

The diversity of professions was a major strength of this survey and respondents cover many areas of pregnancy and childbirth (See figure 4). Some respondents indicated having multiple professions, such as a lactation consultant and doula, or a nurse and a traditional midwife. Because the survey's format allowed respondents to indicate more than one profession, there was a higher number of responses. There was also double counting in terms of midwifery professionals. Some midwives who are certified

professional midwives also marked themselves as traditional midwives, although not all CPMs marked themselves as both.

While there were profession-specific responses, many respondents acknowledged Minnesota's ability to provide specialist care when needed, the range of choice for patients, and medical assistance as assets for pregnant and birthing people across Greater Minnesota. When asked what barriers they face in their line of work, systemic level issues, a lack of education and health literacy, insurance, and staffing concerns stand in the way of providing high-quality rural obstetric care to Minnesotans. This group reported their greatest concerns regarding maternal health in rural Minnesota as the overmedicalization of birth, long commutes to care, and an overall lack of resources and providers. Direct quotes and expanded ideas are shared in Chapter 8.

Profession	Count (n = 41)
Traditional Midwife	6
Doula	5
Certified Professional Midwife	5
Nurse	4
Birth/Early Childhood Expert	4
Family Physician	3
Lactation Specialist	3
Other Medical Professional	2
Researcher/Scholar	2
Certified Nurse Midwife	1
Public Health Professional	1
Policy Expert	1
Home Birth Assistant	1
Postnatal Fitness Instructor	1
School Administrator	1
Government Worker	1

Figure 4. Table of professions among professional expert survey respondents.

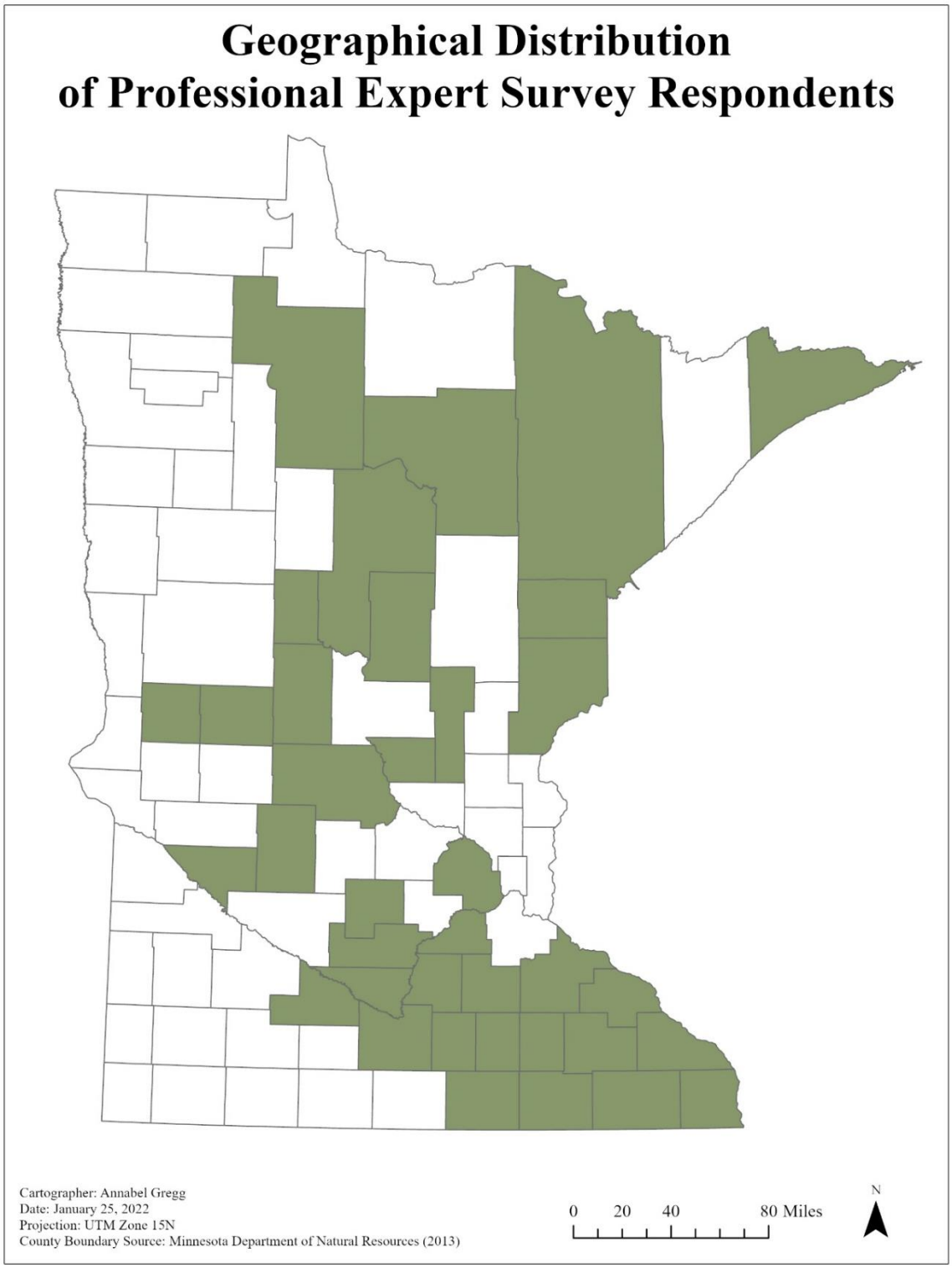

Figure 5. Map of geographical distribution of professional expert survey respondents

Ethnographic Interview Results: Throughout the interview process, ten informants were interviewed for one hour each (See figure 6). There was significant professional diversity represented. Most informants practiced in a specific region of Minnesota, but Maya, the policy expert, focused on all of rural Minnesota. Nine out of 10 informants were white, and one informant was Indigenous. The vast majority of informants (8/10) were advanced in their careers. There were two instances where informants were also young parents who shared insights about being pregnant and giving birth in rural Minnesota. In these cases, their experiences as professionals were bolstered by their personal experiences.

Professional Expert Informants (10)		
Profession	**Pseudonym**	**Region of Practice**
Doula (2)	1. Barb 2. Victoria	1. Central 2. Central
Family Physician (2)	1. Mary 2. Maggie	1. Northern 2. Central Southern
Certified Nurse Midwife	Liz	Northern
Certified Professional Midwife	Sarah	Southeastern
Maternal and Child Health RN	Leah	Northern
Family Home Visiting RN	Diana	Northern Central
Public Health Supervisor	Melissa	Northern
Policy Expert	Maya	All of Greater Minnesota

Figure 6. Chart of professional expert respondents, their careers, pseudonyms, and area of practice

Professional experts highlighted Minnesota's maternal healthcare's strengths and weaknesses in their interviews. While many of the conversations were career and location-

specific, informants provided their insights into the causal nature of the decline of rural obstetric care. Many informants conceptualized the root cause of these issues as tied to systemic issues. However, they highlighted how their communities developed local and place-based responses and how the state of Minnesota and the United States is working to improve rural maternal health. During the analysis process in Atlas.ti, the most common codes included barriers to care, traditional versus medical approach, reimbursements/cost of care, and solutions. Further detail and quotations are shared in Chapter 7.

Personal Expert Findings:

Recruitment Efforts: I connected with personal experts, using public records of community groups and parenting spaces (See figure 7 for a complete list). The Moms of Preschoolers organization has chapters across the state, and I cross-referenced the chapters with a list of rural counties as defined by the state of Minnesota's Demographic Center. I reached out to church groups and community spaces in rural areas that gathered with their children. Using my own Facebook page, I asked friends and

Personal Expert Recruitment Strategies
Contacting all Moms of Preschoolers (MOPs) groups across rural MN
Reaching out to rural churches and community groups
Connecting with ECFE groups
Asking personal experts to spread the word with their communities
Facebook Posts
Reaching out to rural MN Instagram influencers

Figure 7. List of recruitment strategies used for personal experts

family to spread the word and messaged influencers on Instagram who disclosed living in rural Minnesota.

Like professional experts, people were contacted via phone or email and introduced to the research. Compared to professional experts, I struggled to get my foot in the door with personal experts. Many messages went ignored, which I relate to the fact that I was asking for parents' time without financial compensation. However, I found that once I was able to connect with some individuals, they spread the word through their networks, and I received an influx of responses.

Survey Results: The personal expert survey received a total of 116 responses. Of the total survey response, 49 surveys were viable; the remaining portion of responses were unsuitable due to self-reported urban/suburban residence, birth(s) that occurred greater than five years ago, or a blank submission.

Responses spanned from 41 different ZCTAs and covered twenty-one counties across Minnesota (See figure 8). Of the 49 suitable responses, the overwhelming majority of respondents were upper-middle-class Caucasian (48/49 or 97.95%) people with a mean annual income between $70,000 and $79,999. The average family in the United States has 1.93 children per family (Statista, 2021). The findings from the survey are slightly higher than the US, with an average of 2.26 children per family. The average respondent drove between fifteen and thirty minutes to receive obstetric care. However, 30.61% (15/49) respondents drove for more than thirty minutes, with 16.33% (8/49) of total respondents driving for longer than one hour.

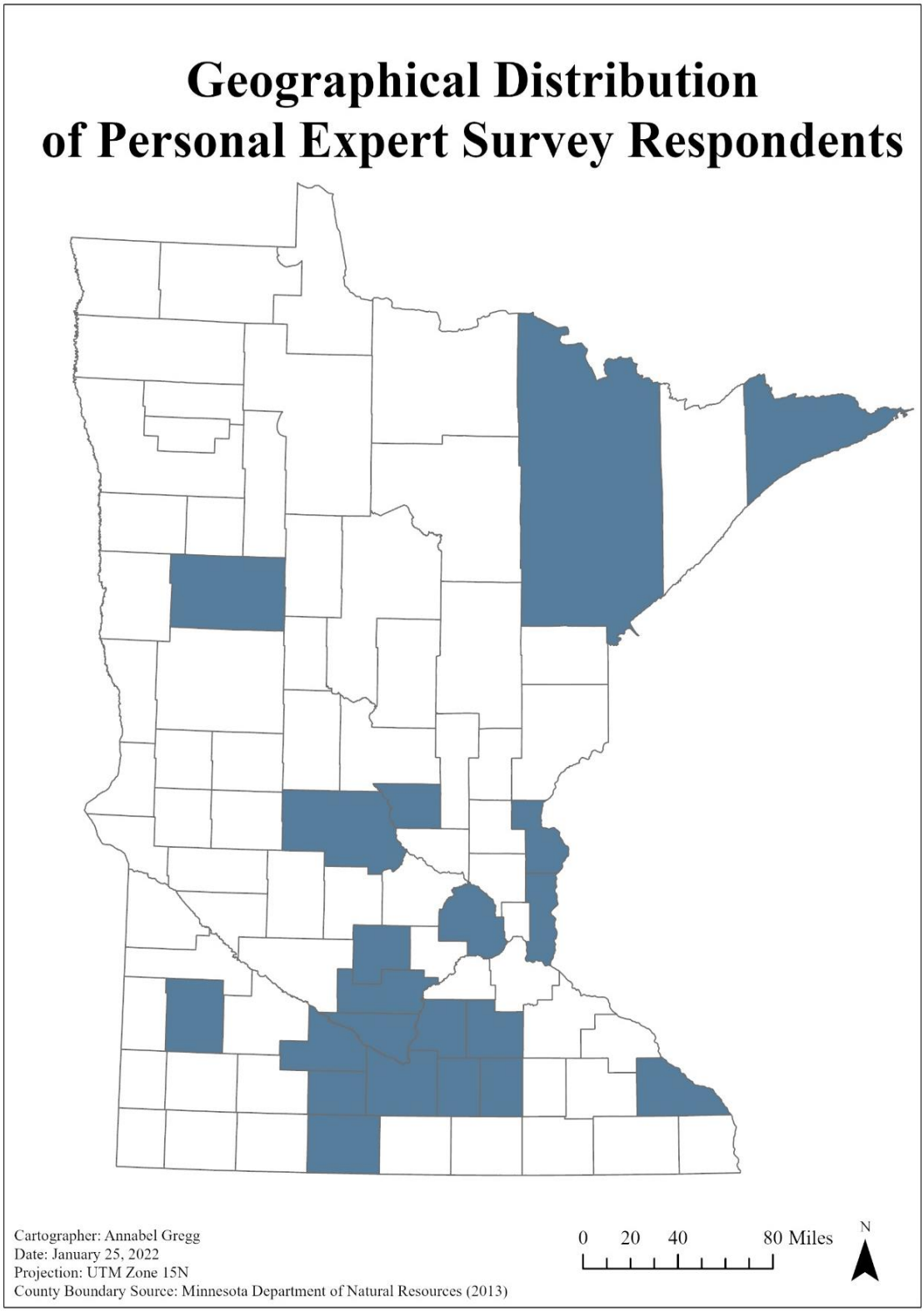

Figure 8. Map of geographical distribution of personal expert survey respondents

Overall, respondents rated the quality of healthcare during their pregnancy and delivery as high quality on the Likert scale. The average response (out of five, one being poor and five being excellent) for how they would rate their care during their pregnancy was 4.43 and during their delivery a 4.24. However, when respondents expanded on their experiences, a different narrative formed. One-half of respondents (18/36) rated their births positively, using words like empowered, safe, and supported to describe their experiences. Around one-third of respondents shared responses that coded as negatively (36.11%, 13/36). Words such as traumatic, coercive, anxiety were used. The results indicate that while respondents rate their quality of care highly, there are strong negative feelings associated in a sizable portion of the respondents.

The direct quotations from long answer responses are discussed in Chapter 7. However, it is important to note that personal experts listed their main concerns about maternal health in Minnesota as the long drives to care, difficulties navigating the medical system, the structure of prenatal appointments, and social determinants of health. When asked what would improve their pregnancy or birth, topics revolved around closer proximity to care, improved health literacy and education, increased support, or opting for a different provider.

Ethnographic Interview Results: Eleven personal experts from Greater Minnesota were interviewed, and ten made it to the final stage of analysis (See figure 9). One was excluded due to a lack of research-specific information. Our conversations recounted the births of nineteen children. The average informant had 1.9 children and approximately 70% gave birth in a hospital setting. Five planned out-of-hospital births occurred at a freestanding birth center or home birth (roughly 16% in freestanding birth centers and 11% were home

births). Physicians oversaw 58% of births, which is noticeably lower than the national average of 89.2% (Macdorman and Declercq, 2019). The high rate of planned out-of-hospital births and non-physician providers is possibly attributed to the fact that many informants saw this research opportunity to express their deep concerns about maternal health in Minnesota and their apprehensions about the medical system and the overmedicalization of birth. The majority of conversations detailed the process of

Informant	Pseudonym	Region	# of Births	Location of Birth(s)	Type of Provider at Delivery:
1	Carrie	Southern	3	Hospital (1), Free Standing Birth Center (2)	Certified Nurse Midwife (1), Certified Professional Midwife (2)
2	Rachel	Northern	2	Hospital (2)	OB-GYN
3	Taylor	Northern	1	Hospital	OB-GYN
4	Jennifer	Northern	3	Hospital (3)	OB-GYN (1), Family Practice (1), CNM (1)
5	Maria	Northern	2	Free Standing Birth Center (1), Home Birth (1)	CNM (1), CPM
6	Colleen	Northern	1	Home Birth	CPM
7	Rebecca	Northern	1	Hospital	Family Physician
8	Jessica	Southwest and Southern	4	Hospital (4)	OB-GYN (4)
9	Anna	Northern Central	1	Hospital	Family Physician
10	Heather	Northern	1	Hospital	OB-GYN

Figure 9. Table of pseudonyms, area of residence, and birthing information of personal expert ethnographic interview respondents.

navigating and receiving obstetric care. Informants discussed their thought processes when choosing how to deliver and from whom they would seek care. They recalled their labors, sharing when they decided to travel to the hospital and the steps that occurred before they met their children. Then we discussed the transition back home and how they became connected and supported by their rural communities.

During the analysis of the ethnographic interviews, the codes that were used most often in the qualitative analysis process in Atlas.ti included barriers to care, traditional versus medical approach, rural birth norms, rural resilience, and solutions. Details and excerpts from the personal expert interviews are found in Chapter 6.

Strengths and Limitations: COVID and my geography were significant limitations in recruitment efforts. Due to safety concerns and lack of transportation, all initial inquiries occurred via phone or email. This approach can come off as cold and just another email request in people's inboxes. If I had been able to show up in person, establish connections, and express my passion and interest in individual experiences, I imagine I would have received far more responses from a more diverse group of people. After completing an in-depth interview, multiple informants shared with me that they felt much more connected to me and supportive of the project after understanding my identity and spending time with me in the interview, even if it was over Zoom. After receiving this feedback, I re-examined my approach. I took steps to humanize myself and the research by explaining my personal connections to Greater Minnesota and my desire to work in maternal health in the future which yielded more meaningful conversations and connections.

While I struggled to recruit survey participants, I was impressed by the percentage of survey participants willing to sit down for an ethnographic interview. Of the 49 personal experts, 26 suggested an interest in a more in-depth conversation (53.06%). In the professional expert category, 20 out of 34 expressed a desire (58.82%). While I initially predicted that I would struggle to find informants for interviews, due to the longer time commitment, people were eager to share their expertise with me in this format and often appreciative of my willingness to listen and spread awareness about this issue.

The study population covers Greater Minnesota and highlights many rural communities. However, a limitation of this project was the oversampling from a town in northern Minnesota and a community in southern Minnesota. While an ideal research project would not oversample and would have equal representation, this represents the power of social networks, as surveys had great response rates among certain social groups.

Interviews with professional experts successfully represented the variety of birth workers and their philosophies. The only professional not included was an OB-GYN which is a notable shortcoming. Despite efforts to recruit a diverse study population, informants were overwhelmingly white, educated, and middle to upper class in both professional and personal expert groups. This is partly a result of sampling bias and the fact that there are certain privileges involved in participating in research leading to self-selection bias. To some extent, the lack of participants of color is a result of the relatively homogenous, Caucasian, demographics of Greater Minnesota. Rural Minnesota, although growing increasingly racially diverse, is overwhelmingly white, with 91% of rural Minnesotans self-identifying as Caucasian (Minnesota State Demographic Center, 2017). This research lacks insights from disenfranchised (low income, people of color, with lower educational

attainment) communities which is a significant shortcoming. Findings from this research do not represent universal truths. This research cannot be used to generalize about rural birthing people nationwide or even across all of Minnesota because it is not truly representative. While the literature review helps to bolster the findings, the results should only be interpreted as the truths of those interviewed and surveyed. However, it is reasonable to assume that the presence of these issues in a privileged community suggests that these concerns are even more prevalent in disenfranchised populations.

Scholar Practitioner Divide: For the most part, scholars and practitioners are responsible for establishing the narrative and commentary regarding maternal health, but at the same time, they often find themselves in opposition. The scholar-practitioner divide is especially important in public health. A scholar is understood to be an individual who has studied a specific subject in detail, while a practitioner is an individual who practices in a given area (Diker, 2014). Sometimes this divide is palpable, and there are conflicts and disconnects between the work of practitioners and scholars. Nevertheless, in public health, scholar-practitioners are becoming increasingly important as there has been a call for practice-based research (Smith and Wilkins, 2018). Being both a scholar and a practitioner allows for bridging between research and practice through crossover and integration. While I am neither a scholar nor a practitioner, I am compelled to include this two-pronged approach. I do so by analyzing the existing body of literature and discourse around rural maternal health and including the experiences and findings of those practicing in the field, both in a personal sense (birthing people) and professional (doctors, midwives, registered nurses).

Geographic Constraints: This research is subject to the limitations of geography. Much of the literature relied on finds itself situated in a gray area that constantly balances the

notion of homogeneity and the uniqueness of place. Throughout the paper, I generalize about space and place to understand general phenomena. I must assume a certain amount of sameness in rural places, but I recognize that this is not universally accurate. While I focus on rural communities experiencing overall deterioration, there are high amenity areas such as the Pacific Northwest, Upper Great Lakes, the Ozarks, and the Appalachians that are experiencing significant growth (Cromartie and Vilorio, 2019). It is important to be explicit that there is no national definition of rural. I ran into this issue with survey respondents who would list the same zip code but classify it differently. One would describe their community as rural, and one saw it as suburban, despite having the same zip code. Rurality is debatable and defined by each resource and participant; with this in mind, it is crucial to recognize that the comparison of literature and experiences of rurality may not always be congruent.

Positionality: As I conducted this research, I was acutely aware of my own positionality. As a young, white, cisgender, upper-middle-class urban researcher affiliated with an undergraduate institution, I enter spaces with privileges that certainly impacted my ability to connect with informants. I may appear to be very different from my informants in many ways. I am not a healthcare provider or a parent; I am young, childless, and living in the Twin Cities (although I spent time in rural Minnesota as a child). But what we do have in common is a desire to support birthing communities and improve maternal healthcare across rural Minnesota.

A major privilege I have in this research is that I identify as woman from Minnesota. I have a family line that is still farming and working in rural Minnesota. Because of this, I feel I am skilled at navigating rural consciousness. Because I am a woman and present as

one, I think the people I spoke with were more willing to share intimate experiences with me about pregnancy and childbirth. At the same time, I am not from rural Minnesota, and in some communities, there are established social norms of distancing rural communities from urban ones with an "us versus them" mentality. Because I interviewed healthcare providers from rural Minnesota, there is the inherent power dynamic. I am an undergraduate student who has never given birth. To some, I may appear naïve because so much of birthing knowledge is learned from personal experience or attending further schooling and training under professionals.

As a result of my identity, I spent time balancing my privileges to assert myself during interactions. When speaking with medical professionals, I highlighted the depth of my knowledge about birth and spoke more formally, so they took me and my research seriously. But when speaking with parents, I tapped into my personal experiences in rural Minnesota and dressed and spoke more casually to present myself as accessible and ensure the comfort of my informants. In many ways, my privileges allowed me to conform to situations, which in and of itself highlights these advantages I have. While I do not think holding these identities is critical to completing this research, I recognized how my identity allowed me authority and ease throughout this process – but the same contributed to some of the limitations of this research.

Synthesis: The intentional steps and considerations taken to inform the methodology used in this research formed the basis for an approach that maintained the rigor of the hard sciences while also allowing for the nuance and variability that qualitative approaches permit. While my own positionality was both a strength and a limitation in this research, the data collection and analysis uncovered insights into the often-private worlds

surrounding birth. In the following chapters, these findings are discussed and contextualized. Chapter 4 provides a dive into the history of obstetrics and juxtaposes it with current obstetrics trends. Then, in Chapter 5, a literature review highlights key indicators for hospital-based obstetric closures. In Chapters 6 and 7, the findings from the survey and ethnographic interviews are detailed in their respective categories: personal and professional experts. Finally, in Chapter 8 conclusions are drawn, and considerations for future scholarship are noted.

Chapter 4:

The Past and Present of Obstetric Care in the United States

Introduction: In this chapter, a detailed history of the conception of obstetrics in the United States is reviewed and explained in relation to the current nature of maternal healthcare. First, the creation of obstetrics is discussed, paying special attention to the complicated past of midwifery and how the overmedicalization of birth has rewritten the ways in which Americans give birth. Then, the impact of the formalization of birth is explained, as indicated by high levels of physician-attended births and medical interventions. To provide context, current trends in maternal health, along with common birth settings and birth workers, are explained. Establishing a strong understanding of the histories and intricacies of the relationships and power dynamics in obstetrics provides critical insights that allow for the heightened analysis of survey and interview data to broaden the understanding of how Minnesotan birth workers and birthing people conceptualize the cause and effect of diminishing access to obstetric care.

History of Obstetric Care in the US: In the United States today, 89.2% of all babies are delivered by physicians (MacDorman and Declercq, 2019). The practice of birthing people seeking highly specialized care is rather modern considering the history of obstetric care in the United States. Midwives have been assisting with the delivery of babies in what is now the United States prior to European colonization. Indigenous communities were known to have midwives that oversaw deliveries in their communities. Some historians deem the years before 1750 as the 'age of midwifery' (Wertz and Wertz, 1977).

The Colonial Midwife and the Birth of Obstetrics: During colonial times, midwives held a significant amount of power, as tending to births was seen as beneath doctors (Packard, 1963). Midwives recognized the body's ability to give birth, rarely interfering with the natural process. Those giving birth would often labor and deliver, "squatted on a midwife's stool, knelt on a pallet, sat on another woman's lap, or stood supported by two friends" (Scholter 1977, 430). As midwives monopolized the realm of birth at that time, they were subject to scrutiny when births had adverse outcomes but were also celebrated and venerated by the community for their wisdom and knowledge. It was not unusual for midwives to be gifted homes, stipends, and tobacco as thanks for their work (Radosh 1986, 130). However, some midwives during this time, specifically in New England, became the focus of witch hunts that sought to criminalize the practice of midwifery due to fears about it being associated with witchcraft (Varney and Thompson, 2016, 9).

In 1730, as midwifery dominated birth in North America, men began to enter the practice of midwifery in England, marking a key transition in birthing norms. By 1745, the practice had made its way to the English colonies in North America, and the first male midwife began to practice in Philadelphia. In 1762, the first midwifery school opened in Philadelphia and was open to both male and female students interested in midwifery. The founder of the school, Dr. William Shippen Jr., supported the standard at that time that midwives should oversee normal births and physicians should be reserved for complicated deliveries. Just three years later, Dr.Shippen opened the first medical school in Philadelphia at the University of Pennsylvania, which was open exclusively to male students (Thoms, 1961).

Both the entry of men into the profession of midwifery and the establishment of medical schools marked a key shift of birth from a normalized community event to a medicalized private health problem. Scholar on the history of birth, Diana Scully (1980), argues that as medical schools became more common, educated physicians became more accessible, and the practice of midwifery grew increasingly taboo. As Corea writes in her book, *The Hidden Malpractice: How American Medicine Mistreats Women* (1985), by the 1780s, doctors began to replace midwives in wealthier and urban areas across the United States. While midwives were reserved for less affluent communities (1985, 253).

Concurrently, birth made its way to the bed, and physicians implemented the use of medical instruments. Birthing people were no longer squatting and were encouraged to be more modest for the male doctors by lying on their backs, covered by blankets (Radosh, 1986, 131). This position made birth more difficult because gravity was no longer working to the birthing person's advantage as it did while squatting, and labor became prolonged (Haire, 1973). Physicians invented and commonly used instruments such as forceps to make birth swifter and less painful (Scully, 1980, 27). As male physicians established themselves as experts and medicalized birth, maternal and infant mortality increased (Shryock 1960, 15).

The rapidly developing field of medicine led more people to seek the care of a physician for a variety of ailments and issues, including birth. As this occurred, the rates of puerperal fever, the infection of female reproductive organs, associated with physician attended birth increased due to the more regular use of interventions, like forceps. This resulted in one-tenth of maternal deaths in the 1840s (Corea, 1985, 253; Radosh, 1986, 131). It was not until 1847 that germ theory was developed, and sterile technique during

birth was recognized as an important preventative measure (Corea, 1985, 253). Physicians, however, feared that midwives were unsanitary and blamed them for puerperal fever deaths, which led them to pass anti-midwife laws (Corea, 1985, 253). At this point in history, birth underwent a pivotal transition. The hospital and the physician became the safer, cleaner space to deliver, and the home and the midwife were viewed as dirty and disease-ridden.

This reframing ultimately rewrote how Americans birthed, where they birthed, and with whom they sought care. Despite midwives having better outcomes at the time, birthing people opted for physicians if they could afford them (Radosh, 1986, 132). Radosh (1986) articulates this well, arguing that "the skills of midwives were downgraded by physicians, who claimed to have more knowledge and better treatment strategies than the midwives. With no organization and no legitimate mechanism for complaint, the midwives were easily swept out of the way" (132). The professionalization and medicalization of birth took birthing away from local support networks, embedded in the local communities, and put the locus of control in the hospitals with predominantly male physicians. This transition left indelible impacts on birthing communities that are palpable today – so much so that it forms the basis for this research.

The Role of the "Granny Midwife" and Immigrant Midwife: Despite the transition to physician attended hospital births, distinct populations across America continued to choose, or due to lack of choice, to receive obstetric care from a midwife. Birthing communities across rural America and immigrant communities "clung to midwives so that by 1910 fifty percent of all births [in the US] were still attended by midwives" (Kobrin as cited in Radosh 1986, 132). The history of midwives providing high-quality care to the

underserved and disenfranchised is not uncommon in midwifery today; it is integral and established by generations of midwives.

Black midwives often referred to as "Granny Midwives," have been delivering babies in America since they were forcibly removed from their homes on the African continent and relocated to the United States in the early 1600s (Bonaparte 2007; Terreri, 2019). These midwives predominately served rural communities and were known as physical healers who tended to be older and known as elders or leaders in their communities (Bonaparte, 2007, 1). During the time of slavery, "Granny Midwives" were respected in their communities, and by enslavers alike, for ensuring the next generation of healthy babies.

While the term "Granny Midwife" typically refers to Black midwives, the term morphed to describe white midwives working in the southern United States. Varney and Thompson write in their book, *A History of Midwifery in the United States: The Midwife Said Fear Not* (2016), that "Granny Midwife," or "Granny Woman," were terms used to describe an older white midwife who had an established family of their own and apprenticed with an experienced midwife (Varney and Thompson, 2016, 10). These midwives were critical in serving rural populations, specifically in the Ozarks and Appalachia, during the late 1800s and early 1900s. At the same time, large influxes of immigrants moved to the United States, bringing with them midwives, who were established and respected medical providers in Europe. Immigrant communities in the States sought out midwives who shared cultural and ethnic identities and spoke their language. The diversity of midwives in the early 20th century included varying levels of formal education, ethnicity, race, and language and made it extremely difficult for

midwives to collectivize and made it impossible at the time to form a national organization (Varney and Thompson, 2016, 14).

The Professionalization and Legislation of the Midwife: By the early 1900s, the emergence of obstetrics and gynecology as a medical specialty coupled with new state-level licensing legislation intentionally restricted the work of "Granny Midwives" and immigrant midwives by making it increasingly difficult and even illegal for them to practice (Loftman as cited by Chokraborty, 2018). As obstetrics became dominated by white male physicians, mostly female midwives, especially those of color, were blamed for maternal and infant deaths. One prominent doctor and founder of obstetrics, Dr. Joseph DeLee, called midwives "a relic for barbarism" (DeLee, 1915). Dr. Clifton, a well-known physician in New York City, articulated physician-led efforts to control birthing in the US by saying, "the gist of the matter is, that since, for the moment the midwife cannot be eliminated, she must be educated, licensed, and supervised" (Weitz and Sullivan, 1992, 246). While midwives were mostly unregulated until the 1920s, government systems began to formalize midwifery – requiring licensure and education to practice (Weitz and Sullivan, 1992).

Scholars Varney and Thompson (2016) argue that these measures were taken to first control midwifery practice and then to eliminate it (38). The matrilineal and intergenerational nature of the knowledge passed to "Granny Midwives," and immigrant midwives made the governments' formalization of midwifery inaccessible to many – forcing midwives out of practice or risking criminalization for their practice (18). In 1922, 28 states had instituted laws to regulate the practice of midwifery (49). By 1930, Massachusetts had abolished midwifery altogether (Weitz and Sullivan, 1992, 246). In response to the formalization of midwifery, arguments were made to train nurses,

specifically public health nurses, in the principles of midwifery and allow them to attend routine births. Ultimately, these efforts would fail, and physicians would maintain authority over birth (Varney and Thompson, 2016, 49).

By the mid-twentieth century, the legislation working to shrink the population of "Granny Midwives" and immigrant midwives was successful and supported by nationwide suburbanization efforts. Marketing campaigns aided this transition with ads in women's magazines framing physicians as the best providers for pregnancies and hospitals as a "super clean, germfree place, safer than home" (Wertz and Wertz, 1989, 155). In 1900, midwives attended 50% of all births; 30 years later, they only attended 15% (Litoff, 1978). By the end of World War II (1945), half of all births and 78.8% of urban births occurred in hospital settings. By 1950, 88% of all births occurred in hospitals (Devitt, 2007). Varney and Thompson (2016) describe the transition to the normalization of hospital births as a result of increasing urbanization, "The move of families from rural settings to urban centers also meant separation from the traditional support system provided by extended family and lifelong friends, who had undergirded birth in the home during the preceding three centuries of history in the United States" (63). The shift to birthing in a hospital with a physician impacted by many factors in American society and would undo generations of birth practices.

The Role of the Modern Midwife: By the 1950s, midwifery reentered medicine as nurse-trained midwives, or "nurse-midwives," began working in hospital settings to provide extra support, specifically for low-income births (Varney and Thompson, 2016, 5). Because midwives began to assert themselves in hospital settings, fewer midwives provided home births, and families who opted for home births, or could not afford a hospital birth, faced

difficulties finding an attendant (125). In the 1960s, with the emergence of feminism, upper-class white birthing people sought out midwifery care to gain control over their bodies and birthing experiences (126). At this time, physicians and hospital births began to be critiqued for overmedicalization and robbing the birthing person of agency and control, leading to a resurgence of home births and midwifery. Traditional midwives and certified nurse-midwives were increasingly in demand by birthing people. By the 1960s and 1970s, with newfound support, midwives organized themselves at the state and national levels (130).

The medicalization of pregnancy and childbirth allowed for the assertion that birth was safest in the hands of physicians, therefore invalidating the knowledge and historic precedent that was once held in communities of midwives that had delivered generations of babies in the US and eslewhere. In the mid-twentieth century, at the onset of medicalization, medical schools did not allow women to attend, especially not those of color, therefore excluding midwives and people of color from becoming physicians. It would not be until the latter 20th century that women commonly attended medical schools (Paludi and Steuernagel, 1990). Laws passed to professionalize the field of midwifery made it inaccessible to "Granny Midwives" and immigrant midwives who had not received formal training or were unable to assert their knowledge for a multitude of reasons. The medicalization of birth and the shift to giving birth in a hospital represents the pervasiveness of the formalization of birth. However, changing societal norms in the United States during the 1960s shifted the narrative on birth and gave power back to birthing bodies and midwives. While the history of obstetrics in the United States can make

the seamless integration between doctors and midwives difficult, birth workers and birthing people have greater autonomy today than they have historically.

Obstetric Care Today:

National Obstetric Trends: The complicated history of obstetrics in the United States, one encoded with racism, classism, and sexism, is still felt by birthing communities across America today. The outcomes of the medicalization of birth are made known in the data, with the aforementioned prevalence of physician attended births in the US and rates of negative outcomes associated with physician-attended births (Macdorman and Declercq, 2019). Despite the advancement of science and the medicalization of birth, the maternal mortality rate (MMR) (the number of maternal deaths for every 100,00 live births) in the United States has risen since 2000. In 2018, the MMR in the US was 17.4 maternal deaths for every 100,000 live births (Centers for Disease Control and Prevention, 2018). That same year, the national MMR was more than two times that of the next three comparable high-income countries. In 2018, the MMR in France was 8.7 maternal deaths per 100,000 live births, Canada had 8.6 maternal deaths, and the United Kingdom had 6.5 maternal deaths (Tikkanen et al., 2020). White and Hispanic women in the United States have the lowest MMR, with rates of 14.7 and 11.4, respectively. These statistics double to a shocking 37.1 maternal deaths for every 100,000 live births for Black women.

Research from Tikkanen et al. (2020) attributes America's distressingly high maternal mortality rates to a few key factors: a lack of providers, insufficient insurance coverage, no federal paid leave, and a lack of integrated midwifery care models. The authors find that the United States has the second-lowest number of midwives and doctors

per one thousand live births among ten comparable high-income countries. Unlike countries with similar profiles, OB-GYNs outnumber midwives, with 11 OB-GYNS and four midwives for every 1,000 live births. The US is the only country among this study group that does not guarantee paid parental leave after childbirth. Tikkanen et al., identify that a lack of uniform, comprehensive, and affordable maternal healthcare across the country is a causal factor in poor maternal health outcomes (Tikkanen et al., 2020). Despite solid policy recommendations from various vested parties (e.g., Centers for Disease Control and Prevention, American Hospital Association, The Commonwealth Fund), the United States continually fails to pass successful legislation to support birthing communities.

Risk of Rural Birth: Even though childbirth has occurred since the beginning of humanity, it is still considered a dangerous event, especially for those who are birthing people of color, low income, or living in a rural community. On average, 1.6% of all births require emergency treatment such as blood transfusions, heart failure or stroke interventions, or emergency hysterectomies. The incidence of required emergency treatment has tripled between 1998 and 2014 (Admon, 2019). The risk of birth is not carried equally among society, impacting vulnerable groups most strongly. Geography is a leading determining factor in the outcome of pregnancy. One study has found that lower birth volumes and high levels of rurality are correlated to an increase in the likelihood of complications (Kozhimannil, 2016). In the United States, rural individuals experience a nine percent higher risk of having a dangerous childbirth than their urban counterparts (Admon, 2019). Research identifies that people who deliver at a rural hospital are more likely to experience postpartum hemorrhage (PPH) and require blood transfusions (Kozhimannil, 2016).

A study examining births from 2002 to 2010 identified increases in unnecessary interventions in rural births nationwide. Cesarean (or c-section rates) for low-risk rural patients grew from 12.9% to 15.5%, and non-indicated induction (the induction of labor without clear benefits for the birthing person or baby) rates grew from 9.3% to 16.5% (Kozhimannil, 2014). C-Sections and inductions are not inherently dangerous when medically necessary. Research suggests that some rural hospitals are scheduling births instead of allowing labor to progress naturally. This is an attempt to overcome biology and geography by ensuring that patients can arrive at the hospital and receive care for the entire duration of labor. In the eyes of practitioners and rural hospitals, this allows for ease in scheduling; for the patient, this can reduce anxiety surrounding a long drive or uncertainty about when the baby will arrive (Greene et al., 2004). However, unnecessary or overly aggressive induction protocols can lead to complications with labor because the introduction of Pitocin (artificial oxytocin that progresses labor), and other interventions cause contractions to intensify at an unnatural speed and may increase the perceived need for interventions (e.g., episiotomies, use of foreceps) (Lothian, 2006).

The increase in c-sections is alarming because these are major surgeries and present additional risks, especially when not medically required. C-sections, compared to vaginal deliveries, are more likely to cause significant blood loss, infections, blood clots, longer recoveries, future complications, and even death (Oster and McClelland, 2019). Generally speaking, it is best practice for obstetricians to encourage their patients' births to progress naturally instead of opting for interventions (Lothian, 2006). This preference among rural practitioners for predictability may not mean that each physician is delivering poor care, but rather that the larger healthcare systems force decisions that may not prioritize the best

individualized care because they are systems that are ill-equipped to meet the needs of the rural birthing communities.

Birth Workers and Settings: Birthing communities and birth workers can be divided into two distinct approaches to pregnancy and birth, which I identify as medical practitioners and alternative practitioners. This separation is seen throughout the literature review in Chapter 5 and in conversations with birth workers and birthing people. On one side, we have medical practitioners advocating for the safety and expertise found in medical facilities. The other side advocates for the power held within the human body to birth free from unnecessary interventions, sometimes outside of a hospital, for medical, religious, cultural, or personal freedoms. While neither approach is inherently right or wrong, the clear division pressures parents to make the "right" choices for the parent and baby. As a result of this division, there are a variety of settings in which birth might occur and a range of birth workers that may oversee pregnancies and deliveries.

Data suggest that most babies in the United States and in Minnesota are born in hospitals, but there are various places where babies might enter the world (See figure 10). While there has been some historic fluctuation in out-of-hospital birth rates, the United States has remained consistent in these trends since the early twentieth century. As of 2017, the majority of babies (98.39%) are delivered in hospitals (Macdorman and Declercq, 2019). However, since 2004 the rate of planned out-of-hospital births, in a freestanding birth center or home birth, has increased nationally. As of 2017, 2.06% (compared to 1.61% nationally) of all births in Minnesota occur outside a hospital, with 1.42% of that total being at home and 0.79% occurring at birth centers (Macdorman and Declercq, 2019). Unlike

BIRTH SETTINGS IN THE UNITED STATES	
In-Hospital Settings:	
In-Hospital Birth Center	In hospital birth centers are offered by some hospitals and they provide a more home-like atmosphere while still providing the traditional spectrum of medical services like epidurals, c-sections, pain management, etc., within the hospital. It is becoming increasingly common for in-hospital birth centers to offer more physiologic birth options such a water birth, aromatherapy, massage, etc.
Labor and Delivery Unit	Labor and delivery units are a standard option for most hospitals and can be very similar to in-hospital birth centers. These wards offer birthing rooms and recovery rooms along with necessary access to an operating room in case a cesarean section is needed. Depending on the hospital, there may be a varying options to have a more alternative birth
Out-of-Hospital Settings:	
Free Standing Birth Center	Free standing birth centers are not attached to hospitals and are often staffed by CNMs and CPMs. These facilities are patient and family centers, typically providing prenatal to postpartum care to patients that see an alternative birthing process. Because of this, these facilities cannot provide c-sections or other medical interventions – requiring a transfer to hospital if medically required
Home Birth	Home birth, as it sounds, is a birth that occurs at home. A home birth can be planned or unplanned and may or may not be attended by a birth worker. In the state of Minnesota, home births are typically attended by a CPM, CNM, or a unlicensed traditional midwife. Homebirths allow a person a highly personalized experience and focus on physiological approaches to birth, avoiding unnecessary medical interventions. If adverse outcomes occur, hospital transfer may be required.

Figure 10. Chart of birth settings in the United States

historical trends in out-of-hospital births being for low income, people of color, or rural residents, those giving birth in non-hospital settings today are overwhelmingly white, affluent, and educated (Macdorman and Declercq, 2019).

There are a wide variety of birth workers who may be present at a birth, (See figure 11) each with their own approach and background. The provider who oversees a given pregnancy is a function of the patient's perceived level of need, but it is also a result of the powerful social and historic pressures shaping medical care, especially obstetrical care. Midwives of all types care for low-risk pregnancies and deliver 9.1% of babies nationwide (Macdorman and Declercq, 2019). Midwives working in hospital settings (CNMs) have lower c-section rates and lower rates of episiotomy compared to physicians (Attanasio and Kozhimannil, 2016). This is in part because midwives are intended for routine pregnancies, however data is clear that in health systems where midwives and physicians practice in collaboration, the outcomes for parents and infants significantly improve (Vedam et al., 2018). In healthcare systems where midwives are integrated, there are higher rates of spontaneous vaginal delivery, vaginal birth after cesarean (VBAC), breastfeeding and lower rates of c-sections, preterm births, low birth weights, and neonatal deaths (8).

Synthesis: This section highlights the multitude of factors and pressures that contribute to the realities of obstetric care in the United States. Social dynamics resulting from the complicated histories and the spectrum of professional and personal opinions about how and where to birth shaper perceptions and practices, both consciously and unconsciously. The information in this section in no way attempts to answer or detail the complexity of this issue; instead, it provides a snapshot of critical background information. The following section explores the causes of loss of rural obstetric care and provides an in-depth explanation of this cause-and-effect relationship, expanding on the ideas mentioned in this section.

COMMON BIRTH WORKERS IN MINNESOTA	
Physicians:	
Obstetricians and Gynecologists (OB-GYNs)	OB-GYNs are medical doctors that provide reproductive and sexual health care for patients with routine and complex needs. They can perform necessary surgeries, deliver twins/multiples, manage co-morbidities (high blood pressure, diabetes, etc.) The vast majority of pregnant patients in the US today seek care from an OB-GYN.
Family Physicians	Family physicians are medical doctors trained to tailor their practice to community needs and therefore have some variation in practice. As primary care providers, they treat patients from birth to death. Not all family physicians deliver babies, but those who do typically support low-risk pregnancies. Some may offer more specialized care, such as cesarean sections, but many refer to specialists.
Perinatologist	A perinatologist or a maternal-fetal medicine specialist are OB-GYNs who pursue additional training. These providers oversee exclusively complicated pregnancy and are typically only found in large urban areas.
Advanced Practice Registered Nurses (APRN): *an APRN is a RN with an expanded scope of practice resulting from continued education (ex. nurse practitioner, nurse anesthetist, nurse midwife). In Minnesota, APRNs are licensed and typically work collaboratively in hospital and clinical settings (Minnesota Board of Nursing, 2021)*	
Certified Nurse-Midwives (CNM)	CNMs are APRNs that work in a variety of settings (hospitals, community clinics, birthing centers, etc.). CNMs are licensed healthcare providers, treating patients with reproductive and sexual healthcare needs ranging from menarche to menopause, including low risk births and infant care. CNMs specialize in low-risk pregnancies and use a holistic approach to avoid intervention unless necessary.
Direct Entry Midwives:	

Certified Professional Midwife (CPM)	CPMs enter the practice by way of graduate school or an apprenticeship. They are independent practitioners that support birthing people from prenatal to postpartum. Similar to CNMs, they care for low-risk pregnancies and specialize in physiological birth. They do not practice in clinic/medical facilities and often work in freestanding birth centers and/or home birth settings. The state of Minnesota offers, but does not require, licensure for CPMs. This license has restrictions on practice (no use of surgical instruments or completing surgeries except for first and second-degree perineal stitching) and requires CPMs to be certified by the North American Registry of Midwives but allows them to order tests and administer life-saving medications in MN.
Other Members of the Care Team:	
Doulas	Doulas are trained advocates or support people who assist birthing people from pregnancy to birth to postpartum. Doulas do not deliver babies but offer emotional, physical, and informational support and advocacy on behalf of the birthing person with the goal of offering the healthiest and best birthing experience for the birthing person.

Figure 11. Chart of common birth workers in Minnesota

Chapter 5:

Diagnosing Obstetric Units in Decline

Introduction: This chapter synthesizes the current literature surrounding why obstetric units across rural America are closing their doors. This review examines the issue from a national level to understand the broader dialogue. Completing a thorough literature review frames the Minnesota-specific data within a larger conversation and helps to solidify where the state falls within this decline that is burdening rural communities nationwide.

This chapter argues that while rural spaces are not homogenous and the phenomena they experience vary, there are key symptoms that indicate the risk of obstetric unit closures. Staffing concerns, a high prevalence of Medicaid patients, low-birth volumes, rising costs of insurance, and specific hospital designations are all key indicators of risk of closure. Though warning signs can be predictive, no one symptom can be flagged as indicative of closure because all symptoms are interrelated and tied to greater rural health inequities. Chapters 6 and 7 expand on how individual professional and personal experts provide unique responses to and conceptualizations of these symptoms of closure.

Staffing: Since the turn of the century, the interest among medical students in practicing general medicine has declined. The American Association of Medical Colleges predicts that by 2032 there will be a shortage of between 21,100 and 55,200 primary care physicians (Heiser, 2019). This shortage is especially concerning for areas with significant health needs that rely heavily on general practitioners, such as rural communities.

Economic rural disadvantage in rural communities is a major contributing factor to the inability to attract and retain proper staffing. Economic rural disadvantage is the idea that

people working in rural spaces earn less than their urban counterparts who are conducting the same work. As a result of the decreased income and inherent distance from resources and amenities often found in urban nodes, rural communities struggle to attract people to live and work in rural areas (Albrecht, 2013). For healthcare, this means significant gaps in care are formed simply because rural healthcare systems are understaffed.

The body of rural maternal health literature identifies difficulty staffing obstetric units as a contributing risk for closure. In a 2015 study, 98% of surveyed rural hospitals shared concerns about staffing (Kozhimannil et al., 2015). Similarly, a 2017 study found that 79% of hospitals that disbanded obstetric care during the study period mentioned difficulty staffing the unit as influential in the closure decision (Hung et al., 2017, 1552).

The geography of rural spaces, specifically their distance from larger towns, can make staffing logistically challenging. Not only is it challenging to recruit commuter employees, but rural obstetric wards are facing a shortage of patients. One study organized staffing concerns into five main categories: scheduling, training, recruitment and retention, census fluctuation, and intrahospital relationships (Kozhimannil et al., 2015). The issue of scheduling was cited among 36% of hospitals and reflects a shortage of team members; it was difficult to cover sick time, parental leave, and night shifts (Kozhimannil et al., 2015).

Training can be a major issue in low-birth volume hospitals because the lack of patients results in unpracticed skills and competencies. Concurrently, rural isolation can make it difficult for OB teams to physically access training at larger facilities to maintain proficiencies. A surveyed hospital administrator explains this barrier by saying, “We have to travel a long way for training – 2 to 3 hours.” (Kozhimannil et al., 2015, 5). The

geography of a given rural community can directly impact how much staffing is a concern. Some towns, by nature, are subject to rural realities but are advantageously placed to more efficiently leverage resources (including training facilities and the available workforce) in regional centers, while other towns are limited by their remoteness.

Due to the lack of patients in rural hospitals, some teams have staff "float" between wards. For example, an emergency medicine doctor may supervise labor and delivery and the emergency department during a given shift. However, a lack of specialization among practitioners is thought to indicate an increased risk of closure and sometimes a decreased quality of care. Hung et al. (2017), find that counties that maintained their obstetric services had twice the number of obstetricians as counties that closed their doors. Counties that suffered closure had 0.13 fewer general physicians per 1,000 patients (Hung et al., 2017).

The issue of who is providing care is especially relevant in rural communities that struggle to attract qualified practitioners. Unlike urban spaces, rural communities cannot recruit staff with the same ease. A 2015 study identified that 20% of hospital administrators referenced recruitment and retainment as a leading barrier to success. One surveyed hospital administrator stated, "In rural hospitals, the challenge is finding competent nurses who are willing to live in rural areas […] it is hard to attract skilled nursing to a rural setting" (Kozhimannil et al., 2015, 5). Hospitals must be able to market themselves as a facility with resources, stability, and the ability to support their staff financially to attract qualified candidates of all levels. New practitioners often have education debt to pay off and lower salaries cannot compete. Unless medical professionals are from a rural community or dedicated to rural health, it is extremely difficult to recruit young graduates to start their careers in small towns (Kozhimannil et al., 2015; Hung et al., 2017).

Likewise, Hung et al. (2017) notes that retention, recruitment, and reliability are the prominent staffing concerns (Hung et al., 2017). One hospital in the survey detailed the severity of unstable staffing by sharing that "We stopped doing deliveries because we only had one provider doing deliveries. We lost a FP [Family Practice] provider who no longer wanted to do OB services and we've been unable to recruit new doctors." (Hung et al., 2017, 1552). In some cases, rural hospitals have, "too few staff or providers in the community to operate an OB unit" (Hung et al., 2017, 1553). Labor and delivery units require enough staff to support individual birthing people while still offering a variety of birthing options and providing support in emergencies– which requires a high quantity of staff members. When rural hospitals operate a unit with few providers, these units can crumble when professionals move away, retire, or opt to no longer provide OB care.

Because rural communities have fewer physicians who manage pregnancies, the available labor and delivery providers face a greater burden. It is not uncommon for a doctor to be the only available physician and on-call 24/7 for their patients. This responsibility can lead to declining enthusiasm from rural obstetricians as they struggle to maintain some semblance of a home-life balance (Zhao, 2007, 15). The negative cycle that is born out of a lack of providers causes patients to opt to bypass the local hospital systems and deliver at regional facilities that generally have more resources and a wider variety of providers. This further decreases birth volume at local hospitals and, in turn, makes it more difficult for the local hospitals to afford and attract labor and delivery staff. More than one-half (59%) of surveyed hospitals that lost hospital-based obstetric care stated they had no interest in providing obstetric care again. Administrators cannot justify the benefits of

maintaining labor and delivery services considering the costs and difficulties that the hospital must bear (Zhao, 2007, 18-19).

One study finds that the issues that arise from attempting to staff a labor and delivery unit in a rural hospital can lead to intra-hospital conflicts (Kozhimannil et al., 2015). Not only is the obstetric ward pressed with their eminent issues, but they are subject to the hierarchy within the hospital. Hospital administrators cited difficulty asserting the importance of labor and delivery with other departments. Low-birth volume and expensive cost of care can place administrators in an uncomfortable position where they must advocate for sufficient budgets, resources, staffing, and continued education for their department that may present itself as failing (Kozhimannil et al., 2015).

Aging populations, the shrinking size of communities, and limited amenities present a challenge for hospitals as they attempt to present the rural landscape as an attractive area of practice for professionals. Rural hospitals continually cite difficulties staffing labor and delivery units as a barrier to the ward's success. These difficulties faced by rural obstetric wards reflect the larger decline of rural America. Another concern related to this decline is the high percentage of rural birthing people who rely on Medicaid.

Medicaid: The issue of Medicaid is pertinent to obstetric unit closures because of its dedicated coverage of pregnant people and collaboration with the Children's Health Insurance Program (CHIP). Medicaid is a state and federal program that provides health insurance to 72.5 million Americans (Centers for Medicare and Medicaid Services, 2021). It is the single largest source of insurance coverage in the United States. In Minnesota, 19.84% of Minnesotans rely on Medicaid. As of 2018, roughly two-thirds of these individuals were identified by the state of Minnesota as parents, children, or pregnant

people (Minnesota Department of Human Services, 2019). Medicaid provides coverage to low-income, pregnant people, and children at a federal level, but depending on the state of residence, Medicaid may provide more expansive coverage. In 2010 the Affordable Care Act (ACA) was rectified to provide insurance for almost all low-income Americans who were not candidates for Medicare.

As of 2022, 39 states in the United States have voted to expand Medicaid (Kaiser Family Foundation, 2022). States with full-scope Medicaid provide coverage for prenatal care, labor and delivery, and have opted to extend postpartum coverage, and other key services. Research shows that states who expand Medicaid have lower maternal mortality rates, especially for Black birthing people (Eliason, 2020). The US Department of Health and Human Services has pushed for full national coverage of pregnancy due to its demonstrated benefits. Despite the federal push for full care coverage, states still maintain the right to decide what services are included in their Medicaid. States that opt against expanding Medicaid via the Affordable Care Act leave those who have given birth without care and uninsured sixty days after giving birth (Ranji et al., 2021).

Academics and non-academics alike reference the critical role Medicaid reimbursements play within the rural healthcare system. Multiple studies have shown that more than half (51%) of rural obstetric patients are covered by Medicaid (Zhao, 2007; Hung et al., 2017). However, within the body of literature, there is debate about whether this increased prevalence of Medicaid covered births is detrimental to the success of obstetric wards. Because states have the autonomy to expand Medicaid, there is variation in the data, explaining some of these discrepancies. In states that have failed to expand Medicaid coverage, reimbursements for services may be very low. One interviewed

hospital administrator shared that his state "paid $13 per emergency visit by Medicaid enrollees, a fraction of the average reimbursement from private insurers" (Zhao, 2007, 20). However, in states that have expanded Medicaid, hospitals receive cost-based or 101% reimbursements that do not lead to damaging financial repercussions for the facility (Zhao, 2007, 20).

Zhao (2007) identified that 19% of hospital administrators list a high prevalence of Medicaid-covered patients as a leading factor in decisions to cease hospital-based obstetric services (27). At the same time, Hung et al. (2017) found no significant relationship between Medicaid coverage and the risk of obstetric ward loss. The authors describe this finding as surprising considering previous scholarship (Hung et al., 2017). These two research findings are more than a decade apart, and Zhao's research (2007) occurred prior to the passing of the Affordable Care Act during a time when some states were experiencing reductions in Medicaid reimbursements (Hung et al., 2017).

One possible explanation for discrepancies in the relationship between Medicaid coverage and the risk of hospital closure is related to the fact that 51% of those who gave birth were covered by Medicaid (Hung et al., 2017). They conclude instead that the financial status of the county's population is more indicative of the risk of closure than the prevalence of Medicaid (Hung et al., 2017). This diverging finding suggests that perhaps while the initial shock of the ACA may be correlated to increased risk of obstetric care loss, it was, in this case, temporary. After a certain period, rural communities adapt, and the healthcare system becomes accustomed to the reimbursements they receive from Medicaid. However, the average income of a county is also indicative. State's rights and the lack of consensus on the matter are reasons for the need to expand and continue research

to determine the modern implications of Medicaid coverage and the risk of obstetric unit closure. At this point, lower-than-cost Medicaid reimbursement rates continue to make obstetric units unprofitable and contribute to the rate of closures.

The prevalence of Medicaid coverage is a factor determining the profitability of labor and delivery units. The research shows that a high percentage of Medicaid-covered births can make it difficult for wards to stay open. Related to this and the demographic decline happening across rural America is the idea of birth volumes. Just like the prevalence of Medicaid covered births, the number of births a hospital delivers in a year is an indicator of the viability of a labor and delivery unit (Grzybowski et al., 2011; Kozhimannil et al., 2014; Phibbs et al., 2007; Snowden and Cheng, 2015).

Birth Volume: Birth volume is an interconnected issue in constant call and response with other factors like increased cost of insurance, staffing, and Medicaid coverage. Birth volume is directly related to what type of providers are available and how many obstetricians are on staff (Kozhimannil et al., 2015). Hospitals with low birth volumes average 1.4 obstetricians on staff, while high-volume hospitals have five on average (Kozhimannil et al., 2015). Johnston et al. (2019) documents that a significant flaw in rural healthcare is its inability to support specialists, leading to higher hospitalization and mortality rates in rural populations compared to urban populations. Adverse outcomes impact the birthing person and infants who are born with complications. Phibbs et al. (2007) found that outcomes for very low-weight infants are best when delivered in a hospital with high levels of specialty care (NICU) that also has experience treating infants with similar issues at least 100 times per year.

There are mixed findings regarding the relationship between birth volume and the delivery outcomes (Snowden and Cheng, 2015; Kozhimannil et al., 2014; Phibbs et al., 2007). Some studies identify low birth volumes as being indicative of closure and lead to obstetric care deserts, which can have subsequent negative outcomes (Grzybowski et al., 2011), while others find that the centralization of care, or the regionalization of care to one larger facility, can improve outcomes (Hung et al., 2016; Phibbs et al., 2007). Kozhimannil et al. (2014) find incredible variation in birth outcomes across rural hospitals with varying birth volumes. Rural hospitals with medium-high and high birth volumes have lower rates of non-indicated c-sections, but higher odds of episiotomy. In low-volume rural hospitals, the odds of non-indicated induction were slightly higher than higher volume facilities but not significantly different. These connections and inconsistencies help illustrate that low-birth volume on its own may not necessarily indicate increased risk, but it suggests structural issues are at play.

Generally speaking, the fewer deliveries in a hospital each year, the greater the risk of closure for labor and delivery units. However, because birth volume is a proxy for other risks, high-volume hospitals are not always correlated with greater stability. One of the surveyed rural hospitals that lost obstetric care had an annual birth volume of 726 deliveries in 2010, much higher than the median volume for rural hospitals that year (Hung et al., 2016). Research from 2022 suggests that a hospital must have 200 deliveries per year to maintain safety and financial viability (Kozhimannil, et al., 2022) In some cases, the closure of an obstetric ward may bring about increased benefits for birthing parents and infants. Net benefits occur if low-birth volume hospitals can condense services and improve the overall quality of care (Hung et al., 2016). However, if communities cannot

successfully centralize care, there is an increased risk for unplanned out-of-hospital births, which coincides with a higher rate of adverse outcomes (Hung et al., 2016).

The number of deliveries a rural hospital has per year impacts who is providing care and what risks the providers might experience; however, the literature identifies critical levels of variation that make it challenging to create a blanket understanding of how birth volume impacts a given rural hospital. The interconnectedness of these symptoms of closure indicates the compounding nature of the demographic decline and how it seeps into and impacts many other aspects of maintaining an obstetric ward like Medicaid coverage and staffing. In addition to these factors, the rising cost of insurance is an important consideration for understanding how practitioners opt in or out of providing obstetric care in their rural communities.

Rising Cost of Insurance: The rising cost of malpractice insurance incentivizes general practitioners to opt out of delivering babies. The increased cost of insurance is partly due to staffing issues in rural hospitals and the increased risk of adverse outcomes that can coincide with low-birth volume. Almost half of all hospital administrators (44%) shared that the high liability associated with childbirth and the fear of being sued by patients were factors in hospitals closing their obstetric units (Zhao, 2007, 27)

Huge spikes in the cost of malpractice insurance occurred during the early 2000s and attracted public attention (Zhao, 2007, 5). Providers most impacted include OB-GYNs, family physicians, anesthesiologists, and general surgeons – all critical to the viability of labor and delivery units (Zhao, 2007, 15). Zhao (2007) notes that around one-half of hospitals that participated in the survey shared that their insurance premiums have doubled over the past two years and, “another 21.4 percent claimed a rate increase of between 50

and 99 percent during the same period of time" (6). While the burden of malpractice insurance is not a new concern for obstetric providers, as noted in Taylor et al. (1989) and Zhao (2007), it is exacerbated by other factors rural hospitals face and explanatory in understanding the complexities of staffing rural obstetric wards.

Because rural communities are less likely to have specialist providers such as obstetricians and certified-nurse midwives delivering babies, family practitioners tend to oversee labor and delivery in rural spaces. One survey examined rural hospitals between 2013 and 2017 and found that family physicians delivered babies in 67% of the rural hospitals and were the exclusive delivering physician in 27% of hospitals (Deutchman et al., 2021). While general practitioners are more than qualified to deliver babies, they carry a greater malpractice burden if they decide to offer obstetric care (Zhao, 2007, 15).

In the eyes of the insurance company, family physicians have less technical experience and knowledge in childbirth because there is much more breadth in their practice. Additionally, rural physicians who practice in low-birth volume hospitals face even higher premiums because a lack of deliveries is associated with decreasing labor and delivery competencies and, therefore, greater risk (Zhao, 2007, 15). On top of the exorbitant insurance costs, family medicine doctors make less money on average than specialists but are charged similar premiums, making it difficult to afford insurance on top of issues regarding work-life balance, consequently encouraging the exit from obstetric care (Zhao, 2007, 15). The designation of a hospital is another important influencing factor for rural obstetric wards. The following section explores the role of designation as an explanatory factor in understanding risk of closure.

Hospital Designation: Hospital designation refers to the type of hospital. Some examples may be public versus private institutions, nonprofit versus for-profit, or critical access hospitals (CAH). A public hospital is owned and operated by the government. Although the level of government ownership may vary from local to municipal to state, most hospitals in the US are publicly held (AHA, 2021). A group of owners and shareholders often own a private hospital. Not-for-profit hospitals are charities in the eyes of the government and do not have to pay federal, state, and local property taxes, and as the name suggests, they do not make a profit. For-profit institutions are most often owned by investors or shareholders and turn a profit.

In 1997 Congress passed the Balanced Budget Act and created critical access hospitals which are now widespread across rural America. Eligible hospitals can gain CAH designation to maintain essential healthcare in rural areas and reduce the hospital's financial instability. CAHs receive cost-based or 101% reimbursements, can have flexible staffing and must maintain 24/7 emergency services. The goal of receiving a CAH designation is to allow a hospital enough flexibility to maintain services while also operating with smaller margins and providing much-needed access to healthcare in communities that lack alternative options. The designation and affiliation of a hospital are mentioned in the literature as possible influencing factors to increased risk of hospital-based obstetric unit closure (Hung et al., 2017; Kozhimannil et al., 2017).

Although it seems counterintuitive, one study identified that CAHs were more likely than other rural hospitals to lose obstetric care (83% versus 51%) (Hung et al., 2017). Research from the same year identified that critical-access hospitals were more likely than non-CAH facilities to lack obstetric care (Kozhimannil et al., 2017). These authors suggest

that CAHs intend to benefit rural communities by providing vital care with enhanced flexibility to accommodate the rural environment, but they are not structured to provide specialty care like obstetrics.

The high fixed costs of obstetrics are sometimes incompatible with the CAH model. CAHs maintain access to basic quality care, even if it is not comprehensive or highly specialized. In the eyes of the hospital, disbanding labor and delivery enhances the level of care throughout the rest of the facility while reducing costs – which is in line with the CAH model.

Holding all other variables constant, private non-profit and for-profit hospitals experience three times higher odds for obstetric unit closure (Hung et al., 2017). This is because previous research has identified obstetric care as overwhelmingly unprofitable (Horwitz and Nicholls, 2011), and therefore public and nonprofit hospitals are more likely to provide these essential services. Similarly, Kozhimannil et al. (2017) confirmed the idea that government-owned and for-profit hospitals were at greater risk for closure, noting this is partly because there are more government-owned hospitals than privately held ones.

Another important form of designation is the rurality of a county. Kozhimannil's team (2017) successfully incorporated the importance of geography into their analysis. They identified that rural hospitals that disbanded care were more likely to be in noncore counties than micropolitan counties (70.8% in noncore and 29.2% in micropolitan) (Kozhimannil, 2017). This means that most obstetric care loss is most likely to occur in the least populated and most isolated rural counties across rural America.

Research identifies that a hospital's available services and the number of patients it serves can be determinants of risk. Hospitals that disbanded obstetric care tended to one-

fourth of the emergency room visits and serviced half of the number of patients hospital-wide compared to hospitals that sustained labor and delivery units (Kozhimannil, 2017, 1316). All surveyed hospitals with obstetric care had emergency rooms, while 10% of hospitals with no OB services had no emergency room (Kozhimannil, 2017, 1316). This is a valuable finding because it suggests that the volume of a hospital's overall patient population and its general capacity to care for patients can act as a litmus test for the success or failure of a labor and delivery unit.

Synthesis: Individual research identified slight nuances in their findings, but overall, there is a strong consensus that staffing concerns, high proportions of Medicaid patients, low-birth volume, rising costs of insurance, and hospital accreditations are key determinants of risk of closure. The interconnectedness of these factors indicates that no one symptom can be understood on its own. Together these indicators form a spiral of death in which the presence of each symptom increases the likelihood of another. The culmination of these symptoms forms a diagnostic framework for understanding the holistic likelihood of a rural community losing hospital-based obstetric care (See figure 12). This finding is extremely important because it acknowledges that researchers cannot separate the causal factors for closure

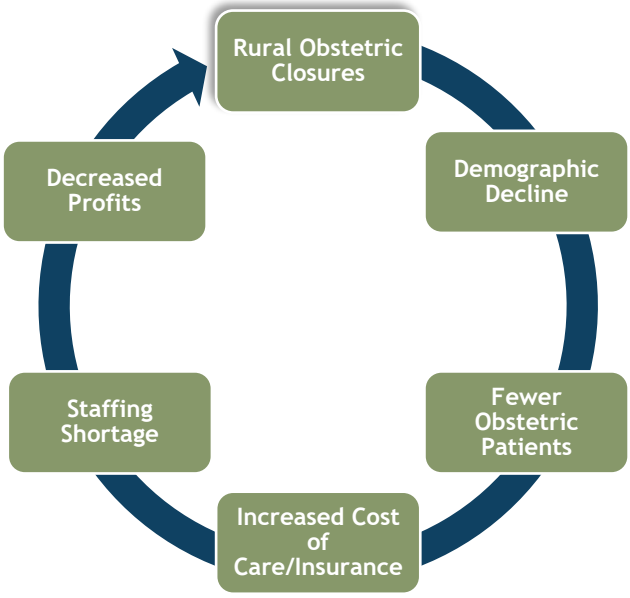

Figure 12. Hospital-based obstetric care loss spiral of death

from one another. They are not only connected but in constant exchange. This means that the resolution of one symptom will fail to address the greater system causing a decline in rural maternal health services. Instead, a comprehensive overhaul is necessary to prevent the closure of hospital-based obstetric units.

Chapter 6:

Personal Experts: Experience as Expertise

Introduction: Twelve personal experts were interviewed throughout this research, and 117 survey responses were analyzed regarding respondents' recent experiences being pregnant and giving birth across rural Minnesota. Informants found this research across many pockets of their communities. Ten interviews and 49 surveys reflecting the deliveries of 111 children made their way to the final analysis. This body of qualitative research provides valuable nuance into the issues facing rural maternal healthcare and how rural people navigate, cope, and resile with these systems daily.

The sensationalizing of matters related to the loss of hospital-based obstetric care in popular media has established a precedent that paints rural communities as hopeless and declining and presents birthing people facing these realities as outraged and afraid. Early on in the research, before interviewing any personal experts, I spoke with maternal and child health RN Leah (ProfE_1), [1] who beautifully described her community's response to the loss of obstetric care:

> People here have a really strong sense of place and the idea of it's hard to live here so people who do, for the most part, really feel like this is where they belong. And so, the idea of having to go somewhere else for such a life moment, like giving birth is really hard. [...] People feel really abandoned. And also, just totally dissatisfied, that the answer is about something as foreign as liability and insurance when this is something as personal and profound as giving birth. So, the fear that comes with having to travel a long distance to give birth, I think carries a lot of that, like, it could be different, we used to have it [obstetric care] here, we should still have it here. So, some sadness, definitely still there.

[1] Pseudonyms used. See figure 9 for full list of informants

Indeed, these themes are true for Leah's community and others across rural Minnesota, but they represent the extremes of faced realities. Many of those who took part in this research sought a space where they could share their experiences to improve the future, which implies certain amounts of biases. As a researcher, I struggled to balance my feelings of overwhelming sadness for the transitions occurring across the state with an objective lens. As I analyzed the data, what stood out to me, is that even in Leah's perception of her community's grief, she identified what many others described. For those living this reality, dissatisfaction is directed toward systemic issues, while local barriers are seen as an everyday nuisance that is accounted for and navigated.

My interviews and surveys seek to understand how each participant conceptualized the cause-and-effect nature of Minnesota's maternal health crisis. Throughout this paper, an understanding of this relationship was explained through academics' eyes which provided credibility but lacked many of the human elements intertangled in the birth process. From these interviews, I deduced that the informants perceive the cause of this issue as multi-scalar: local-level issues and systemic-level issues. Informants mentioned local-level, place-based barriers as important in their access or inability to access care, but all informants were clear that systemic and upstream issues in both the rural space and America are to be blamed for the decline and addressed to elicit improvement. The responses or the effect of the loss of rural obstetric care occur locally via resource sharing across multiple environments and aim to reduce barriers and improve access. Emotional reactions to the loss of care are individualistic, however, there are two main approaches. One approach is characterized by acceptance and willingness to navigate within the greater

healthcare system to maximize one's birthing experience. The other approach accepts the limited access and removes oneself from the system by opting for an alternative birth.

In this chapter, surveys and interviews for those who have recent experience being pregnant or giving birth in Minnesota are discussed. First, the results from the personal expert surveys are interpreted, sharing both summary statistics and insights from written survey questions. Then the findings of the interviews are shared, which read like a narrative and highlight the key themes regarding the cause and the effect of Minnesota's maternal health crisis among personal experts, along with my insights as the researcher. While the survey results bolster the interview findings, the ethnographic interviews surface as a revealing and compelling medium to form a conceptualization of responses to declining access to hospital-based obstetric care across rural Minnesota's landscape.

Discussion of Surveys: Analyzing and making sense of the survey results provided quantifiable evidence that delivers important insights and uncovers the limitations of this research. Forty-nine viable responses detailing 111 births were analyzed. The study populations reside in 21 counties and 41 different ZCTAs (See figure 8 for a map of distribution). Oversampling occurred in two regions of rural Minnesota. One community in southern Minnesota represents 22.45% (11/49) of responses, and a town in northern Minnesota represents 20.41% (10/49). The vast majority of respondents were middle and upper-class white birthing people. The average survey respondent had a household income between $70,000 and $79,999, and 97.95% (48/49) of respondents were Caucasian. Participants had a slightly higher average number of children than the US national average, 2.26, compared to 1.93 children (Statista, 2021).

The survey responses successfully capture the distance traveled to receive obstetric care (See figure 13). One-third of survey respondents (32.62% or 16/42) drove for thirty or more minutes to receive obstetric care. This figure is lower than the findings of Rayburn et al. (2012), which determined that more than one-half of rural birthing people drive thirty minutes or more to reach a hospital with obstetric care. Rayburn et al. (2012) find that only 12.4% of birthing people in rural towns have a drive greater than one hour to reach obstetrical care. While in this survey, there was a lower percentage of surveyed people who had to drive for more than thirty minutes to receive care, these surveyed Minnesotans have a higher proportion of birthing people who commute longer than sixty minutes. These findings are still very alarming, considering previous research identifies that only seven percent of urban birthing people drive greater than thirty minutes to receive care (Rayburn et al., 2012).

Time to Healthcare Provider	**Responses (n = 49)**	**Percentage (%)**
Less than 15 Minutes	17	49.35%
15 to 30 Minutes	16	32.65%
30 to 60 Minutes	7	14.26%
60 to 90 Minutes	4	8.16%
Greater than Two Hours	5	10.2%

Figure 13. Chart of personal expert survey responses detailing time traveled to obstetrical care

In line with national trends in the rates of hospital births, the vast majority of surveyed deliveries occurred in a hospital setting with a physician. This study population has higher rates of planned out-of-hospital births when compared to national and state-level trends. A notable 13.52% of births in this survey happened in a freestanding birth

center or at home. Macdorman and Declercq (2019) found that those opting to give birth outside a hospital are more likely to be white, affluent, and educated. Due to the lack of diversity among participants in this study, there are no meaningful ways to cross-tabulate data to identify demographic-specific trends in this dataset.

Birth Setting	**# Of Births** (n=111)	**Percentage (%)**
Hospital	96	86.49%
Freestanding Birth Center	7	6.31%
Home Birth	8	7.21%

Figure 14. Chart of personal expert survey respondent's birth setting

Most respondents had a family physician (23.72%) or OB-GYN (55.93%) care for their pregnancy. One-fifth of respondents received care from a midwife (CNM or CPM). There is a slight increase in OB-GYN attended births which can be associated with patient preference and the fact that many hospitals rely more heavily on obstetricians than family physicians or CNMs for labor and delivery coverage due to their surgical capabilities. Around three-fourths of respondents (77.55%) report having an obstetrician deliver their babies, compared to roughly one-half who opt to have an OB oversee their prenatal care.

Overall personal expert survey respondents rated their experiences positively, with an average rating of 4.45 out of five during pregnancy and 4.25 during delivery (See figure 15). The ratings are relatively high for both pregnancy and birth, but a decrease is seen at birth. The lowest score given during pregnancy is a three out of five, while the lowest for delivery is a one. Interestingly, among those who rated their delivery negatively, a two or less on the Likert Scale, 100% of them had to drive for thirty or more minutes to receive

care with 50% having to drive for more than one hour — suggesting that the required distance to travel may be an influencing factor in perceived quality of care.

Emotions are complex; more than one feeling may arise at a time. This made providing summary statistics difficult because one could feel anxiety and excitement, which are neither wholly positive nor negative. Objectivity is often absent when considering that a birth welcomes a child into the world. No matter how traumatic, stressful, or unexpected a labor might be, there is often intense joy, making it easy to forget unfavorable details. Another aspect that made analysis difficult, which future research should address, was that some respondents shared experiences regarding more than one birth and did not articulate if certain emotions were associated with all their births or one specific birth.

Likert Scale	**Quality of Care During Pregnancy** (n = 49)	**Percentage (%)**		**Quality of Care During Delivery** (n = 49)	**Percentage (%)**
1 (Poor)	0	0%		2	4.08%
2	0	0%		2	4.08%
3	5	10.20%		5	10.20%
4	18	36.73%		13	26.53%
5 (Excellent)	26	53.06%		27	55.10%
Mean	**4.45**	**100%**		**4.25**	**100%**

Figure 15. Chart of the distribution of personal expert's ratings of quality of care during pregnancy and birth

When asked to describe emotions felt during birth, one-half of respondents (18/36) rated their births positively, using words like empowered, safe, and supported to describe their experiences. Around one-third of respondents shared responses that coded as negative (36.11%, 13/36). Words such as traumatic, coercive, anxiety were used. The remainder of respondents (5/36) had neutral experiences and used words like nervous and satisfied to describe their delivery.

Surveys revealed an overall high quality of care during pregnancy and delivery, but when given the space to provide emotions felt or experiences, there were strong feelings that stood in opposition to the high overall ratings. The same pattern followed in interviews with those who gave birth in a hospital. This trend is similar to the Pearson et al. (2018), which examined the emotional impact of the loss of care in rural northern Minnesota. Pearson et al. (2018) had a larger sample size and received surveys representing 356 deliveries. Researchers found that respondents rated their quality of care positively. Still, they reported high levels of anxiety and they have demonstrated concerns regarding the drive to the hospital and worries regarding the viability of their rural community after losing access to obstetric care.

The survey provided questions and answers in a long response format, allowing participants to freely write about their concerns and hopes regarding rural maternal healthcare in Minnesota. Participants were asked about their concerns about maternal healthcare in Minnesota (See figure 16). This question received nineteen written responses. The top three most prevalent concerns were related to long drives, the medical system, and a lack of appointments.

Fears about the long drive were personal and community oriented. One participant in the survey described their concern: "I think it's absurd and criminal even, that we can't deliver babies at our local hospital. I greatly believe that the two-and-a-half-hour distance to deliver my babies contributed to my miserably long labors." Concerns about the medical system were rooted in the overmedicalization of birth, Minnesota's healthcare system, and a limited variety of professionals. A respondent said:

Do you have any concerns about maternal healthcare in Minnesota?	
Theme	Count (n = 19)
Long drive	8
American healthcare system	8
Lack of appointments	3
Paid parental leave	1

Figure 16. Chart of question and personal expert responses regarding concerns about maternal healthcare

> I believe that hospital practices in MN are behind the best research-based methods. For example, most hospitals in my area do not allow a laboring woman to move around, eat, or drink during labor. I also believe that most doctors here are too quick to use interventions, which is reflected in the area's c-section rates (interventions leading to more c-sections).

Issues regarding appointments were also noted, partly due to many of these pregnancies/births occurring during COVID, which shifted the approach to obstetric care. However, some concerns were expressed regarding when the first appointment occurs, how frequently they occur, and how long a provider spends with a patient during visits.

When informants were asked about what would have improved their pregnancy and birth, 23 responded (See figure 17). The top three described themes were closer proximity to care, improved health literacy, and streamlined care. One respondent shared her thoughts on why nearness matters, "Closer proximity to birth location, which would

eliminate much of the stress and trauma I experienced." Those who filled out the survey felt that improved education before, during, and after pregnancy would have been beneficial. Requests for informed consent care, education regarding the financial burden resulting from giving birth and postpartum care were all shared as opportunities for grown across Minnesota's rural healthcare networks. The other possibility for growth, though not unique to rural places, was improving provider consistency. Respondents shared that they would have liked to see the same provider from prenatal to postpartum care and did not like the on-call schedule many hospitals use for around-the-clock coverage of hospital-based obstetric units.

What would have improved your experiences with pregnancy and childbirth?	
Theme	Count (n = 23
Closer proximity to care	5
Improved health literacy	5
Streamlined care	3
Having a different provider	3
Shift in obstetric care	3
COVID-19	2
Practical change	2

Figure 17. Chart of question and personal expert responses regarding improvements to maternal healthcare

The findings from the survey capture whom this research attracted and adds insights to the interviews while also highlighting the limitations of this research. The average respondent is an upper-class white birthing person who drives less than thirty minutes to give birth in a hospital setting with a physician. Compared to Rayburn et al., (2012), respondents in Rayburn et al. were more likely to drive for distances greater than one-hour compared to rural communities nationwide. Participants were also more likely

than state and national averages to have a planned out-of-hospital birth, which is a potential explanatory factor regarding the expressed pro-alternative birth sentiments. This research reaffirms previous scholarship (Pearson et al., 2018) and finds that surveyed rural Minnesotans rate their quality of care positively but are grappling with anxiety and deep-seated concerns for themselves and their communities.

In the following section, the personal expert ethnographic interviews are analyzed, and key themes are revealed to capture the everyday experiences of those navigating Minnesota's rural landscape as they receive obstetric care. It is important to balance the survey findings with the lived experiences and realities detailed in the interviews. Unlike the surveys, the format of the interviews uncovered raw moments, often entangled with emotion. Together, the quantitative nature of the surveys and the humanness of the qualitative interviews form the basis for a comprehensive understanding of the rural maternal health crisis in Minnesota.

The Cause: Throughout the study period, twelve birthing people were interviewed, ten of which were included in the analysis and detailed throughout this paper. During this time, I passed my days sipping coffee and sitting on Zoom learning from the unique insights of the informants as I patched together my understanding of what it meant to live their realities. Informants would start by sharing their birth stories with me, which often included what brought them to their rural communities, their birthing options, and then a play-by-play of how their pregnancies and births went. Then we would move on to talk about issues of scale and what was working or not working in their local and broader communities.

<u>Local Level Barriers: The Drive</u>: After establishing a rapport with the informants, I asked, "What barriers impact access to obstetric care in your community?" The responses from

informants often surrounded the geography of communities. Strong feelings of stress and anxiety around the drive to receive obstetric care and the impact on individual experiences and the broader community were the predominant local level barriers.

In many cases, informants had to drive great distances in all forms of weather at any time to receive hospital-based obstetric care. As described in Chapter 5, many rural communities have a local hospital or access to healthcare, but the cost of maintaining staff and competencies in obstetrics, along with the financial return on birth in small towns, make it financially unfeasible to maintain an OB unit. Therefore, pregnant people in some communities must commute to a larger regional facility to deliver their child, which poses risks to the pregnant person, the baby, those on the road, and the vitality of rural towns.

For some informants, the lack of access to obstetric care was a deterring factor when considering moving to a rural area. While some never even contemplated that they might not be able to have a baby in the town they live in, others were acutely aware and hesitant to move to these communities or to have babies there at all. When Taylor (PE_3) was considered moving to a rural part of northern Minnesota, she hesitated after hearing a story about Ely's hospital losing obstetric services on Minnesota Public Radio. One informant, Maria (PE_5), a mom to two in northern Minnesota, discussed her reaction after learning there was no local option for hospital-based delivery:

> And you know, at the time, I was like, I didn't even think that was a possibility that they would make somebody drive two and a half, three hours while they were in labor to give birth. But as I've since learned, that's very much a reality for a lot of people.

Sentiments regarding the length of the drive and resulting stress were reiterated in all ten interviews as informants spoke about the pressure in timing birth, which can happen any

day and at any time. Jennifer (PE_4), a mom to three in northern Minnesota, researched before moving to a remote location. Prior to her relocation, she ensured that her new community would allow her to deliver locally. By the time she arrived a few months later, that had rural town lost hospital-based obstetric care. Jennifer had a history of rapid labor and shared the anxiety she felt when she went into pre-term labor and was two and a half hours away from the nearest delivering hospital. She said:

> And so I had that whole paranoia of okay, I don't want to be strapped to a gurney in an ambulance again. So I will drive down there myself. But how do I time that? When do I time it? How do I time it? And it just led to a lot of discomfort and then the constantly having to be like okay, wait, is this labor?

Jennifer drove two and a half hours to the closest delivering hospital when she thought she was in labor at thirty-eight weeks pregnant. After her labor stalled, she was turned away and forced to return home, making a five-hour round trip. One day later, Jennifer and her partner made the drive again after a local physician confirmed her cervix was dilated and she was in labor. By the time they arrived at the hospital, her labor had stalled again, which she attributed to the stress and anxiety of potentially having a baby in the car. Her local physician called the regional hospital and begged them to admit Jennifer; knowing her labors were rapid. The hospital was able to offer her a voucher for a stay nearby at a local hotel. And exactly one day later, she welcomed her baby into the world. As Jennifer reflected with me on the events of her births, she expressed concern about the risk the drive poses to her community. She said:

> So you have to think not only of the mother and father driving down in the middle of a snowstorm with the mom in labor, which can be very dangerous for everybody. But then, even if you have to pull over to deliver the baby, maybe people won't see you. And there might be an accident involved just because you're pulled over on the shoulder during a snowstorm.

The trauma from her precipitous labor and a lack of hope for increased access to hospital-based obstetric care in her town led her to choose to have no more children. While not all informants shared birth stories as traumatic as Jennifer's, her story represents the unpredictable nature of birth and the 'worst nightmare' situation of so many who are pregnant in a community that lacks obstetric care.

Not only is there the stress of timing labor in conjunction with a lengthy commute, but there are practical and financial considerations that pose additional barriers. Jessica (PE_8), a mom to four children in southern Minnesota, is a mental health counselor with an interest in maternal mental health. She pointed out some financial considerations that she knows to be on the minds of parents in her rural area:

> And so that [the drive itself] plus costs, right? If you're living in a rural area, probably your cost of living is going to be a lot lower. But you're also you're not getting paid much. So I think the fact of like, gas, like I heard a lot of times people are like, you know, I just can't afford the gas to get to the appointment. That's ridiculous. You know what I mean? Just in general, it's ridiculous.

Jessica poignantly explained that people living in her community face barriers to receiving healthcare, like the drive and cost of care, because they are just "doing what they can, with what they have, with where they're at." This idea of resourcefulness and navigating within the system was also iterated by Maria (PE_5), a mom who opted to have a home birth in her rural community because she was not willing to drive two and a half hours to give birth.

Maria explained that while the thought of driving two or more hours to deliver did not align with her, for some people in her community, this is just a part of rural living:

> And people are just also used to driving to [Larger Regional Town] for things. Like sometimes you have to go to [Larger Regional Town] to go shopping or, you know, to see a doctor for some other thing. And so I think, when I first moved here, and I was not used to making that long drive, and

> we still almost never do, it just felt like, such a crazy thing to do. Like, you're going to drive two and a half hours when you're in labor. But for other people, it's just sort of like, that's just how we do it here. We make that long drive when we need stuff.

The drive, for many, is a normal part of living in a remote location, but many informants (4/10) pointed out that there is a real burden on families that may have a child or family member that requires specialty care. Needing specialty care of any kind often requires seeing a provider in a regional hub which involves families commuting for hours at a time, taking time off work, lodging, and missing school. Informants who chose to mention this identified themselves as "lucky" or "blessed" to have a healthy family that did not require advanced care.

Systemic Level Barriers: In all my conversations with the informants, local-level issues were explained in a way that identified them as realities in a rural area, but systemic-level issues were identified as the bigger cause of increasing inaccessibility to rural obstetric care. Questions about barriers to obstetric care were phrased in a way that invited local answers. Still, informants quickly identified national-level issues, often social determinants of health, that are especially prevalent in America's rural communities. The most commonly mentioned issues include insurance and underinsurance, shared care models, paid parental leave, and health illiteracy.

Insurance and Underinsurance: The cost of insurance and coverage are issues on the minds of many Americans. Many informants (6/10) brought up their insurance as a determinant in how and where they gave birth. Some informants (3/10) noted that they aimed to avoid interventions like an epidural or c-section to keep the cost of their birth down. Two informants expressed the desire to have a doula but could not afford it since their insurance did not provide coverage for a doula's services, and therefore it would have been an out-

of-pocket expense. Those who could afford a doula or received insurance coverage recognized the privilege and benefit that those services offered and expressed the desire for it to be accessible for all.

Heather (PE_10), who delivered her baby in northern Minnesota, explained how her insurance is not equipped for rural living. A part of preventative healthcare during pregnancy requires the completion of many routine labs. The only place to have labs drawn in Heather's community was at the local hospital. Her insurance ended up billing her what she describes as “an exorbitant amount” because they had assumed that she was going to a hospital to have labs done and not a clinic or a more affordable option. While the tests being run were covered by insurance, walking into the lab and having the samples collected were not covered because they occurred in a hospital setting and were therefore not preventative. After numerous hours on the phone and appeals with Heather’s insurance explaining that she had no other option, she was forced to pay the bill.

Rural hospitals function differently than urban hospitals. They often work with reduced access to specialists, have practitioners generalize and source creative solutions to meet their clients’ needs. In Heather’s case, this meant using the resources at the hospital to have basic labs done. Another approach often used in rural healthcare systems is the shared care model, allowing local facilities to share their patients with regional facilities that manage specialty care. While this is a solution that balances the benefits of locality with the specialization of larger regional facilities, many informants critiqued this method.

Shared Care Models: In many cases, informants who lacked access to hospital-based obstetric care commuted to a regional facility to deliver their baby but received most of their prenatal care at a local facility. If a pregnancy is complication-free, the ‘shared care

model' reduces the amount of time spent on the road and allows pregnant people to receive care in their community with a consistent provider. However, more advanced care like anatomy scans, specific tests, and delivery occurs at the larger facility. Three of ten informants expressed the difficulties that arose from this model of care. The lack of integration between two different health systems caring for a patient places undue stress on the patient. Heather (PE_10) described this disconnect:

> There was a lot of like, needing to self advocate within the healthcare system to make sure that the people who were seeing you had all the information that the other person who had seen you had. I felt lucky to be able to learn how to do and have the time to do, but I know is not a privilege that everybody has.

The lack of integration forces patients to call ahead before their appointments to ensure that their records had been properly sent and received. Heather said that every time she arrived, her records had not been sent and they had to be "redone or extra done." This system level barrier places a burden on the patient who must have the ability and time to navigate the healthcare system to ensure that their provider has correct and up-to-date information.

Paid Parental Leave and Childcare: The United States has no national policy or guarantee of paid parental leave. Leaving parental leave up to employers has resulted in inconsistent and insufficient leave for families. The issue of parental leave popped up in many conversations (6/10) and was described as one of the key systemic barriers to rural birth. In many cases parents were unable to take time off or were not sufficiently compensated, which has impacted families' choices regarding fertility. In conversations about paid maternal leave, the issue of childcare was in direct relation to this conversation. In many

rural communities, there are few options for childcare or simply not enough spaces to accommodate the need.

Heather (PE_10) explained how the issue of parental leave and childcare are related to one another in her rural community in northern Minnesota. She and her husband are maximizing their time off work until a spot opens in a daycare in their area. Heather explained the reality of childcare in her community:

> There's four daycares [in her town] and they're all like teetering on the edge. It always seems at risk of closing. And so yeah, I have three months off, and then my husband was off for the first month with me. And then he's back to work now for two months, and then he's taking two months off after I go back, because his time is all unpaid, mine is paid. So we're gonna get to five months and then hopefully either have found some daycare. Or the back up plan is that his job will be to take care of our baby until we find something else. Because I make more money than he does.

Heather explained that the issues facing rural communities are not singular in nature. The problem is not just a loss of obstetric care or limited daycare spots. But this is a result of systemic failures that require an overhaul to revitalize rural wellbeing. She said:

> If we fixed having longer paid leave, that would help. And if we fixed pay, like if we paid people who worked in daycares more that would help and if there was more social assistance or daycare costs less that would help. It's just all of these things, all pieced together.

This approach was one that informants came to without my prompting or suggesting. All 10 interviews included interviewees sharing their critiques of the system that influences them. Without prompting, they each recognized the interconnected nature of these issues, as discussed in Chapter 5, and aligned themselves with the scholarship. Those who live in the reality of the decline are acutely aware of the entanglement in a way that dampens hope for meaningful change without a total restructuring of the United States.

Rebecca (PE_7), an informant living in northern Minnesota, struggled with her mental health after the birth of her child. The isolation of maternity leave and living in a rural community during a pandemic, made it hard to receive the help she needed. With time, she could advocate for herself and received the proper support to address her postpartum depression. When Rebecca was asked if there was any local resource or programming that would have helped her get the assistance she needed sooner, she responded by saying, “it's like a whole systemic thing. Obviously, paid maternity leave, and access to quality food, and affordable health care, and livable wages, and housing.” While the issues that result from a lack of maternity leave and daycare are felt very personally in homes and networks of families that struggle to accommodate the reality of having a child in rural America, informants see this issue as more extensive than themselves and their communities. They recognize the faced realities as a result of nationwide failing social services.

Health (il)literacy: Health literacy is the idea that individuals “have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others” (CDC, 2020). Only one in 10 Americans are proficient in understanding health information (Smith as cited in Temple, 2017). While data has identified health literacy as equal among urban and rural areas (Zahnd et al., 2009), some experts argue against this. Dr. Paul Smith, a professor of family medicine and community health at the University of Wisconsin-Madison, argues that, “Everything is harder for rural folks. Harder to find, to use, to understand. It’s all harder for rural areas, especially with the lower educational achievement levels” (as cited in Temple, 2017). The issue of access came up frequently in interviews. For the most part, informants were well-educated and well-off but struggled to access information to help make health-related decisions. For

many, this knowledge about their body and birth only came with time and the imminent need to understand what their body would undergo.

Rebecca (PE_7) sought counseling from her local physician to help find a doctor who could deliver her child at the regional hospital two hours away. She expressed frustration with her local physician, who did not offer her proper guidance. She said:

> It was just assumed that I would have an on-call OB-GYN and I kept pressing for more information. I'd prefer to have a natural birth and I know the statistics of OB-GYNs and then I just had to do my own research and came up with getting a family practice doctor.

Rebecca was able to invest time and energy to prepare for the birth she desired, but this required privileges that not all have. She went on to say that if she were to have another child "I would just have a home birth here because I am more aware of what my body does." The idea of moving away from the medical process of birthing with a physician in a hospital setting was commonly expressed during conversations. Three of the ten informants had births outside of the hospital setting.

For Carrie (PE_1), using a midwife and a birth center only came after traumatic experiences with medical providers in a hospital. But the transition toward the midwifery model of care, which often includes longer appointments and person-centered care (American College of Nurse-Midwives, 2022), allowed her to better understand the process of pregnancy and birth. She says:

> When I go to my midwife appointments, she gives me information to think about, she gives me questions to think about for next time, you know, she gives me space to just talk about how I'm feeling and my pregnancy and not just like my body, but in my brain.

Although the midwifery model includes aspects that place education and patient involvement at the center of care, other providers can achieve this too.

Jessica (PE_8), who suffered multiple miscarriages, struggled with anxiety during her pregnancies and feared her babies would not make it to term. She felt her OBs did a fantastic job providing her with the necessary medical care during her complicated pregnancies and took additional steps to answer her questions. She said:

> I think my doctors did a very good job of being very thorough and answering any questions I did have. I would say, can you explain this to me and they were very patient […]. I think for the most part, they were very, very responsive and very good about explaining things and walking me through it.

She noted, that the OBs who were the best were the ones that offered her a hug or physical touch after her miscarriages, "those vulnerable moments when they showed up, that was a big deal." She mentions that not all of her physicians could meet her in her vulnerability but suggested that this approach is one way for doctors to show sympathy during pregnancy-related tragedies and subsequently improve maternal healthcare.

Some informants were unable to access prenatal education in their communities. The pandemic has made this education more accessible because it can occur in a virtual capacity. But even then, these resources might be expensive and inaccessible. Heather (PE_10) and her partner attended an evidence-based birth class hosted by their doula, which she described as "really expensive." However, the information she gained from this course helped her choose the midwifery model of care, and even though an on-call OB would deliver her baby, this course empowered her throughout labor and delivery.

The Impact: Solutions and Responses: As rural communities lose access to obstetric care, there are varying place-based and community-specific responses. Throughout the interviews, I became attuned to the small gestures happening across Greater Minnesota. To me, they were a testament to the resiliency of rural communities. Dr. Debora Moser, a rural

health researcher, has found that rural communities are uniquely skilled at supporting each other. Moser says, "People in rural areas tend to be more oriented to improving their community, they are not so self-interested. It's more about improving the health of the community, the health of youngsters as well as the older folks. And they really believe in the homegrown change" (as cited in Temple, 2017). For those interviewed, losing access to rural obstetric care has two main results: resource sharing that occurs in one-to-one and one-to-many formats and emotional impacts that result in the acceptance or the rejection of the medical system.

Resource Sharing: This paper discussed how rural communities are deprived of resources and access. 'Obstetric care deserts' have created a need for support that cannot be met by the medical system and social services. As a result, communities form responses and share resources amongst themselves to meet needs. In the surveyed rural communties, there are two approaches: one-on-one sharing and one-to-many sharing.

One-to-One Sharing: The social fabric of rural communities is essential in understanding how rural Minnesotan birthing communities look out for one another. Informants were not aware that they were forming a network of knowledge and resources that I would formalize as a solution. Instead, they were sharing ways in which they care for their peers and communities. These interactions were organic and natural. The one-to-one sharers relay their truths, share their resources, and spread knowledge with others in the community who might have less access, less privilege, or less income.

Carrie (PE_1), a mom to three and a postpartum fitness specialist in southern Minnesota, has used her negative experiences with healthcare entities in her area and her positive relationship with the midwifery model to encourage other pregnant people in her

town to question how they are birthing. Carrie described herself as “really passionate about telling women the things doctors don't tell us or brush aside as normal or common. So my friends kind of make fun of me because I talk about everything.” She is known in her community to be full of knowledge and insights about pregnancy and birth. Although she would not call herself an expert in birth, friends refer community members to her and she supports other birthing people in navigating what can be a confusing process. She said:

> I think a lot of people just go to the hospital to do their birth classes. Like they don't realize there's other options. Unless they talk to someone and they're like, ‘Oh, I did this and I really loved it.’ I don't think pregnant people seek out outside information. They just really in [Town Name], at least, I think they really rely on their doctors and unless like they have a friend, or unless they like know me.

While Carrie is hesitant about giving birth in the hospital in her town, she is not actively discouraging other pregnant people from choosing that option. Instead, she hopes to empower pregnant people to “ask better questions and things like that, because I think it's important that we're not like trying to get everyone to birth the same way. They are birthing the way they want. And that they feel supported when they're doing that.” Throughout the interviews, there were strong opinions from those who had negative experiences in a hospital setting, like Carrie. Still, informants share their desire to support birthing people to be informed of their options and recognize that just because birth looks a certain way in popular culture does not mean that birth must occur that way on the individual level.

Sharing of knowledge from person to person is happening all across social networks in Greater Minnesota. Informants who had had home births had friends in their communities who were also opting for less medical intervention. Anna (PE_9) moved to northern central Minnesota while pregnant opted and for a family physician who was well-

respected by other pregnant people and her family. Interviews revealed that the choices pregnant people make are based on the experiences of others, whether that be from opinions of those they know well or reviews they have found online.

Word of mouth travels fast in smaller communities and leads to a sharing of resources. Depending on the size of the community, an individual's pregnancy and due date may become public knowledge and a local talking point. Heather (PE_10) describes this tight-knit nature as a beautiful aspect of small-town living. She said:

> I think huge benefit of living in a rural place and having a baby is because it's so small and literally everybody knows that you're gonna have a baby and then everybody's so excited that your baby is here. There is so much sharing of stuff. Like we bought almost nothing because everyone is like, 'Oh, I have, let me give you all of my cloth diapers' which would be like hundreds of dollars if we were buying this stuff on our own. But there's such a, I think just ethos of like looking out for each other, and people wanting to share stuff in a rural place that I feel really lucky to be here.

The sharing of resources is a wonderful example of rural resiliency and the strength that can come from living among a small community. One-to-one sharing tends to happen in person, especially when conversations might be intimate or vulnerable. It is hard to tell how much the COVID-19 pandemic has impacted this, but I suspect that the apportioning of resources or connections that happen via social media are a major source of connection across rural Minnesota. That being said, I was informed of connections occurring at youth sporting events, playgroups and churches throughout the pandemic.

One-to-Many Sharing: The sharing of resources and information also occurs in a one-to-many format where community members enter a group setting that invites conversations surrounding pregnancy and birth. The main types of groups mentioned in the interviews included early childhood family education (ECFE), moms of preschoolers (MOPs) and

location-specific Facebook groups. MOPS and ECFE groups meet in person (pre-COVID) and focus on parent education while children typically play together and focus on development with early childhood educators. Facebook groups can take many different forms and may be run by community members or specific community programs. These groups may be called “Parents of [Given Area]” and offer resources, suggestions, reviews, events, and Q&As often led by a local parent or even government worker (social worker, public health official, community education)

One to many resource sharing, at this time, occurs mainly in a virtual setting. Some formats are intended to occur on the internet, while others have had to move virtual for health and safety concerns during the pandemic. Even though building connections can be more difficult virtually, the online platform is more accessible and convenient for some. While informants used these resources at different rates, those who were a part of local Facebook groups found them to be a valuable source of information. Carrie (PE_1) said that she was able to find validation from her local facebook group for parents when others posted negative reviews of a local doctor who had mishandled a miscarriage she had. Other informants could find glowing reviews of providers they would later opt to see.

The use of these resources can be highly educational. Jessica (PE_8) had trouble nursing her first three children and had always hoped to be able to breastfeed for a whole year. With her fourth child, she joined a local Facebook group in her area focused on breastfeeding to learn about proper techniques and troubleshooting. From reading posts about others’ experiences and using some of the posted resources and her own experiences, she successfully nursed her fourth child for one year.

Rebecca (PE_10) shared with me the parenting group that she joined during the pandemic in her community. A local mental health specialist and midwife created a weekly Zoom group that met after their children's bedtime once a week where parents could, "get together on Zoom and just have that parent time. Just talking struggles." She said this weekly time of being together, even if physically apart, has been a source of comfort. When Rebecca was asked if people in her community lived rurally because they did not seek connection, she pushed against this notion, saying:

> I think we live that way, like our sustainability and our like, off-grid, and that type of living is more self-reliant. But we're also all doing the same suffering. Like we are in our own houses, with the same problems. And then when we do get together, it's just like a release of, I'm not alone, like everyone else is doing this. How can we fix it? If we're all having the same problems, what can we do to help each other?

Those living through COVID-19 and parenting through a pandemic know the importance of feeling connected and supported. Informants claimed that those who live rurally are reliant on social media platforms and community groups because it creates a network where there may be less of a physical environment of proximity that would typically create connections. During interviews, it was mentioned that many of these groups are in a transition period, moving from a virtual setting to in-person. Some informants were excited for the ability to connect in person, while others expressed concerns about the weather getting colder and the increased risk of COVID infection. It will be interesting to see how the pandemic and post-pandemic life impact how parents and pregnant people seek out and make connections.

Emotional Impact: I wrote earlier that I had thought these conversations would be rooted in sadness and anger about the loss of care and the undue stress and burdens placed on pregnant people. This was not the case at all. There were moments and expressions of

sadness and frustration, but not perpetual anger. In fact, the negative feelings were directed at the systemic issues and the disregard for those who live in a rural community, not at the local systems or practitioners themselves.

What I found instead is an overall acceptance of reality. Each rural community had to contend with its own reality. For some informants, this meant a two or more hour drive to deliver their baby. For others, this meant giving birth in a local hospital, but with limited choice in practitioners and services. Informants were not working to change the system because they recognized that the system is a result of ingrained flaws trickling down from the highest of places. What differentiates people is their response to the system. Either pregnant people accept the options they have in their medical system and navigate to find their own solutions, or they accept the options they have in the traditional medical system, and they reject it, removing themselves from the system.

Those who accept the system and navigate within it often take on the responsibility of cultivating their own birth experience. For Anna (PE_9), this meant determining that she sought an unmedicated birth with access to intervention if necessary. She used resources like Mama Natural, a website and book aimed to help parents lead healthier lives, to prepare herself for the birth she wanted. She felt a hospital birth with a family physician who was well-respected and knew her goals would be the best option for her. Her research led her to hire a doula to help her navigate her first pregnancy and support her desire for an unmedicated birth. Anna had a wonderful experience with her hospital birth and achieved the goals she established for herself, but she did a signifcant amount of research to be able to birth in a way that was comfortable for her.

Taylor (PE_3) lived around two hours away from the hospital where she delivered. The risk of potential complications and distance from a hospital kept her from opting for a home birth. She had the choice of two different hospitals in a regional city where she could deliver. She opted for the hospital with nicer facilities but no NICU. She took comfort in knowing that a hospital with a NICU was just a two-minute drive away if her baby needed additional support. Taylor ended up having complications and required a c-section. As she reflected on her birth with me, she was grateful that she had opted for a hospital birth.

Some of informants rejected the medical model and opted for a birth at a freestanding birth center or a home birth. Maria (PE_5) lived two and half hours away from the nearest hospital where she could deliver. She described the process of choosing a home birth:

> Well, it felt like being here, I had two choices that were at such far ends of the spectrum, like, either you can drive two and a half hours and go and birth with somebody who maybe didn't provide care throughout your pregnancy, who you might not know, and in this hospital that you don't know. Or you can like, be in your own house all time with somebody who has really become like a friend and a close confidant. And so I don't know, I felt like these two choices were so extreme in my case.

Maria was able to find a local midwife who had just delivered her neighbor's baby. They formed a deep connection, and she had a wonderful experience with her home birth. She describes her home birth as "sort of this like, divine almost experience of empowerment and connection." She joked with me that she wishes she could have another baby just to be able to spend time with her midwife.

Colleen (PE_6) also opted to have a home birth, but living two and a half hours away from the nearest delivering hospital was a point of anxiety for her. She knew she wanted a home birth but wanted to be closer to a hospital if things went awry. Colleen was

rented a house, the house where her grandmother was born, and her midwife delivered her child there. Her home birth was a wonderful experience where she was able to balance her comfort with risk with closeness to a medical facility in case extra support was needed.

Synthesis: For the informants, the choices they made to navigate or reject the system as it stands came down to their comfort with risk and factors that might make those choices easier. Whether that be through their own research or personal experiences, access to information was important in making these decisions. For some, traditional hospital births were unproblematic, and therefore, they returned to that setting to deliver again. For others, the hospital experience left them desiring more, and they shifted providers, changed their approach to birth, hired a doula, or decided to give birth outside of a hospital. The primary finding of this chapter is that no matter the level of access informants had, they did not blame the local system or hold resentment for a lack of hospital-based obstetric care. In turn, they placed the onus on systemic issues and looked inward to meet their own needs – conducting research, meeting with community members, and speaking with healthcare providers to inform their decision making process. Or removing themselves altogether.

Chapter 7:

Professional Experts: Experience as Expertise

Introduction: Responses from professional experts or those directly serving and supporting Minnesota's rural birthing communities provided nuance and insights to answer how professional experts conceptualize the cause and effect of Minnesota's rural maternal health crisis. Data collection warranted 10 interviews with professional experts and 37 responses from across Greater Minnesota. Ten interviews and 34 surveys were analyzed to understand how Minnesotan professional experts perceive and respond to decreasing access to care in their communities. While many personal experts felt the implications of the loss of care personally, professional experts situated their understanding more broadly, acknowledging the decline of rural America, the history of obstetrics, and the ways in which these manifest in modern rural obstetrical care.

This chapter seeks to answer the following questions: how do professional experts across Greater Minnesota interpret the cause of the decline in hospital-based obstetric care? How are they organizing and working to address the vacuum left by declining access to care? To explore these questions, a deep dive into the professional experts' survey responses was conducted. Then a narrative was formed by sharing prominent themes from interviews with professional experts while inserting my interpretations as the researcher. Together these approaches facilitate a holistic answer to the posed questions..

This chapter argues that professional experts perceive the issues causing the decline in hospital-based obstetric care as systemic. This reasoning aligns with scholarly findings and reaffirms the literature review in Chapter 5. Professional experts create multi-scalar

and place-based solutions inhibited by the very pervasiveness of the systemic issues that they identify as causal. This chapter first explains the findings from surveys, discussing participant demographics and their concerns and barriers to providing high-quality care. Then in the analysis of interviews, it is explained how professional experts understand the cause of the decline of hospital-based obstetric care. These sections focus on their ideas regarding the deterioration of rural America, the medical versus alternative approach to birth, and the American healthcare system. Next, ways in which professional experts and their communities respond to this lack of access at different scales by sharing local, state, and national level solutions are shared.

Discussion of Surveys:

Thirty-four respondents from more than 40 different ZCTAs across 37 different counties shared their insights in the professional expert survey. The survey did not ask many demographic questions, leaving a gap in knowledge regarding who filled out the survey. This was an oversight and something to explore further in future research. However, the diversity of professions and experience among professional experts represents a major strength of this research.

Years Experience	Count (n=30)	Percentage (%)
Less than 1 year	0	0%
1 to 5 years	7	23.33%
5 to 10 years	7	23.33%
10 to 15 years	5	16.66%
15 to 20 years	5	16.66%
Greater than 20 years	6	20%

Figure 18. Chart of the distribution of professional expert's experience serving birthing people

What is identifiable about the survey data is that the average respondent was advanced in their career with around 10 to 15 years of experience or more serving birthing people (See figure 18). The most common self-identified professions included: traditional midwife, doula, certified professional midwife, nurse, and birth/early childhood expert (See figure 4 for a complete list). However, researchers, physicians, government workers, and other important but often underrepresented professions participated in the survey. Some respondents served birthing people across urban and suburban landscapes, but 61.76% of professionals served exclusively rural clientele. Of those professionals surveyed, 72.41% of respondents note that decreasing access to care and long commutes are major considerations for those they serve.

Professional experts were asked to provide written responses listing the most signifcant barriers in their line of work (See figure 19). Of the 36 responses, the most prevalent concerns were related to systems-level issues, a lack of education/health literacy, insurance, and the cost of healthcare.

Barriers regarding systemic issues were broad concerns spanning from social determinants of health to grant funding to culturally congruent care. One participant details the varying barriers in their line of work as a researcher: “lack of uniform data reporting, lack of understanding of structural barriers, an abundance of structural and interpersonal racism, divide between systems understanding of medical care and public health/community supports/social determinants of health.” This lengthy list of barriers represents the pervasiveness of inequality in America which ensures that every professional expert’s work is subject to and constrained by a multiplicity of barriers.

A lack of education and overall health literacy is another prominent concern. There are many options during birth. Decisions must be made regarding birth setting, provider, birth plan, and post-partum care. Issues of limited health literacy and unawareness of non-traditional approaches to birth are not the fault of the birthing person but results from the history of obstetrics which has formed a popular birthing narrative featuring hospitals and physicians. For some alternative practitioners (midwives and doulas), the issue of awareness is critical. Not only do birthing people not know about their options, but some medical providers might deter patients from alternative types of birth. A doula shares barriers they face:

Briefly list the biggest barriers to providing care in your line of work	
Theme	Count (n = 36)
Systems level issues	9
Lack of education/ health literacy	9
Insurance and the cost of health care	6
Staffing	5
Drive	4
Hospital-Level Issues	3

Figure 19. Chart of the distribution of professional expert's barriers faced in their work

> Most people in my area are not aware of doulas, what they do, and the evidence for fewer caesareans, as well as better outcomes for mom and baby; doulas are not encouraged by care providers (mostly because of their ignorance); cost of using my services; and that there are so few of us in the out-state area.

As this respondent points out, the cost of having an alternative birth is a significant deterrent. Because of the way the insurance industry works, births, even when traditional, can be very expensive and therefore inaccessible to most people. The ability to hire a doula

or opt for a home birth is often reflective of prosperity and educational attainment (Macdorman and Declercq, 2019).

The other most common listed barrier to providing care is the insurance industry and the cost of care. A certified professional midwife (CPM) detailed this concern in the survey: "CPMs are not well covered by insurance, specifically without a 'facility' to bill under. The out-of-pocket cost for CPM service is $3,000 to $6,000 for a birth and that is not financially feasible for underserved populations and rural populations." This issue goes both ways; providers may find it challenging to make a living because of the insurance industry structure, and pregnant people struggle to afford the cost of care, especially that of alternative providers.

Thirty-three professional experts listed their greatest concerns for maternal healthcare in Minnesota as the overmedicalization of birth, a lack of facilities/long drives, and limited providers (See figure 20). Other concerns regarding birth inequities for disenfranchised families and how to maintain the vitality of rural communities were mentioned.

List your greatest concerns about maternal healthcare in Minnesota	
Theme	Count (n = 33)
Overmedicalization of birth	9
Long drive	7
Limited providers	6
Birth inequities	5
System level issues	3
Lack of education/health literacy	2
Incentivizing rural	1

Figure 20. Chart of the distribution of professional expert's greatest concerns

The history of obstetrics allowed intervention to become a norm in pregnancy and birth. While the surveys and interviews include the insights of multiple physicians, it lacks the thoughts of an OB-GYN, and this is a notable shortcoming of this work. It is important to acknowledge how the history of birth in this country creates divides among providers, which is detailed in-depth in the following section regarding medical versus alternative approaches. High cesarean section rates and induction rates were at the forefront of professionals' minds when they answered this question. A surveyed doula shares their concerns:

> The fact that a 30% cesarean rate is acceptable, too many inductions, too many interventions, too much talk to the mom to instill fear instead of trusting herself to do what comes naturally, that the midwives in hospitals are required to be trained in the medical model, not in the midwifery model of care, and the fact that the first stop for most women who are pregnant is still a surgeon. We should know better.

This concern is related to another prominent issue regarding a lack of services and providers. In some situations, hospitals or providers may rely on interventions like elective c-sections or inductions to help offer predictability for staffing and reduce anxiety in a patient who might have a long drive (Greene et al., 2004).

Like personal experts, professionals grapple with the impacts of long commutes to delivering hospitals. The impact of long drives to facilities with OB services affects individuals, their families, and their communities. A registered nurse, RN, and lactation consultant explains the reverberation of this concern, "distance to birth services and transportation, inadequacy of funding and support for doula services, stigmatization and lack of willingness to partner across hospital and home birth settings, extreme weather, and scarcity of childcare" are all key factors to consider when understanding the impact of centralizing obstetric care.

As described in Chapter 5, rural hospitals are constrained by difficulties staffing OB units, making limited access a concern. A surveyed family physician wrote:

> As an FP [Family Physician] I am quite partial, but in order to keep from losing quality rural obstetric care, we HAVE to encourage more FP residents to become trained/competent in full-spectrum OB care! This means a shift in teaching at MN residency programs. We must do a better job supporting rural OBs and FP/OBs with training, support staff, and financial support to make it more appealing to interested FPs.

The impact of a lack of providers and services, combined with other risk factors previously discussed, results in an increased risk of obstetric unit closure. One factor explained in Chapter 5 is the role of the increasing cost of malpractice insurance. A certified nurse-midwife describes the impact of this issue: "We are losing access to complete obstetrical care in rural areas due to the climbing costs and fears of malpractice without having anesthesia MDs [medical doctors] in house 24x7 in case of the need for a surgical delivery." The issue of closure and the barriers impacting birth workers and other affiliated professionals are tied to the general decline occurring across rural America. These are not single issues; they are complex, at times profession-specific, and yet intertwined with the comprehensive decline occurring across many parts of rural Minnesota.

Many questions on the professional expert survey were phrased in a way to understand how the system is failing birthing people. However, one question was written to recognize what is going well in the state regarding obstetric care. A commonly expressed sentiment is that there is a network of providers, of varying types, that have deep care and passion for serving this community. Another point of celebration is that, unlike some states, Minnesota does not restrict birthing options, allowing Minnesotans the freedom to choose an out-of-hospital birth with any provider or no provider at all. Respondents wrote about

legislative support for the coverage of doula care under Medicaid in Minnesota, and advanced practice registered licensing allows CNMs to practice with greater autonomy.

In the following section, ethnographic interviews with professional experts are discussed. This chapter intends to understand how surveyed and interviewed participants conceptualize and respond to hospital-based rural obstetric care decline. Excerpts from interviews are used to bolster claims and identify key themes. Professional experts identified the leading causes of loss of care to be the decline of rural America, medical versus traditional approaches, and reimbursement rates. Interviewed experts see the effect of this decline as rural resilience; they shared local, state, and national level solutions to explain the effect.

The Cause: Throughout this research, 10 professional experts of varying expertise (See figure 4) shared their experiences serving rural birthing people across Minnesota. We met on Zoom as they shared their knowledge and informed my understanding of the role of professional experts. These interviews began differently than those with personal experts. We began by talking about their role, whom they served, and how they approached their line of work. From there, we talked about their path, points of tension, concerns and hopes for the future of rural birth. By the end of the interview, they described how they perceived the cause of the decline and what solutions are occurring at varying scales. This section shares how interviewed informants understand the cause of decreasing access to obstetric care in rural Minnesota. First, the role of the decline of rural America is highlighted. Then medical versus alternative approaches to birth are addressed prior to discussing the role of reimbursement rates. After addressing how professional experts perceive the cause of the

decline, the impact is shared by addressing the multi-scalar solutions occurring across Greater Minnesota.

The Decline of Rural America: The decline of rural America, represented by the increasing average age, decreasing population size, and shifts to the economic sector, reverberates through rural communities and impacts many aspects of rural livelihoods, including birth. Staffing rural obstetric units is complex because of the preferred 1:1 nurse to patient ratio, maintaining competencies, covering maternity leave and time off (Kozhimannil et al., 2015).

Maggie (ProfE_9), a family physician in central southern Minnesota, who practices OB, talked about one of the biggest barriers leading to a lack of obstetric care in rural areas: the lack of c-section coverage. Because many rural communities lack specialists, like OB-GYNs, who perform c-sections, Maggie sought out training in her family practice residency to provide c-section capabilities. It is rare for family practice doctors to offer c-section capabilities, especially in a large healthcare system. Maggie works at an independent medical center that has three doctors who are capable of performing c-sections (two family physicians and one general surgeon). She mentioned that if one doctor were to retire or leave, they would struggle to maintain c-section coverage. She identified staffing and recruiting rural doctors as chief concerns that should be addressed at the medical school level. Family practice residents must become trained in full-spectrum OB care to help meet the needs in rural communities.

The issue of staffing concerns is representative of the decline that is occurring. Like any other business, hospitals in rural communities struggle to find qualified employees who desire to live and work rurally. Related to this issue is the differing approaches to birth.

Historic epistemological conflicts regarding birth impact how birth workers practice today, including where they can work, who they work with, and the extent to which they care for patients.

Medical versus Alternative Approach: Birth workers existing in two separate camps, medical versus alternative, was on the minds of all 10 professional informants. For this research, a traditional birth refers to a typical birth in the US: often in a hospital, with a doctor, and the use of medical interventions such as pain management and c-sections. An alternative birth might include any number of these aspects: planned out-of-hospital birth (home birth or birth center), midwife, doula, or physiological approach.

The history of obstetrics in the United States has laid the groundwork for difficulty integrating formal medical approaches with alternative birthing practices. Differences in approach, limited public knowledge about birth outcomes for births attended by non-traditional birth workers (CNM, CPM, doula), and staffing difficulties have created a network of obstretric providers that often lack alternative practitioners. Some may argue that the medical versus alternative approach is not a direct cause of the decline in rural access because to some extent, I would agree with this, but the anecdotal evidence from professional expert interviews suggest that this is a prominent issue that they grapple with on a daily basis. How birth workers practice and whom they serve is at the root of how Minnesota's rural communities respond to decreasing access. Differences in the approach to birth occur on multiple scales: between the two approaches, within each group, and for birthing people themselves.

Sarah (ProfE_7), a certified and licensed midwife (CPM), serving pregnant and birthing people in southern Minnesota, is considered an alternative practitioner. She

detailed the tension between the two approaches by sharing a story from a delivery that took a turn:

> I took someone into the hospital because they were bleeding too much. And they [Doctors at the hospital] would not, they literally would not listen to me that she needed to be seen. [...] I was putting pressure on a wound to keep her from bleeding to death. I did that for three hours, and she didn't get seen and we were in the emergency room. I'm like [reenacting yelling at doctors] "my hands are covered in blood, like keeping her alive!" And I'm screaming at people to help her. And no one will listen to me because I'm a midwife. And they don't think I know anything. And she almost died. And this was in Washington, like in Seattle proper, like this should not happen with the integration of midwives, people know who we are and what we do. And yet, it still did.

While the story Sarah shared did not occur in Minnesota, it represents the apex of what others relayed during the interviews. It captures the high-stakes situations that can arise from a lack of integration and collaboration between the two camps of birth workers. The research is clear; states with the highest rate of integration, defined by midwives practicing alongside and in successful collaboration with doctors, have the best outcomes (Vedam et al., 2018). The state of Washington, where the event Sarah referred to occurred, has the best integration of any state in the United States Vedam et al., 2018). While this story is just one case, it represents that even with high rates of integration and collaboration, midwives are still struggling to assert themselves as qualified providers in the American healthcare system; in turn, patients and providers can be subject to subpar care.

Expanding on the idea of collaboration, another informant, Liz (ProfE_6), a certified-nurse midwife (CNM) with extensive experience in both in-hospital and out-of-hospital births in northern Minnesota, suggested the ease of partnership with practitioners comes with time. Over the last 20 years of her practice, she has navigated her feelings of anxiety regarding collaboration with OB groups at the local hospitals. In the beginning, she

had concerns that the physicians would not understand her scope of practice and question her skillset. Even though Liz is a medical practitioner with years of advanced schooling, she struggled to assert herself with physicians earlier in her career. Now, she feels confident navigating the system and securing the care her patients need. She articulated this clearly, "They have what I need when they have what I do not have." The issue of successful integration does not just refer to medical versus alternative practitioners, but it can also occur within professions because of each practitioners preference for specialization.

Maggie (ProfE_9) has more than ten years of experience as a family medicine doctor with c-section capabilities. Maggie described the in-group tension that can occur as providers having "inter-specialist opinions" about who should be delivering babies. She saw the issue as both a result of a lack of information and misinformation about family practices physicians' role in obstetrics. She said:

> I feel that sometimes FPs [Family Practice Doctors] are looked upon as not having enough training to competently provide OB care. And that is not based in reality, I don't think in a lot of cases. If there was some objective way to measure competence for FPs desiring to practice OB, I think that those questions or reservations will be put to rest. And this is, you know, possibly coming from obstetricians who have been trained in OB-GYN residency. And it's true to say, you know, that family practice training involves a broader scope of practice. So, you know, it's logical to think how could a family practice resident possibly have as much training as an OB-GYN resident? And I think that's fair to say, but I think, you know, when it comes down to it, when we're looking at a rural health crisis for obstetrical care, do we need to place a highly trained obstetrician in that area to provide the quality of care that is exemplary? Or can we place a family practice doctor who has had more than adequate training in obstetrics in that rural area and get the same outcomes or very similar outcomes, and that, I think is the information that we need.

Research aligns with Maggie's assertion that family practice has the same outcomes as OB-GYNs (Audrey-Bassler et al., 2015). Rural communities are facing a maternal health crisis, and many birthing people are living in 'obstetric care deserts.' As Maggie says, the right

solution is not highly specialized care but access to basic maternal health care. Family practitioners may be better than more specialized providers at guaranteeing this care in rural communities. This is because there are not always enough cases that require specialist care for OB-GYNs to be kept busy, and FPs can manage pregnancies while also serving patients from birth to death (Young and Sundermeyer, 2018). Maggie believes that the solution to reimagining rural obstetric care should utilize data proving FPs are equally competent providers to:

> Change minds with information because I know that there is judgment passed from specialists to family practice. You know, you're not as competent or whatever the case may be. But I really do think that rural centers can more than adequately provide excellent care to patients with specialist consultation with adequate support services, anesthesia, surgical coverage, with very good outcomes.

The issue of who should oversee a pregnancy extends from the professional setting into the homes of those who are pregnant. There are popular movements for home births, and numerous opinions inundate pregnant people's social media threads about how they should welcome their child into the world. But at the end of the day, the vast majority of people, 89.2%, opt for the care of an obstetrician (MacDorman and Declercq, 2019). In many ways this makes a lot of sense, an OB has all the competencies to intervene if anything goes wrong. When it comes to having a baby, you want the best or at least what is perceived as the best.

Mary (ProfE_8), a family practice doctor serving northern Minnesota for the last thirty years, shared her insights into why she believes Americans prefer specialty care over more generalized care. She shared an example of how quick people are to visit a dermatologist if they spot a concerning mole. Rarely do they first see their general practitioner, even though the cost is often less, and the wait to be seen is shorter. Mary

suggests that this preference "floods dermatology offices" even though "doing biopsies and freezing things off" is a level of dermatology that family practitioners are well-versed in. Intrigued by this example about dermatology, I prodded Mary to answer why she thinks this is. She turned the question on me, asking, "If you wanted the very best thing, are you willing to pay a little more for it? But it's the absolute best thing you can get?" Before I could follow up, she offered insights into what she sees as the American preference:

> It is sort of the American way to get the best [...]. It's really hard for people to give up that concept that they have, what's the best way to phrase it, that people will seek out the very best quality item that they can, especially if they can afford it? You know? And that's independence.

Mary used this example of dermatology to explain why she thinks patients opt to have an OB-GYN instead of a family practitioner or midwife. She believes that it is not because non-OBs provide worse care, but because they are perceived to, and the American preference for excellence perpetuates this misnomer.

The differences and frustrations between the two groups are not due to negative opinions about individual birth workers. The history of birth and the construction of medicine, especially obstetrics, has created a system in which collaboration is challenging, therefore creating a divide rather than a bridge. This separation between the two has perpetuated a lack of understanding among pregnant people about their options and quality of care. As the professional informants illuminated, this disconnect transcends the two-party perception of medical versus traditional approaches. It invades professions and causes rifts within individual fields of birth workers. It makes it even more difficult to address Minnesota's maternal health crisis when those who work in maternal health and obstetric care are navigating an engrained divide. On top of history which has influenced

the ways people birth, the healthcare system, and insurance are important factors in understanding why rural communities are losing access to obstetric care.

Reimbursement Rates: Personal and Professional informants identified the healthcare system as flawed at every level. The confusing and ambiguous nature of healthcare makes the insurance industry's role an straightfoward critique. Interviewed informants shared their belief that the insurance industry's structure drives hospitals and providers towards profitability while forcing patients to make insurance-informed choices regarding their births.

As discussed in Chapter 5, birth is becoming increasingly unprofitable in rural spaces. With Medicaid covering more than half (51%) of rural obstetric patients (Zhao, 2007; Hung et al., 2007), rural hospitals are struggling to keep labor and delivery wards open, considering the reimbursement rates end up being about half as much as private insurance (Truven Health Analytics, 2013). Rural health policy expert Maya (ProfE10) described the reason rural hospitals are struggling to maintain labor and delivery clearly:

> So if we're reimbursing half of births below cost, you're never going to make it work. Which means you have to cost share across the hospital, which is why you see hospitals expanding their med surge, or you know, just their general surgery. And like, normal procedure beds, to pay for services that consistently don't get paid at cost.

Rural hospitals are expanding more lucrative aspects of their facilities to balance out the loss of profits from labor and delivery units that require expensive equipment, around-the-clock staffing, multiple types of providers, all while possibly having low birth volumes. The balancing of gains and losses also happens on a personal level. Not only are hospitals and healthcare systems weighing the profitable versus the unprofitable, but birth workers are making these choices too.

Liz (ProfE_6), a CNM serving communities in northern Minnesota, owns her own practice, sees clients in their homes, and performs home births. By choice, Liz is not contracted with any insurance company because it is a "major barrier and chore." She sees herself as a small business owner and a midwife. Practicing this way has allowed her to give clients "completely open-hearted" work, but she has had to turn away clients to make a living. She said:

> There are people that can't afford it, you know, and I don't wait to get insurance reimbursements at the end. I have people actually pay me out of pocket, because as a small business owner, I can't sit around waiting for some less than adequate amount of reimbursement from insurance, whatever their allowable amount is. So even though in the end it [a birth attended by Liz] is far more affordable, the best, most affordable maternity care package with good outcomes, people have to pay out of pocket, that is definitely that's the biggest barrier for families seeking independent midwifery care for home birth.

Liz and other interviewed birth workers offer sliding scales, bartering, and alternative payment plans, but they too have families and bills to pay. Sarah (ProfE_7), a CPM, serving south-eastern Minnesota, is not contracted with insurance and bills as an out-of-network provider. She said that the coverage of her services is dependent on the client's insurance plans; they can be covered entirely or require clients to pay out of pocket. Two doulas, Barbara and Victoria, discussed difficulties making a living as a doula due to insufficient reimbursements and the infeasible number of clients necessary to turn a profit. For many birth workers, it is a constant balancing act of their passion and desire to support birthing people and to care for themselves and their loved ones financially.

This section highlights that as the literature has established, professional experts understand that the issues that are catalysts for closure are interconnected and vary across communities and hospitals. While many factors receive a lot of attention, such as long

drives, reimbursement rates, and differing approaches, other lesser known issues that feel extremely important to specific individuals and their communities. One example, for birth workers serving birthing people of color, the inequities in birth are palpable. Unfortunately, this is not expressed here because of a lack of diversity in this study population. It is important to clearly state that even if a theme or reality is not specifically addressed, that does not diminish the importance of uplifting and formalizing that lived experience. The innovation of professional experts and their communities are discussed in the following section to highlight the creative solutions occurring across Minnesota to improve rural birth.

The Impact: Multi-Scalar Solutions: After discussing what sparked this decline, interviews with professional experts shifted to talk about the impact of the decline of decreasing access to hospital-based obstetric care. The objective is to understand how professional experts innovate and respond to scarcity. Professional experts focused on solutions, sharing multi-scalar approaches on the local, state, and national levels to reduce the impact of declining access. Rural communities across Greater Minnesota are coming up with multi-level and place-based responses that are ultimately constrained by the pervasiveness of systemic issues that they identified as causal.

Local Solutions: Rural communities have found innovative solutions that turn the weaknesses of rurality into strengths (See figure 21). As previously established, Minnesota's rural communities tend to be older and experience a net outflow of migration. This cycle leads to a shortage of staff and difficulty attracting and retaining young qualified professionals for medical roles. One rural community in northern Minnesota is leveraging

its community of retirees to create a network of community health workers and doulas to support their birthing community. This particular community must commute two and a half hours to a delivering hospital– a major point of anxiety for many birthing people. The local public health supervisor, Melissa (ProfE_2), said, "I think there's sort of a misconception that the support needs to be really skilled support, I think there's a lot of value in having people find ways to support one another with very basic training and support in their professional roles." She adds that by way of using the community to create the network of support, the solution is sustainable and builds off the strength of the community while not relying on outside help, grant money, or temporary positions for the success of the program. The creation of the doula and community health worker network is still in the early stages and is facing some setbacks. The issue of staffing and reimbursement rates is particularly applicable. The public health department currently lacks the staff to be able to undertake the administrative work necessary to get the program running. In addition, reimbursement rates for doulas are a major limiting factor that will need to be determined prior to the program's expansion and implementation.

Cited Examples of Local Solutions
Birth workers traveling to clients in remote areas (5)
Expand home visiting models (2)
Fundraising to rent a house closer to regional hospital to reduce the commute
Create and train a network of community health workers and doulas
Expand culturally competent care via doulas
Visiting community hubs (churches, parenting groups, etc.) to educate about doula care
Formation of birth collective

Figure 21. Chart of local-level solutions mentioned in interviews

Birth workers across Minnesota are working to address misconceptions about birth and improve health literacy. Professional and personal experts listed a lack of knowledge about birthing options and birth itself as barriers to high-quality care. Word travels fast in rural communities, and the social networks of birthing people are highly intertwined. Informants Barb (ProfE_3) and Victoria (ProfE_4) leveraged the power of rural communities by visiting local hubs like churches, parenting classes, and coffee shops to spread the word about their work as doulas and the ways they can support people in having the best birth experience possible. While doulas are well-established in the Twin Cities, there is a lack of doulas available in rural communities. Since Barb and Victoria started their practice in 2015, they have found that medical providers and birthing people are increasingly aware of how doulas can support pregnant people but they still face difficulties overcoming barriers in the traditional medical model and receiving sufficient reimbursements.

Leah (ProfE_5) and Diana (ProfE_1) are RNs who visit their clients in their homes, practicing home visiting models, to support clients as they navigate pregnancy and childbirth. Home visiting models focus on the social, emotional, and physical health of families and parenting skills. Their ability to travel to their clients allows them to offer support in-home and provide highly tailored education. COVID has forced many of these interactions to happen over Zoom, but meeting virtually was more enjoyable for some of their clients.

One community in southern Minnesota has formed a collective of birth professionals who offer a wide variety of services, from chiropractors to doulas to lactation specialists. This specific group offers classes and educational events to expand health

literacy related to birth and inform community members about alternative birthing options they might consider. By establishing a collective of practitioners, birthing people can easily identify their options and the collaboration between providers allows for increased ease in navigating those options.

Diana (ProfE_1), a home visiting RN focuses on caring for Indigenous communities in Greater Minnesota. As an Indigenous woman herself, she is working to provide culturally informed care to her clients. The historical trauma caused by colonialization and perpetuated by the United States government has created health inequities in Indigenous communities. Indeed, Indigenous maternal mortality rates continue to be the highest in the state (Minnesota Department of Health, 2019). Medical systems continue to cause harm and restrict Indigenous people from birthing with their traditional practices. Diana described the need for high-quality and culturally informed home visiting models by describing the area she serves, "I won't lie, they were struggling, the historical trauma, the opioid epidemic, it is real up here in Indian country." Diana said the needs and desires of her community are clear:

> So I think that's the message that I'd want to leave you with is that there's a lot of challenges in Greater Minnesota, in our particular area, it's not so much lack of care. It's lack of culturally competent care that we're missing. If we could bring that back through more doulas and DONA[2] care, that would be so helpful. And that is what our communities are asking for. We need Indigenous birth workers to help us in this work. We need to increase our breastfeeding weights, we need to decrease our SIDS rates, we need to decrease our maternal mortality rates which are highest in the state, of any ethnic group. And this is one way that we can do that.

[2] DONA is the international leader of evidence-based doula training and certification (DONA, 2022).

In Diana's (ProfE_1) community, a non-profit was established to support Native birthing people and ensure they have the necessary support and knowledge of traditional birthing practices. This organization is staffed with maternal and child healthcare workers working to help offset racial birth rate disparities. Diana cites this as a massive benefit to the community, but it is subject to limitations. While the organization had hoped to offer a birth center, they have been struggling to gain proper licensure and funding; at this point, they are supporting their clients within the hospital system.

State Level Solutions*:* There are many efforts to improve licensure in Minnesota and make it easier for CNMs and CPMS to practice. In 2015, the Minnesota Legislature passed legislation to create the APRN licensure, allowing advanced practice nurses, like CNMs, to practice independently and collaborate within the medical system. Minnesota is one of the 25 states nationwide that has implemented the APRN licensure (American Association of Nurse Practitioners, 2021). Liz (ProfE_6), a CNM, cited this licensure change as a major improvement for rural health, allowing practitioners the freedom to provide high-quality care without the previously required oversight.

Another step that the state took is the optional licensing status for traditional midwives. Minnesota and Utah are the only states where liscensing is optional; all other states require licensing or do not license traditional midwives (Richert, 2019). This decision is contentious among midwives. Some midwives in the state feel that the required licensure of traditional midwives is positive, which allows for greater accountability and improved outcomes (Richert, 2019). Others feel it limits the very purpose of their practice because the process of becoming licensed may exclude some midwives. In some cultures, midwifery is shared knowledge passed through generations, contains traditional practices,

and does not conform to any one set of understandings. Minnesota's choice to grant licensure but not require it strikes a balance to offer the accountability for midwives who wish to be licensed while also allowing midwives to practice without licensure and free from criminalization.

Higher education institutions in Minnesota are creating incentivization programs to train and recruit rural medical professionals. Pine Technical Community College in Pine City, Minnesota, provides all local high school graduates with two free years of college. This school uses federal grant money to invest in its community and address local workforce shortages. Pine Technical Community College boasts programs in health services, like nursing, and is actively placing its graduates back into the community (National Public Radio, 2021). At the University of Minnesota, similar efforts are being taken in the Rural Physician Associate Program (RPAP), which recruits medical students with rural or Indigenous backgrounds or demonstrated interests. Members of this program live and train in rural communities as they gain hands-on experience with rural medicine. RPAP is extremely successful at retaining rural physicians, with 40% of its graduates returning to rural medicine (The University of Minnesota, 2021).

The Minnesota Department of Health and BlueCross BlueShield of Minnesota funded the creation of a state-of-the-art birth simulation center in Cloquet, Minnesota. Community Memorial Hospital will be home to the state's first birth simulator which opened in early 2022. This life-like simulator named Virginia will help maintain the competencies of providers and nurses who work at low birth volume facilities. The simulation can replicate difficult births and provide practice and instill confidence in healthcare workers who serve pregnant people (WDIO, 2021).

National Level Solutions: At the national level, legislation to improve rural maternal healthcare is making its way through the Senate, but it started in Minnesota. The Rural MOMS Act was coauthored by Minnesota's US Senator, Tina Smith and is a piece of bipartisan legislation written with Alaskan Senator Lisa Murkowski. Rural communities and maternal health experts took part in writing the legislation. This act would streamline data reporting efforts nationwide to ensure uniformity of maternal health data, expand telehealthcare, support efforts to train and recruit rural physicians, and provide grants for innovation in rural maternal health (The Office of Tina Smith, 2021). Birth simulations, like Virginia in Cloquet, would be implemented across America's rural territories to maintain compentencies. The Rural MOMS act is currently stuck in the bureaucratic process. This legislation was overlooked as energy was devoted to addressing COVID-19 and is currently awaiting action from the subcommittee on health in the US House of Representatives.

Synthesis: The ways in which professional experts perceive the decline of rural obstetric care in Minnesota do not differ significantly from personal experts. Their findings are in line with related scholarship. They see the loss of care as a direct result of systemic issues like the decline of rural America, the flawed insurance industry, and historical disconnect between medical and alternative providers. While they collaborate within their field, and communities to find solutions and approaches to mediate the harm, they are constrained by the system. Family physician Maggie (ProfE_9) said, "I guess I couldn't say this for sure, but I don't know of any special efforts in place to help small [rural] hospitals retain OB care. It just kind of slips away, without people realizing it." Instead of streamlined national efforts to retain obstetric care, rural communities are doing what they have done for ages;

they continue to pull themselves up by their bootstraps and find place-based solutions to try to ensure basic acess to maternal healthcare.

Chapter 8:

Conclusion: Where Do We Go From Here?

This research sought to understand how those who intimately and regularly interact with Minnesota's maternal healthcare system conceptualize and respond to decreasing access to care. The research aims to compile personal accounts of birth workers and birthing people to juxtapose them with peer-reviewed research to formalize rural ways of knowing while adding essential insights to scholarship. This methodology, by default, is subject to the biases of those who opted in. In this weakness, the strength of this research became the vulnerability and reflections of those who gave birth or worked in Minnesota.

This paper finds that while rural spaces are not homogenous and there is variability across the state, rural birth workers and birthing people identify systemic issues such as underinsurance, the healthcare system, paid parental leave, and the decline of rural America among the attributable factors for the declining access to rural obstetric care. Local barriers are critical in understanding how personal and professional experts navigate their communities and workplaces daily, but experts do not identify these issues responsible for their reduced access. Both groups develop creative and place-based solutions across multiple scales in the face of scarcity. Despite the innovation and dedication to ensuring access to care, the very pervasiveness experts find accountable for the decline in hospital-based obstetric care is inhibiting the success of these efforts as a uniform solution to the Minnesota rural maternal health crisis.

This paper framed the state of Minnesota as an area of study and then placed this research within the broader conversation. Using theories that critique and contextualize

how humans in rural landscapes navigate systems and interact with one another connected this research to existing scholarship. From there, the two-stage methodology was explained. The intentionality of this approach reaffirmed the commitment to uplifting rural ways of knowing while grounding it in quantitative research principles. A history of obstetrics in the United States was detailed. Upon reflecting on the history of birth, which is ingrained in systems and people, it became easier to dissect points of tension among birth workers and birthing people. Then, a literature review was conducted to understand how scholars formulate their understanding of why rural hospitals are losing access to hospital-based obstetric care. Next, the findings of surveys and ethnographic interviews were discussed, meaning was made, and a narrative was formed demonstrating how professional and personal experts understand and respond to the lack of access.

These findings beg the question of where do we go from here? This research has argued that while local-placed based solutions demonstrate rural resiliency, these solutions are not enough to overcome the systems that ultimately created this reality for rural birthing communities. However, this reality does not reflect the innovation and creative problem-solving happening across rural Minnesota. Instead, it reveals that the loss of hospital-based obstetric care in Greater Minnesota is a wicked problem. As defined by design theorists Horst Rittel and Melvin Webber (1973), wicked problems are complex challenges described as a result of other problems. Interrelated aspects of the problem make it difficult to find one clear solution or approach; each stakeholder understands the solution differently based on their worldview. The only answer to a wicked problem is a wicked solution. Wicked solutions are not universally right or wrong, but better or worse. As wicked solutions are proposed and attempted, the nature of the wicked problem changes, and

another aspect of the issue is revealed (Rittel and Webber, 1973). This paper affirms the Minnesotan rural maternal health crisis is a wicked problem. Rural resiliency or the problem solving occurring across multiple scales to ensure access to obstetric care presents ideas that alter our understanding of the issue. While they are constrained, this is the nature of a wicked problem, and nothing would be enough to solve this issue.

The nature of this problem does not diminish the solutions. Instead, these efforts work to guarantee access while providing insights and allowing for the generation of more solutions. Informants in surveys and interviews across both expert groups shared how their profession, community, close circle, and themselves were responding. Each response was place-based and illuminated the needs in that area. A few of the notable solutions are the leveraging of the network of retirees to create a community health network of doulas. The birth simulator, Virginia, ensures competencies are maintained for rural birth workers and individual community members who are using their platforms to spread awareness about the birth options in their communities.

Informants suggested that an overhaul of the American healthcare system and social services is required to solve the rural maternal health crisis. I agree that guaranteeing a minimum wage that allows families to thrive, healthcare that is affordable and accessible to all, and social systems that seek out and equally support Americans regardless of their race, religion, ethnicity, income, sexuality, or gender would be transformative steps towards improving the quality of life for rural communities and the country as a whole. These initiatives are worthy of pursuit and should be at the apex of priorities for those in power. However, I believe these solutions would change the narrative but not solve the problem because of its wicked nature. Instead, I think the question that we are left with,

and what future scholarship should ponder, is how do we foster community-driven solutions and rural resiliency across rural Minnesota?

I believe three key areas can be focused on to ensure rural Minnesotans have the ability to create sustainable and community-specific solutions to the rural maternal health crisis. First, I believe an expanded interest in rural knowledge is critical in paving an effective path forward. Second, forming a national definition of rural will improve funding and support the vitality of local efforts. And third, the incorporation of emergent strategy to protect the holistic well-being and efforts of changemakers.

Producers of knowledge must take dedicated steps to expand general rural understanding and maternal health-specific issues. To produce high-quality solutions, there must be an established understanding of the community and its' needs. This paper has claimed that while many phenomena experienced in rural communities are similar, they are not homogenous. While media often displays rural communities as hopeless and on the decline, it should also highlight the joy and resiliency that occurs. Rural communities are growing increasingly diverse, and research and media must be reflective. This includes the intentional inclusion of BIPOC and LGBTQ+ voices. As Kozhimannil et al. (2017) find, there is a lack of information regarding rural hospitals' contributions to racial and ethnic disparities. Bettering rural maternal health includes the deliberate improvement of care and outcomes for birthing people of color. To make strides in this area, there must be significant contributions to scholarship and expanded understandings of rural realities for all who live and birth rurally; this means highlighting the existing inequities. Forming a narrative where rural community members are seen as equal contributors in scholarship would legitimize rurality and improve the field of rural studies, including rural medicine, and therefore

formulate representative and local efforts to maintain access to hospital-based obstetric care.

No national definition of rural exists, leaving researchers and policymakers to forge their own definition. While defining rural may seem archaic and unnecessary, the word's meaning is impactful. Many Americans reside in areas that are neither urban nor rural. In this gray area, communities may not qualify for grants, programs, or research initiatives, thus, depriving them of support that communities might benefit from. There are entities taking strides to define rural comprehensively. Proper definitions allow for variations of rurality and flexibility and see rural areas as unique, not just opposite to urban (Rural Health Information Hub, 2022). By forming a national definition, improved funding could be directed towards rural communities, making it easier to foster community-driven responses and enhancing the economic viability of many of the place-based and local solutions detailed in Chapters 6 and 7.

Rural resiliency was a theme expanded on and illustrated by excerpts from surveys and interviews. Across rural Minnesota, birth workers and birthing people are leveraging scarcity and their networks to produce innovative solutions with minimal resources. While this resiliency demonstrates grit and perseverance, burnout and turnover of solutions, community leaders, and birth workers are significant concerns. I suggest that rural communities employ Adrienne Maree Brown's principles of emergent strategies detailed in her book, *Emergent Strategy: Shaping Change, Changing Worlds* (2017), to protect community well-being and generate community-driven responses.

Building on the work of Octavia Butler, Brown (2017) wrestles with the heartbreak, burnout, and suffering felt by those involved in social justice work. She highlights the idea

that movements are often reduced to the passing of underwhelming legislation that fails to address the root cause – leaving needs unmet. The same pattern occurs across rural Minnesota's obstetric care network. At the root of emergent strategy is the idea of biomimicry and adaptation. Brown is explicit that for adaptation to be successful, it must be intentional. Change is fractal and constant, and there is nothing to be done to prevent it, so it must be embraced in alignment with our deepest collective longings. Rural communities must brace themselves and respond to the everchanging rural environment. Greater Minnesota is experiencing increasing diversity, shifting economic sectors, and changing social landscapes, which present rural communities with challenges and an opportunity to respond – paving their own path forward collectively.

Practitioners, birthing people, and communities must have a clear sense of self and their goals to intentionally adapt. To ensure that adaptation is successful, it cannot be done independently but interdependently. The desire for change and growth must be collectively held. In nature, evolution does not happen with an individual being but among species and broader groups. In our built environment, a "species" may appear as a familial unit, a community, a professional team, or a political entity. When these groups share a dream, there is less burden and burnout. To hold a vision together is to embark on the work as a group, which requires collaboration and trust, other key elements of emergent strategy.

Brown explains that change is fractal, meaning it is a never-ending pattern where small-scale patterns lead to large-scale patterns and change. She writes, "What we practice at the small scale sets the pattern for the whole system" (Brown, 2017, 53). While our lives and the struggles we face are often the results of large-scale issues, individually, we have the autonomy to respond with growth-oriented choices. Our development slowly allows us

to understand our peers better and respond with more empathy, thus setting a larger scale pattern. This iterates until systemic issues improve. Brown's use of change as fractal affirms the benefit of local place-based solutions across rural Minnesota. Communities focusing on maintaining access to hospital-based obstetric care are laying the groundwork for change at the state and national level, therefore mitigating the rural maternal crisis. So even if solutions are not universal or fail to be a perfect fit, they write a narrative filled with innovation and hope that allows for transformation on a broader scale.

The future of rural Minnesota and its obstetric community are unknown. In this ambiguity, rural communities are provided the opportunity to collectivize and look forward together. The small-scale solutions to this wicked problem that are occurring across the state allow the small-scale patterns to become the large-scale transformative reality. These efforts, although not universal, enhance the understanding of the rural maternal health crisis and foster more solutions to inaccessibility. While there are infinite solutions to this issue, rural resiliency and the vitality of rural communities must be nurtured and fostered in order to maintain the imperative and successful community-driven responses that are working to ensure that rural maternal birthing people in Minnesota have access to hospital-based obstetric care.

Appendix A:

Personal Expert Survey

1. Which of the following best describes you?

   Check all that apply.

   - [ ] Asian or Pacific Islander
   - [ ] Black or African American
   - [ ] Hispanic or Latino/Latinx
   - [ ] Native American, Indigenous, or Alaskan Native
   - [ ] White or Caucasian
   - [ ] Biracial or Multiracial
   - [ ] A race or ethnicity not listed here

   Other: [ ] _____

2. What is your average household income?

   Mark only one oval.

   - ◯ Less than $10,000
   - ◯ $10,000 to $19,999
   - ◯ $20,000 to $29,999
   - ◯ $30,000 to $39,999
   - ◯ $40,000 to $49,999
   - ◯ $50,000 to $59,999
   - ◯ $60,000 to $69,999
   - ◯ $70,000 to $79,999
   - ◯ $80,000 to $89,999
   - ◯ $90,000 to $99,999
   - ◯ $100,000 to $149,999
   - ◯ Greater than $150,000

3. Have you have personally been pregnant / given birth in Minnesota?

   Mark only one oval.

   - ◯ Yes
   - ◯ No
   - ◯ Was pregnant, but never gave birth
   - ◯ Other: _____

4. If yes, what year(s) were you pregnant / given birth?

   _____

5. If you have given birth in Minnesota, what was the zip code(s) you lived in during your pregnancy/birth?

   _____

6. How many children do you have?

Mark only one oval.

- ◯ None
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6
- ◯ Greater than 6

7. While pregnant, how long did it take you to travel to your healthcare provider?

Mark only one oval.

- ◯ Less than 5 minutes
- ◯ 5 to 15 minutes
- ◯ 15 to 30 minutes
- ◯ 30 to 60 minutes
- ◯ Greater than 1 hour
- ◯ Other: _____

8. How would you describe your place of residence at the time of pregnancies/deliveries?

Check all that apply.

- ☐ Urban
- ☐ Rural
- ☐ Suburban

Other: ☐ _____

9. Are there any other identities that you hold that you feel impacted your experience with healthcare?

_____

_____

_____

_____

_____

Pregnancy Experience

Please remember that all questions are optional and you can choose at any point to not answer a given question.

10. If you have received maternal healthcare, who provided the care throughout your pregnancy/pregnancies?

Check all that apply.

- ☐ Obstetrician (OB-GYN)
- ☐ Family Medicine
- ☐ Certified Nurse Midwife
- ☐ Traditional Midwife
- ☐ Nurse Practitioner
- ☐ Physician's Assistant
- ☐ Doula

Other: ☐ _____

11. If you have received maternal healthcare in Minnesota, how was the healthcare you received while pregnant?

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

12. Please list emotions or feelings that you associate with the care you received throughout your pregnancy? (If you have been pregnant more than once, please describe the feelings associated with each pregnancy)

13. Is there anything else you would like to share about your pregnancy experience?

Child Birth Experience

Please remember that all questions are optional and you can choose at any point to not answer a given question.

14. If you have given birth in Minnesota, where have you delivered?

Check all that apply.

- [ ] Hospital
- [ ] Free Standing Birth Center
- [ ] Home Birth
- [ ] Other: _____

15. If you have delivered a baby, who assisted with the delivery?

Check all that apply.

- [ ] Obstetrician (OB-GYN)
- [ ] Family Medicine
- [ ] Certified Nurse Midwife
- [ ] Traditional Midwife
- [ ] Nurse Practitioner
- [ ] Physician's Assistant
- [ ] Doula
- [ ] EMT
- [ ] No healthcare professional was present
- [ ] Other: _____

16. If you have given birth in Minnesota, how was your delivery experience?

Mark only one oval.

	1	2	3	4	5	
Poor	◯	◯	◯	◯	◯	Excellent

17. Please list any emotions or feelings you associate with your delivery experience? (If you have delivered more than one child, please describe the feelings associated with each delivery)

18. Is there anything else you would like to share about your child birth experience?

Personal Risks / Complications

Please remember that all questions are optional and you can choose at any point to not answer a given question.

19. Did you have any additional risks that impacted your pregnancies/deliveries? (Examples: age, obesity, diabetes, hypertension, drug use, thyroid disorders, etc.)

Mark only one oval.

- ◯ Yes
- ◯ No

20. If yes, please list/explain any risks that impacted your pregnancies / deliveries

_____

_____

21. Did you experience any complications with your pregnancy / delivery?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Other: _____

22. Is there anything else you would like to share about risks and comorbidities in maternal health?

_____

_____

_____

_____

_____

Statewide Concerns

Please remember that all questions are optional and you can choose at any point to not answer a given question.

23. Do you have any concerns about maternal healthcare in Minnesota? If so, please describe your concerns

_____

_____

_____

_____

_____

24. What would have improved your experiences with pregnancy and childbirth?

_____

_____

_____

_____

_____

Continued Conversation

Please remember that all questions are optional and you can choose at any point to not answer a given question.

If you are interested in engaging in a longer conversation with the principal interviewer, Your survey responses will not be linked to your interview. Your contact information that you provide below will be deleted from the survey and moved to a separate document as to ensure your survey is in no way identifiable.

25. Would you be willing to have a more in-depth conversation with the researcher regarding your experiences and feelings regarding Minnesota's maternal healthcare system?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Other: _____

26. If yes, please list a phone number or email below

_____

Appendix B:

Professional Expert Survey

1. How are you affiliated with Minnesota's birthing community?

   Check all that apply.

   - [ ] OB-GYN
   - [ ] Family Physician
   - [ ] Physician's Assistant
   - [ ] Nurse Practitioner
   - [ ] Certified Nurse Midwife
   - [ ] Nurse
   - [ ] Traditional Midwife
   - [ ] Doula
   - [ ] Lactation Specialist
   - [ ] Social Worker
   - [ ] Healthcare Administrator
   - [ ] Other affilaited medical professional
   - [ ] Community Organizer
   - [ ] Scholar / Academic
   - [ ] Researcher
   - [ ] Affiliated Non-Profit
   - [ ] Politician

   Other: [ ] _____

2. In what zip code(s) do you practice/work?

   _____

3. In general would you say you serve urban, suburban, or rural communities?

   Check all that apply.

   - [ ] Urban
   - [ ] Surburan
   - [ ] Rural

4. How many years have you been in your field?

   Mark only one oval.

   - ◯ Less than 1 year
   - ◯ 1 - 5 years
   - ◯ 5 - 10 years
   - ◯ 10 - 15 years
   - ◯ 15 - 20 years
   - ◯ Greater than 20 years
   - ◯ Other: _____

5. Briefly describe what drew you to supporting those who are pregnant?

6. How many years have you been serving the birthing community in Minnesota?

Mark only one oval.

- ◯ Less than 1 year
- ◯ 1 - 5 years
- ◯ 5 - 10 years
- ◯ 10 - 15 years
- ◯ 15 - 20 years
- ◯ Greater than 20 years
- ◯ Other: _____

7. If you are not from Minnesota, what drew you to work with the Minnesota's birthing community specifically?

Professional Experiences

Please remember that all questions are optional and you can choose at any point to not answer a given question.

8. Briefly list the biggest barriers to providing care in your line of work?

9. Please describe what your typical patient/client/ or person you advocate for looks like:

Forward Thinking:

Please remember that all questions are optional and you can choose at any point to not answer a given question.

10. List what you think Minnesota is doing well in terms of maternal healthcare?

11. List your greatest concerns about maternal healthcare in Minnesota?

12. Are there any organizations or groups that you feel are doing great work to help improve the quality and equity in Minnesota's birthing community?

13. Rural communities across Minnesota are losing the ability to provide obstetric care to patients. Does this come up in your line of work? If so how?

Continued Conversation

Please remember that all questions are optional and you can choose at any point to not answer a given question.

If you are interested in engaging in a longer conversation with the principal interviewer, Your survey responses will not be linked to your interview. Your contact information that you provide below will be deleted from the survey and moved to a separate document as to ensure your survey is in no way identifiable.

14. Would you be willing to have a more in-depth conversation with the researcher regarding your experiences and feelings regarding Minnesota's maternal healthcare system?

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Other: _____

15. If yes, please list a phone number or email below

Appendix C:

Personal Expert Interview Schedule

Questions on the interview schedule below are listed in no order and were not asked in any sequence. Not all questions were used in every interview and questions were tailored to the expertise of the personal expert. This list was often used to get the interview going or to continue the conversation if it hit a lull and questions were asked on the spot.

1. Can you tell me generally about your experiences with childbirth / pregnancy?
    a. How many children do you have?
    b. What year(s) did you give birth?
    c. Where did you give birth, if you are comfortable saying?
2. If you have more than one child, did the way you thought about prenatal care or birth change?
3. What do you identify as a barrier to receiving obstetric care in your community?
4. Did you ever have or consider what some might call an "alternative" birth (midwife, home birth, doula, etc.)
5. I am not a mom, but throughout my research I am coming to understand the importance of social networks and community during pregnancy and childrearing years. How did you receive knowledge or resources about pregnancy and birth in your community?
6. A major issue in rural America is the loss of healthcare providers, both generally and for maternal healthcare providers. Did you experience long drives or difficulties receiving care in your rural community?
    a. If so, what did it feel like to have to undergo a long drive or navigate the healthcare system under these conditions?

Appendix D:

Professional Expert Interview Schedule

Questions on the interview schedule below are listed in no order and were not asked in any sequence. Not all questions were used in every interview and questions were tailored to the expertise of the professional expert. This list was often used to get the interview going or to continue the conversation if it hit a lull and questions were asked on the spot.

1. Can you tell me about your scope of practice in who you support, how you support them, and in what context and the geography of your area of practice?
2. Why did you choose _____ (career) and why did you choose to practice in a rural community?
3. You have worked in the birthing community for __ number of years. Can you tell me about how you have seen the community you serve and birth workers themselves change in that time?
4. What do you see as a solution to improving access to obstetric care in communities that have lost care or are at risk of losing access?
5. From the time you wake up to when you go to bed, tell me what it looks like to be a part of the birth worker community in rural Minnesota?
6. Generally speaking, what do you see as barriers to rural obstetric care?
    a. How do you see these barriers or alternative barriers impacting your birthing community?
7. Based on your experiences could you tell me about how patients/clients feel in response to changing landscapes of care in rural Minnesota?
    a. How does it feel for you to be a provider in a rural setting? Do you feel your experiences are different from non-rural providers?
    b. Have you and your patients' feelings regarding rural birth changed since COVID?

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