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EXAMINING EFFECTIVE AND REALIZED HEALTHCARE ACCESS IN THE WEST SOUTH CENTRAL DIVISION

By

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M.Ed. University of Toronto, 2015
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A Dissertation
Submitted to the Faculty of the
Raymond A. Kent School of Social Work and Family Science
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for the Degree of

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in Social Work

Department of Social Work
University of Louisville
Louisville, Kentucky

December 2022

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A Dissertation Approved on

November 4, 2022

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As a first-generation college student, I had no idea that my post-secondary career would span sixteen years. This dissertation is the culmination of that career and honors all that has happened in my life since I started the journey.

To my dissertation committee that guided me through a change in my research area, a pandemic, and balancing academics with everything else: Your support and feedback were key to completing this journey. Each of my committee members brought unique strengths to the table and I appreciate every ounce of wisdom shared with me. I could not have done this without you.

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ABSTRACT

EFFECTIVE AND REALIZED HEALTHCARE ACCESS IN THE WEST SOUTH CENTRAL DIVISION

Katie Cameron

November 4, 2022

This study explores realized and effective access domains outlined by Andersen's Behavioral Model of Health Services Use. Exploring other domains of access is critical to understanding how the healthcare system functions (Kirby & Yabroff, 2020). This study evaluates rural-urban and racial/ethnic differences in access to care using two under-researched domains of healthcare access. It also allows for exploring access disparities within rural communities amongst minority populations.

This dissertation is divided into five chapters. Chapter One provides an overview of health disparities and inequities and a brief overview of the study. Chapter Two details a high-level history of racism and its impacts on racial and ethnic groups. It introduces the Andersen Model of Health Services Use, structural racism, and structural urbanism. Individual and contextual factors affecting access to a usual source of care and patient satisfaction are identified.

Chapter Three describes the methodological approach for the study. Chapter Four covers the results. Race/ethnicity and urbanicity/rurality were shown to be significant predictors of having a usual source of care. White, non-Hispanic individuals are 1.4 times more likely to have a usual source of care than their non-White or Hispanic counterparts.

Those living in an urban area are .78 times (22%) less likely to have a usual source of care. The interaction between race/ethnicity and urbanicity/rurality was not significant.

Furthermore, race/ethnicity and urbanicity/rurality were not significant predictors of patient satisfaction with care. The interaction between race/ethnicity and urbanicity/rurality was significant. The area in which patients lived determined the nature and direction of the association between race/ethnicity. In urban areas, there was a negative association, such that urban, White/non-Hispanic individuals had higher levels of satisfaction than their non-White, Hispanic counterparts. In rural areas, this association was positive: White/non-Hispanic individuals had lower levels of satisfaction than their non-White, Hispanic counterparts.

Chapter Five discusses the meaning of these results and the potential advocacy opportunities social work may consider to improve access and satisfaction with care. Community health workers are situated as allies in the field and several policies are discussed.

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CHAPTER 1: INTRODUCTION

When the COVID-19 pandemic first entered the world's awareness in late 2019 and early 2020, it was initially presented as a virus that does not discriminate. COVID-19 was portrayed as an illness transcending wealth, age, and health status because no one had pre-existing immunity to the novel virus (Garcia, 2021; Gravelee, 2020; Liu & Modir, 2020; Mein, 2020; Okonokwo et al., 2021). This response is typical of catastrophic events such as natural disasters and disease outbreaks that affect many people in a given area. The intention is to communicate that all individuals involved are vulnerable and must take the appropriate steps to protect themselves. However, health disparities and inequities in terms of rates of chronic diseases, shorter lifespans, and less access to care are well-documented in the United States (US), particularly in rural and ethnically and racially diverse communities (Bailey et al., 2017; Okonkwo et al., 2021). The COVID-19 pandemic highlighted these disparities and inequities.

Early into the COVID-19 pandemic, data on the infection's spread and impact were tracked. In the United States, the pandemic initially spread to metro areas with populations of at least one million. However, by November 2020, the cumulative prevalence of COVID-19 cases was more significant in non-metro regions (United States Department of Agriculture, 2021). As expected, with an increased rate of COVID-19 infection, rural areas showed higher death rates starting in December 2020. In December 2020, the rural death rate was 1.86, 48% higher than the urban rate of 1.26 (Dobis & McGranahan, 2021).

Perhaps most striking about COVID-19 is that data on incidences and outcomes for racial and ethnic populations were effectively missing from prolific reporters like the Centers for Disease Control (CDC). Data on racial and ethnic people became available to the public by investigative journalism or web-based trackers developed by non-governmental entities (The Atlantic, 2020). Congressional legislation mandated the inclusion of race/ethnicity data by August 1, 2020. Even after this mandate, many reports were missing race/ethnicity data or were reported as counts rather than rates. Presenting counts rather than rates is problematic because counts do not consider the differences in racial/ethnic composition in incidence or outcomes compared to the total population. Additionally, some have called race/ethnicity data related to COVID-19 "defective" because of the underreporting and inadequate data collected. These data gaps have limited public health agencies' ability to provide data-driven intervention (Krieger, 2021; Genieve et al., 2022).

There are clear problems and limitations that arise from not collecting data about race and ethnicity; however, the data that is collected can also be limited. Inadequate, incomplete, and inconsistent race and ethnicity data is a common problem in healthcare surveys, research, and data (Kader et al., 2022; Saunders & Chidambaram, 2022). One problem is that categories for race and ethnicity may vary across surveys, research and data. There are several data standards for race and ethnicity (Saunders & Chidambaram, 2022). For example, the 1997 Office of Management and Budget guidelines has five categories for race and two for ethnicity, while the 2011 Department of Health and Human Services data standards require fourteen race categories and five ethnicity categories (Department of Health and Human Services, 2011). These data standards

provided limited options for individuals to adequately capture their racial and ethnic identity. As a result, individuals may select a category that best suits them, such as "other", or may not respond to the question at all. When individuals respond this way, they are left out of the analysis and reporting (Kader et al., 2022).

Furthermore, race and ethnicity are not stable or fixed data points. Terms used to describe certain races and ethnicities are constantly in flux and may change over time and across contexts (Kader et al., 2022). A comparison of Census Bureau data from 2000 to 2010 revealed that 9.8 million people self-reported a different race or ethnicity (Liebler et al., 2017). Similarly, in a 19-year survey of nearly 13,000 Americans, 20% of the sample changed how they were racially or ethnically classified. Respondents changed their self-identification in response to life events (Penner & Saperstein, 2008).

Comprehensive race and ethnicity data is critical for policymakers, advocates, and stakeholders to identify inequities and measure progress over time (Saunders & Chidambaram, 2022). Identifying the race and ethnicity of a person or group of participants, along with other sociodemographic variables, may inform the generalizability of a study or highlight important disparities or inequities (Flanagin et al., 2021).

As in the early days of the pandemic, the CDC also did not provide data by race/ethnicity and rural/urban residence. Based on available data, 82% of highly diverse rural communities, defined as those with 33% or more racial/ethnic minority residents, have had at least 150 COVID-19 deaths per 100,000 residents compared with 54% of other rural counties (Bradford et al., 2021). Fortunately, rural America is represented in the CDC's data reports. Its COVID-19 tracker illustrates disparities between urban and

rural populations. Yet most initial COVID-19 research focused only on urban areas (Mueller et al., 2020). Such differences suggest the presence of mechanisms that disadvantage rural communities and further disadvantage diverse rural communities. Power and resources are not evenly distributed, with diverse rural populations receiving the least support (Weinstein et al., 2017). Again, the lack of readily available and accurate data indicates a structural data gap that hindered the pandemic response.

The Problem

Racism and discrimination limit access to healthcare (Bradford et al., 2021; Kozhimannil & Henning-Smith, 2021; CDC, 2021; CDC, 2022a; Opara et al., 2022). Systemic racism, including the legacy of slavery, neocolonialism, and historical trauma, contributes to these inequities in access. Atrocities such as the Tuskegee Syphilis Study, the theft of Henrietta Lacks' cancer cells, and forced sterilization of communities of color have contributed to profound distrust in the healthcare system among some African Americans (Gilmore & Moffett, 2020; Johnson-Agbakwu et al., 2020). This mistrust is exacerbated by the implicit bias, discrimination, and stereotypes that inform interactions between patients and medical providers and providers' decision-making (Thomas & Booth-McCoy, 2020).

These implicit biases, discrimination, and stereotypes, lead to disparities and inequities. For example, racial and ethnic minorities receive fewer referrals for renal transplants, congestive heart failure, and pneumonia (Nelson, 2002; Johnston et al., 2021). Racial and ethnic minorities are also less likely to be referred for cardiac care, have fewer major procedures for heart attacks, receive vaccinations, pain medications for fractures, cancer screenings, and surgical treatment for lung cancer (Nelson, 2002;

Johnston et al., 2021). Medical provider biases are a critical intervention point because they may affect provider-patient interactions (Thomas & Booth-McCoy, 2020).

When significant health disparities exist across disadvantaged populations, there are two root causes of inequity. First, institutional and systemic mechanisms distribute power and resources differentially across sociodemographic lines. Second, the unequal allocation of power and resources often referred to as the social determinants of health. These structural inequities ultimately lead to health outcome inequities (Weinstein et al., 2017). Health inequity exists when some members of society do not have an equal opportunity to be as healthy as possible (CDC, 2022a). This study uses structural racism and structural ruralism to understand the unequal distribution and allocation of power and resources.

Evidence of healthcare disparities extends beyond COVID-19. Racially and ethnically diverse rural populations have higher rates of the top five leading causes of death than their white or urban counterparts. These conditions include heart disease, cancer, unintentional injuries such as opioid overdoses and vehicular accidents, chronic lower respiratory disease, and stroke (Warshaw, 2017). Not surprisingly, many of these chronic conditions placed racially and ethnically diverse communities at higher risk of contracting COVID-19 or experiencing more severe symptoms and outcomes Garcia, 2021; Gravelee, 2020; Liu & Modir, 2020; Mein, 2020; Okonokwo et al., 2021).

Disparities within racially and ethnically diverse communities are troubling because these challenges are compounded when facing other disadvantages like living in a rural area. Since 2000, 84% of rural counties have seen an increasing racial and ethnic diversity in rural counties, with 19% of rural residents being racial and ethnic minorities

(Cromartie, 2018). Rural racially and ethnically diverse communities face a double disadvantage due to structural inequities in power and resource distribution. Along with poor outcomes and health care disparities, these communities also struggle with limited data representation, though some health care access disparities are well-known and documented. For example, in 2020, there were 31.6 million uninsured Americans or 9.7% of the entire population (Cheeseman Day, 2019). People in rural areas are 20% more likely to be uninsured than those in urban areas. The three counties with the highest uninsured rates are in rural Texas: Gaines, Collingsworth, and Hidalgo (Cheeseman Day, 2019. Collingsworth and Gaines Counties have not seen a significant change in the uninsured rates since 2013, suggesting stagnation in progress on this access indicator (Cheeseman Day, 2019). According to the US Census Bureau (2021), Collingsworth and Gaines County residents are 42.5% and 34.0% Hispanic, nearly double the national rate of 18.5%.

Furthermore, Cha & Cohen's (2022) analysis indicates that people who identify as Hispanic white, non-Hispanic black, and of more than one race are significantly more likely to be uninsured than non-Hispanic white and Asian populations. The Patient Protection and Affordable Care Act, also known as the Affordable Care Act (ACA), precipitated the implementation of Medicaid expansion in several states. The Medicaid expansions allowed millions of previously uninsured Americans to become eligible for Medicaid (Oberlander, 2019). Medicaid expansion was also a significant source of coverage gains in rural communities and helped buffer against medical bankruptcies (Kluender et al., 2021).

In the first few years following the ACA and Medicaid expansion, low-income, nonelderly, adults had statistically significant insurance coverage gains, which resulted in increased access to a usual source of care and affordability of services(Yue et al., 2018). Urban and rural adults had increased access to insurance, with urban residents experiencing fewer cost-related barriers to care and greater access to a usual source of care(Benitez & Seiber, 2018). However, insurance and access gains were not realized across all racial and ethnic minorities, with Hispanic populations seeing minor improvements (Yue et al., 2018). It is important to note that several states have not expanded Medicaid under the ACA.

For most, USC and primary care are synonymous. In general, disparities in health insurance impact whether one has a usual source of care (USC), or a particular medical professional's office (e.g., doctor or nurse practitioner), clinic, health center, or another facility where a person would go if sick or in need of care (Fullerton et al., 2017; Kirby & Yabroff, 2020). Common services offered by a USC include prevention, early detection of disease, acute care, and management of chronic health problems, such as those responsible for the top five leading causes of death. There is extensive evidence that having a USC prevents illness and death, positively affects health outcomes, and facilitates access to the rest of the healthcare system (Starfield et al., 2005; Blewett et al., 2008; Fullerton et al., 2017; Kirby & Yabroff, 2020). Despite their importance, little is known about how social determinants of health, including race/ethnicity and rural residence impact access to a usual source of care and satisfaction with care received.

Purpose and Methodology

Little is known about how the interaction of these variables impact healthcare access (Caldwell et al., 2016). Extant literature indicates that racial and ethnic minorities in rural areas have lower healthcare access compared to their urban counterparts or rural non-Hispanic whites (Mueller et al., 1999; Probst, Moore, Glover, Samuels, 2004; Cole et al., 2013; Caldwell et al., 2016). However, these studies do not tie their findings to theoretically distinct access domains, rather they focus on assessing access to health insurance. This study explores realized and effective access domains outlined by Andersen's Behavioral Model of Health Services Use. Exploring other domains of access is critical to understanding how the healthcare system functions (Kirby & Yabroff, 2020). This study evaluates rural-urban and racial/ethnic differences in access to care using two under-researched domains of healthcare access. It also allows for exploring access disparities within rural communities amongst minority populations.

Starfield et al. (2005) suggest that examining individuals' experiences with and access to their usual source of care is more meaningful than focusing only on system-level factors such as the number of providers available or the insurance rate. Patient satisfaction with care affects clinical outcomes and patient retention (Starfield et al., 2005). Therefore, individuals' experiences are a complement to system-level factors. Additionally, by exploring how specific health disparities manifest, there is potential to suggest interventions or other remedies for reducing access gaps.

In this study, the author will analyze data from the 2018 Behavioral Health Risk Factor Surveillance System (BRFSS) using IBM SPSS Statistics Version 28. The BRFSS is a nationally representative, cross-sectional telephone and cellular survey of adults in the United States that utilizes stratified geographic sampling. Surveys are completed and

managed by state health departments, and data are transmitted to the CDC for editing, processing, weighting, and analysis. Each year, telephone surveys are completed with more than 400,000 noninstitutionalized adults aged 18 years or older (CDC, 2018).

For several reasons, the BRFSS is appropriate for this study. First, of all the publicly available, nationally representative surveys focusing on adults aged 18 or older, the BRFSS contains the most recent data. Second, regarding access to care measures, the BRFSS includes variables related to sources of care, frequency of care, health care coverage, delaying or forgoing care, cost barriers, and transportation. Although the National Health Interview Survey and the Medical Expenditure Panel Survey also include variables related to these access measures, they do not indicate whether a participant lives in an urban or rural area, which is a critical variable for this analysis.

The goal of this secondary analysis is to answer the following questions:

1) Is there a relationship between race/ethnicity and access to a usual source of care?

2) Does this relationship vary by urbanicity/rurality?

3) Is there a relationship between race/ethnicity and satisfaction with health care services?

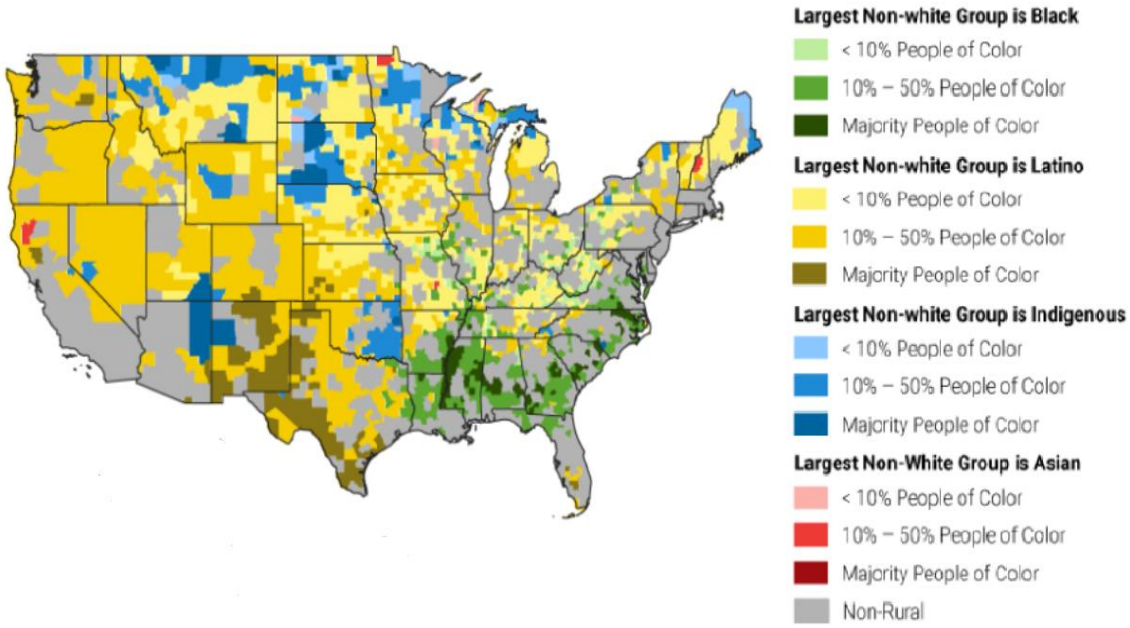
4) Does this relationship vary by urbanicity/rurality?

Significance of the Study.

This study is significant because it evaluates rural-urban and racial/ethnic differences in access to care using two under-researched domains of healthcare access. It also allows for exploring access disparities within rural communities amongst minority populations. The area of focus will be Arkansas, Louisiana, Oklahoma, and Texas,

consistent with the Census Bureau's Region 3, Division 7. This area is also known as the West South Central region. Focusing on this region ensures that black, Latinx/Hispanic, Indigenous, and Asian populations are represented in the analysis. The West South Central region is the only area in the United States that captures all racial and ethnic minority populations and has rural counties with majority people of color. This region also has a rich historical, political, and social context that can be tied to health disparities and inequities for racial and ethnic minority populations. The context is provided in Chapter 2.

Figure 1: Rural Americans of Color in 2020 (Rowlands & Love, 2021).



Within the past five years, the National Association of Social Workers (NASW) and the American Academy of Social Work and Social Welfare (AASWSW) have set social justice priorities to broaden our understanding of healthcare access and improve it. These priorities represent pressing issues and are areas that could benefit from social

work expertise and leadership. The NASW has called for its membership to advocate for addressing the social determinants of health, of which access to healthcare is one, and a Medicare-based single-payer health system since before the ACA. Simply, the NASW is concerned about healthcare access for all (NASW, 2016).

Similarly, the AASWSW claims that too little attention has been given to the social determinants of health and that promoting full access to health care should be a priority (Walters et al., 2016). Healthcare access is a priority for the NASW and AASWSW because a lack of healthcare access stems from social disadvantages often grounded in socioeconomic disparities and race-based discrimination. More specifically, the populations residing in communities with poor social determinants of health often experience these disparities in a cumulative, intergenerational manner that negatively impacts their health (Walters et al., 2016).

Furthermore, social work seeks to respond to the needs of disadvantaged populations and address structural forms of injustice. Rural, racial, and ethnic populations are historically disadvantaged and require micro and macro-level social work intervention. The trend toward racially and ethnically diverse rural communities presents new challenges and a need for interdisciplinary and interprofessional responses (McBeath, 2016). A social work response to the problem of inequitable healthcare access for rural and ethnic minority populations could include input from public health, medicine, education, and public policy. Collaborating with other professions and disciplines could stimulate innovative solutions to these complex problems.

CHAPTER 2: LITERATURE REVIEW

This chapter will begin with exploring the definition of rural and identifying the racial and ethnic minority populations in rural Arkansas, Louisiana, Oklahoma, and Texas. Then, a brief history of the migration patterns of racial and ethnic people in the United States. Such history is crucial because it gives context to the recent trend towards increasingly racially and ethnically diverse rural communities. It also provides the opportunity to highlight some of the economic, social, and health-related consequences of migration, further highlighting the importance of healthcare access and the context in which care is provided. Next, this chapter will provide the theoretical underpinning for the study: structural urbanism and structural racism. Barriers and facilitators of healthcare access will be evaluated through the lenses of structural urbanism and structural racism using the Andersen et al. (2013) Behavioral Model of Health Services Use. The Andersen et al. (2013) model provides a conceptual framework for organizing the factors affecting the selected access domains.

Definitions of Rurality

A foundational step in conducting research is operationalizing and conceptualizing significant concepts. Rurality must be defined because this study focuses on urban-rural differences and differences within rural populations. However, not even the federal government uses a consistent definition of rurality (Isserman, 2005; Hall et al., 2006; Hart et al., 2011; Ratcliffe et al., 2016). For example, the Census Bureau uses an urban and rural taxonomy based on population: urbanized areas have cores with

populations of 50 000 or more, and the urban clusters have cores with populations that range from 2500 to 49 999. All other areas are considered rural (Hart et al., 2011; Ratcliffe et al., 2016). The Office of Management and Budget (OMB) uses metropolitan and non-metropolitan classifications at the county level. The US Department of Agriculture Economic Research Service uses Urban Influence Codes (UICs) that further break down metropolitan and non-metropolitan counties. Under this classification, there are two metropolitan and seven non-metropolitan classifications. The most recent rurality classification is the Rural/Urban Commuting-Area (RUCA) Taxonomy. This classification uses census tract–level demographic and work-commuting data to define 33 categories of rural and urban census tracts (Hart et al., 2011).

The problem with many rurality classifications is confusion, which is problematic when targeting resources to underserved communities or conducting rural research. Even more confusing is that there is no perfect classification of rurality. While one taxonomy may make sense for a policy or research study, it may not make sense for another. Policymakers and researchers are responsible for choosing the most helpful classification for their application (Hart et al., 2011; Ratcliffe, 2016; Ziller & Milkowski, 2020).

Unfortunately, the Behavioral Risk Factor Surveillance System (BRFSS) survey utilizes the 2013 National Center for Health Statistics (NCHS) urban-rural classification, offering only binary options of urban or rural (CDC, 2018b). It is possible that with this binary option, some accuracy may be lost, which could result in masking rural areas' vulnerabilities and diversity. However, it is common for nationally representative, publicly available datasets to have basic urban-rural classifications (Isserman, 2006; Hart et al., 2011; Ratcliffe, 2016; Ziller & Milkowski, 2020).

Prevalence of Rural Racial and Ethnic Minority Populations

It must be acknowledged that "rural" should no longer be equated with "white" (Rowlands & Love, 2021). Since 2000, the minority population in over 1,700 rural counties has increased. These rural counties represent 84% of all counties. African Americans comprise 8% of the rural population and have not increased dramatically since 1980. Hispanics account for about 9% of the rural population and are the fastest-growing minority group residing in rural areas (Cromartie, 2018). While the rural US is still predominantly white, 24% of residents are people of color. Between 2010 and 2020, rural counties saw a median increase of 3.5% in their populations of color (Rowlands & Love, 2021). Furthermore, by 2043, it is predicted that racial and ethnic minorities will become the majority for the first time in the United States (Wilbur et al., 2020). Such demographic shifts underscore the need to develop policies and strategies that support quality-of-life improvements for rural minority populations.

Table 1: Percentage of Rural Racial and Ethnic Minority Populations by State (RHIH, 2020)

State	African American	Asian	Hispanic	American Indian/Alaska Native	Hawaiian/ Pacific Islander	Two or More Races
Arkansas	14.1%	0.6%	5.6%	0.5%	0.1%	5.1%
Louisiana	31.0%	0.6%	3,4%	0.8%	0.1%	3.7%
Oklahoma	3.2%	1.0%	8.5%	12.3%	0.1%	12.0%
Texas	7.3%	0.7%	34.1%	0.6%	0.1%	9.6%
US Average	7.9%	1.0%	8.8%	2.2%	0.1%	5.4%

Understanding how racial and ethnic minority populations began and continue to populate rural spaces is consistent with social work's person-in-environment concept. The historical and modern context, locality, and place are essential to centering the experiences of racial and ethnic minority populations (Zapf, 2009). It is also true that immigration and migration are often a response to unequally distributed social and economic opportunities, highlighting the need to balance humanitarian goals with access to resources (Tienda & Sanchez, 2013). Therefore, this section will focus on social environments and structures that led to migration to rural areas and their impact on these populations.

The Migration of African Americans: From the Rural South and Back Again

Over its entire history, the United States (US) has transformed from a predominantly rural agricultural nation to an urbanized and industrial one. The US population has been moving from isolated rural areas to larger cities. Industrialization drew workers to cities, promising improved quality of life, recreation, and cultural opportunities (Boustan et al., 2013). Public health interventions like clean water and sewer systems also made cities more attractive as the disadvantages of close proximity to others, such as infectious and waterborne diseases, became less threatening. Urban economics quickly garnered the attention of white-collar workers and educated individuals seeking technical jobs requiring specialized knowledge. Thus, the concept of central business districts (CBDs) was realized (Boustan et al., 2013). Many cities organically organized themselves to have CBDs where most business and employment activity occurred. Residents of these areas typically had higher incomes and rents than their counterparts outside the CBD. Households then had to decide whether to pay the

higher rents or move further away and face a commute. This dynamic led to significant suburbanization between 1940-1970 (Boustan et al., 2013).

During this time, significant demographic and social shifts occurred within cities. Crime rates rose, and so did racial and ethnic diversity. Affluent white individuals began leaving cities in droves, while African Americans gravitated from the rural South towards urban centers in the North to earn higher incomes (Boustan et al., 2013). This phenomenon is now referred to as the "White Flight" and the "Great Migration." Between 1940 and 1970, at least four million African Americans left the rural south and settled in urban areas in the north and west areas of the country. Modern estimates suggest that two white individuals departed for every African American who took up residence in an urban center (Boustan, 2010). For context, in 1910, 90% of African Americans lived in the rural south. By 1970, less than half did (Collins, 2020). The Great Migration is recognized as one of the most significant demographic shifts in the twentieth century (Tolnay, 2013; Collins, 2020).

One of the reasons The Great Migration is so significant is because it is a prime example of the interaction of race, economics, and politics. It also serves as an essential story in connecting historical and modern racial inequality in the US (Collins, 2020). An analysis of Census Bureau, Social Security Administration, and Medicare data by Black et al. (2015) suggests that mortality rates increased by about half for African American women and somewhat less than half for African American men. Several potential causal mechanisms were identified in this work. Migration may have negatively impacted health due to the increased stress of being separated from families and communities. There may have been increased exposure to environmental hazards or poorer sanitary conditions, and

increases in unhealthy behaviors such as smoking, alcohol consumption, and poor diet are also possible.

Black et al.'s (2015) examination of Behavioral Risk Factor Surveillance System (BRFSS) data from 1916-1932 suggests that smoking and alcohol consumption were highest amongst men and women who migrated to another community in the south and even higher for those who migrated north. According to indications on death certificates for migrants, chronic obstructive pulmonary disease (COPD) and cirrhosis are the most common causes of death for male and female migrants. This finding is significant because smoking increases mortality due to many disease processes, including COPD. The risk of death from COPD is more than twenty times higher for smokers than those who have never smoked. Stroke, heart disease, and cancer are also linked to smoking (Thun et al., 2013). Similarly, heavy alcohol consumption contributes to several disease processes, most commonly liver cirrhosis (Rehm et al., 2010).

Interestingly, some authors have pointed out that The Great Migration coincided with the beginnings of the civil rights movement (Calderon et al., 2021; Collins, 2020). At the beginning of the migration, African Americans could not vote in most southern states. In contrast, no laws prevented their participation in the north. The sheer influx of potential African American voters certainly incentivized the development of civil rights legislation (Calderon et al., 2021; Collins, 2020). Ultimately, northern legislators and grassroots organizations like the National Association for the Advancement of Colored People (NAACP) and the Congress for Racial Equality (CORE) were crucial to the adoption of the Civil and Voting Rights Acts of 1964 and 1965 (Calderon et al., 2021; Collins, 2020).

American Indian and Alaska Native: Forcibly Removed

The American Indian reservations, Pueblos, Rancherias, Alaska Native Villages, Oklahoma Tribal Statistical Areas, and surrounding counties are home to the majority of American Indians and Alaska Natives (AIAN) in the United States. Most AIAN (over 54%) live in rural areas and small towns. Over 68% live on or near their tribal lands (Dewees & Marks, 2017). However, this land, primarily Oklahoma, is not the original land of the American Indians currently living in this area. The Cherokee, Creek, Choctaw, Chickasaw, and Seminole tribes were forcibly removed from their ancestral lands to present-day tribal lands. This forcible removal is known as the "Trail of Tears" (Bowes, 2007). Up to 25% of American Indians did not survive the journey.

The Trail of Tears began with the Indian Removal Act, signed by Andrew Jackson in 1830. This law forced American Indians to leave their homes in Georgia, Tennessee, Alabama, North Carolina, and Florida so that white settlers could grow cotton on the land. Removal also occurred in northern states. Motivated by the potential economic gain of growing lucrative cotton crops, white settlers became violent, ultimately stealing from and killing American Indians. The removal was also brutal - up to 25% of American Indians did not survive the journey. Estimates suggest that over 16,000 American Indian lives may have been lost during removal (Bowes, 2007).

Due to the forced removal process, many tribes were vulnerable to food insecurity, disease, and military pressure (Kruse et al., 2022). Many tribes signed treaties with the US government that surrendered their territory in exchange for education, healthcare, and other necessary services. The Bureau of Indian Affairs (BIA) was created in 1824 to manage these services. Initial healthcare efforts focused on providing smallpox

vaccines and controlling alcohol commerce. Later in the nineteenth century, the BIA facilitated the forcible removal of thousands of AIAN from their homes to boarding schools to facilitate cultural assimilation (Kruse et al., 2022).

Infectious disease mortality and malnutrition plagued AIAN populations despite the work of the BIA. In 1921, the Snyder Act was passed, establishing a health division with a formal budget within the BIA. However, the budget was funded by discretionary dollars and was not stable. A significant benefit of the Synder Act is that all AIAN populations could receive care, regardless of residence, extending services to AIAN individuals living in metropolitan areas (Kruse et al., 2022).

With the passing of the Indian Reorganization Act of 1934, a federal trust responsibility of the US government to AIAN tribes was created. The act emphasized sovereignty, self-determination, and economic self-sufficiency. This legislation ultimately led to the creation of the Indian Health Service in 1954, which is the present-day healthcare provider for federally-recognized tribes and AIAN populations. Over the decades, further acts were passed that increased funding and access to the IHS. Presently, the IHS provides healthcare services to over 2 million individuals (Kruse et al., 2022).

Despite the work of the IHS, according to the Office of Minority Health (OMH), death rates for AIAN individuals are higher than all other races in the United States. In 2020, the life expectancy for AIAN individuals was 78.4 years, 81.1 years for women, and 75.8 years for men. AIAN life expectancy is significantly lower than the non-Hispanic white life expectancy of 80.6 years, 82.7 years for women, and 78.4 years for men. AIAN's leading causes of death are heart disease, cancer, unintentional injuries (accidents), diabetes, and stroke. This population also has higher prevalence rates of

mental health and suicide, unintentional injuries, obesity, substance use, sudden infant death syndrome (SIDS), teenage pregnancy, diabetes, liver disease, and hepatitis compared to other racial and ethnic groups (OMH, n.d.).

Historical trauma, like the Trail of Tears, has collective and cumulative intergenerational effects that may explain some of these poor health outcomes that persist across generations. After all, forced removal caused disruptions in family structures, poor mental health, cultural breakdown, and a mistrust of outsiders and government entities (Substance Abuse and Mental Health Services Administration, 2014; Brown-Rice, 2014; Schultz et al., 2016; Brown, 2022). Traumas like those listed above affect the functioning of the sympathetic nervous and endocrine systems by triggering the flight, fright, or freeze response. As individuals face additional trauma or threats to their safety, this response triggers with greater efficiency, which may lead to long lasting health implications (Solomon & Heide, 2005; Kendall-Tackett, 2009)

Asian Populations

Asian populations settled in southern states in 1860, though at meager rates. It is important to note that although there are similar experiences among the different populations that constitute the Asian racial/ethnic group, the reality is this group is highly diverse. Some of the most common groups in the area of interest include Chinese, East Indians, Filipinos, Indochinese (Cambodia, Laos, Viet Nam), Japanese, Koreans, and Thais (Glasrud, 2001). Unlike accounts of Asian populations in western states like California, historical accounts of this population in Texas, Oklahoma, Arkansas, and Louisiana remain scarce. Part of the lack of documented history is due to the unfavorable perception of white individuals of Asian populations. In western states, Asian individuals

were often viewed as “model minorities” because of their socioeconomic success (Glasrud, 2001; Ngai, 2017).

The early waves of Asian migration into the rural south were primarily led by Chinese immigrants who worked on plantations, railroads, or farms. Most of these workers were young men who provided unskilled labor (Glasrud, 2001). However, after an influx of Chinese immigrants into the United States, the Chinese Exclusion Act of 1882 was signed, suspending Chinese immigration for ten years. This Act also declared Chinese immigrants ineligible for naturalization (Glasrud, 2001; Kammer, 2015; Ngai, 2017; Yuill, 2021).

Asian immigration was further restricted by the Immigration Act of 1917. The Act implemented a literacy test for immigrants over 16 years old. The literacy test could be taken in any language. The Immigration Act of 1917 also increased taxes that new immigrants had to pay upon arrival, allowed immigration officials more discretion over entry decisions, and outlined the “Asiatic Barred Zone.” The Asiatic Barred Zone excluded all Asian immigrants except for Japanese and Filipinos. By 1921, it was clear that these measures did not restrict immigration as much as Congress wanted, so a quota system was introduced. These quotes limited the number of visas available to 350,000 annually (Glasrud, 2001; Kammer, 2015; Ngai, 2017; Yuill, 2021).

In 1924, the Johnson-Reed Act was overwhelmingly passed by Congress. This immigration act adjusted the quota system so that a more significant percentage of visas were available to individuals from the British Isles and Western Europe, and fewer were available for the rest of the world. A notable feature of the Johnson-Reed Act was excluding entry to any alien ineligible for citizenship by their race or nationality. At the

time, there were existing nationality laws from 1790 and 1870 that banned all Asian individuals from naturalizing, including Japanese and Filipinos (Glasrud, 2001; Kammer, 2015; Ngai, 2017; Yuill, 2021). These highly restrictive immigration laws remained in place until the Hart-Celler Immigration Act of 1965. This act abolished the quota system and prioritized family reunification, stimulating the rapid growth of immigration. By 1980, immigrants came primarily from Latin America, Asia, and Africa (Glasrud, 2001; Kammer, 2015; Yuill, 2021).

Now Asian populations are among the fastest-growing rural minority groups in the United States (Economic Research Service, n.d.; Holland & Palaniappan, 2012; Yom & Lor, 2021). However, this diverse group of individuals are often mistakenly viewed as homogeneous. Asian Americans have several differences including language, educational attainment, socioeconomic status, insurance status, and health outcomes. When survey research is designed, this population usually falls into one "Asian" category, which does not acknowledge the heterogeneity of the group (Holland & Palaniappan, 2012; Yom & Lor, 2021; Saw et al., 2022). Additionally, this population is often stereotyped as the "model minority", meaning this group does not face disadvantage or lack privilege. This term was coined in the 1960s during the Civil Rights Movement to deny the existence of institutional racism (Holland & Palaniappan, 2012; Yom & Lor, 2021).

The model minority stereotype and failure to disaggregate health data for Asian subgroups may understate the seriousness of known health disparities and inequities (Holland & Palaniappan, 2012; Yom & Lor, 2021; Saw et al., 2022). Based on the available data, the Office of Minority Health (2021) reports that Asian Americans are most at risk for cancer, heart disease, stroke, unintentional injuries (accidents), and

diabetes. This group also has high prevalence of chronic obstructive pulmonary disease, hepatitis B, HIV/AIDS, smoking, tuberculosis, and liver disease.

Hispanic/Latinx

Before the English founded Jamestown, Spanish settlers had landed in the southwest. However, the first significant increase in Hispanic/Latinx populations in the United States came from the US-Mexican War (1846-1848) and the Gadsden Purchase, which allowed the US to acquire about half of Mexico's land. During the 19th and 20th centuries, Mexican workers were heavily recruited to fill the workforce shortages in the southwest (Tienda & Sanchez, 2013). Of course, Hispanic/Latinx immigration to the United States was also affected by the immigration policies outlined above (Glasrud, 2001; Kammer, 2015; Ngai, 2017; Yuill, 2021).

The Cuban Revolution from 1953-1959 also contributed to a significant influx of Hispanic/Latinx populations. Many undocumented Cubans left their country to seek freedom in the United States (Tienda & Sanchez, 2013). In 1966, the Cuban Adjustment Act was passed, allowing these undocumented residents to apply for permanent residency after one year. Cuban individuals also benefited from the 1980 Refugee Act, which adopted the United Nations' definition of a refugee. The third wave of Cuban immigrants arrived in the mid-1990s, triggering the passing of the Cuban Migration Agreement. This policy stated that Cuban immigrants who the US Coast Guard apprehended at sea would be returned to Cuba, while those that made it to shore could stay in the US (Tienda & Sanchez, 2013).

The US approach to immigration changed in 1996 with the passing of the Immigration Reform and Immigrant Responsibility Act (IIRIRA). The IIRIRA intensified

border fortification and expanded deportation criteria. There is now a more significant effort on border enforcement and penalties for individuals who enter the US without authorization or those who stay beyond their approved visa period. However, it is difficult to control the flow of unauthorized immigrants because of deeply entrenched smuggling networks and fraudulent document industries that easily circumvent the law (Tienda & Sanchez, 2013).

In 2017, then-President Donald Trump signed a series of immigration-related executive orders that authorized a border wall with Mexico and modified Immigration and Customs Enforcement policies, resulting in a period of increased immigration arrests. The executive orders also banned US entry for individuals from several predominantly Muslim countries (Bruzelius & Baum, 2019). Studies have shown that these anti-immigration policies negatively impact the mental and physical health of the targeted populations because of the fear and stigma they cause (Vargas et al., 2017; Morey, 2018; Wallace & Young, 2018; Bruzelius & Baum, 2019; Eskenazi et al., 2019; Garcini et al., 2020). More specifically, this population reported more frequent mental distress, more days of poor mental health and at least one day per month of poor mental health in the months following the immigration law changes (Bruzelius & Baum, 2019). Other reported effects include increased depression and anxiety levels, poor sleep, and negative blood pressure changes (Eskenazi et al., 2019).

Structural, Institutional, and Systemic Racism

Structural racism acknowledges that racism is deeply embedded in systems, laws, policies, and practices. It argues that racism is more than individual prejudices and biases. It is entrenched and reproduced by cultural and social norms. In some cases, governments

implement structural racism through policies. For example, the government is responsible for residential segregation policies, institutional barriers to home ownership, schools' dependence on local property taxes, and biased policing. These policies and practices reinforce racism by limiting opportunities, privileges, and rights for communities of color. The immigration and migration policies and occurrences detailed above highlight some examples of historical structural racism affecting the populations of interest.

For the purposes of this study, the focus is racism in healthcare, which cannot be understood without examining the origins of modern medicine. Modern medicine has its roots in scientific racism and eugenics (Bailey et al., 2021). Scientific racism, used culturally, influenced scientific theory and inquiry to claim that race was a biological and genetic attribute. One of scientific racism's most cited findings is that white people were superior in ability and intelligence based on cranial measurements. This idea was popularized by Samuel Goerge Morton, a prolific physician and scientist in the early 19th century (Jackson et al., 2005). Another example of culturally influenced scientific racism can be found in the work of Samuel Cartwright, a southern physician who described a mental illness called "drapetomania" in 1851. Claimed Drapetomania, a mental illness, caused enslaved Africans to run away from their subjugation. Cartwright also described "dysaesthesia aethiopica", a supposed disease in Africans that caused reduced intellectual ability, laziness, and partial skin insensitivity (Bailey et al., 2021).

In the early 20th century, the modern eugenics movement, informed by scientific racism, and skepticism, swept through the US. The US's two most popular forms of eugenics were miscegenation and forced sterilization. Anti-miscegenation laws prohibited interracial marriage to protect whiteness. Similarly, forced sterilization of

undesirable races occurred between 1907 and 1963. Over 64,000 individuals were forcibly sterilized, legal under US law (Jackson et al., 2005; Gilmore & Moffett, 2020; Bailey et al., 2021). Other examples include using Henrietta Lacks' cells for scientific research without consent and the Tuskegee Syphilis Study (Tong & Artiga, 2021).

Racism continues to be present in assessing, diagnosing, treating, and preventing diseases and illnesses in racial and ethnic minorities (Opara et al., 2022). Its presence is problematic because it leads to the oversight of social determinants of health and could result in poor quality care (Chowdhury & Madden, 2021). Research demonstrates that racial and ethnic minorities receive fewer diagnostic and treatment interventions than their non-Hispanic white counterparts (Smedley et al., 2003; Williams et al., 2019; Tong & Artiga, 2021). Three fundamental mechanisms contributing to these diagnostic and treatment disparities have been identified.

First, provider and institutional bias contribute to racial differences in diagnosis and treatment decisions (Tong & Artiga, 2021). This bias is evident before the provider graduates and practices. A study of 250 pre-health professions students at the University of Texas showed significant agreement with false statements about biological, behavioral, and cognitive differences among races. Students in the first two years of their education were more likely to agree with these false statements than those further in their education, suggesting that scientific racism may decrease with education (Chowdhury & Madden, 2021). Training and education for medical students have focused on disparity statistics, power analyses, and cultural competence. However, these approaches address the symptoms of racism rather than the causes, and are therefore limited (White-Davis et al., 2018).

A systematic review by Hall et al. (2015) also demonstrated that most healthcare providers hold positive attitudes towards non-Hispanic white patients and negative attitudes towards patients of color. This finding is significant because provider bias is correlated with poorer provider-patient interactions, which impacts patient satisfaction (Tong & Artiga, 2021). For example, racial and ethnic minorities are more likely to report being treated unfairly or disrespectfully, having negative experiences with their provider, being refused a test or treatment they felt they needed, and having difficulty finding a provider that shares their background and experiences (Hall et al., 2020).

Second, some preclinical training materials have serious inaccuracies related to disease stereotyping and conflating race and ancestry. Racial and ethnic differences in disease burden are often presented without historical and social context, thereby contributing to students' belief that a disease may be strictly genetic (Tong & Artiga, 2021). The incorrect understanding of a disease's etiology reinforces the scientific racism described above and potentially limits diagnostic access for specific racial and ethnic groups. For example, sickle cell anemia affects all racial and ethnic populations, with the highest prevalence in Africa, the Middle East, certain parts of the Mediterranean, and Asia. However, medical professionals are taught to have higher clinical suspicion for the disease in Black patients, leading to missed and late diagnoses in patients who are not Black (Tong & Artiga, 2021).

Third, race is often used in clinical calculators and screening metrics. The problem here is that race is a poor proxy for genetic ancestry, so using race in these tools can lead to the undertreatment and overtreatment of racial and ethnic minority populations and delays in diagnosis and care (Flanagin et al., 2021; Tong & Artiga,

2021). At least thirteen commonly used tests and calculators rely on race and/or ethnicity as part of their formula. Areas include pulmonary function testing, rectal cancer survival estimates, urinary tract infection calculator for children, predicting kidney stones, and kidney functioning. Several risk assessments use race and ethnicity, such as breast cancer, osteoporosis, fractures, kidney donorship, heart failure, and short-term surgery outcomes. This list is not exhaustive but highlights the pervasiveness of race and ethnicity in medical calculations (Linder, 2020; Vyas et al., 2020; Flanagin et al., 2021).

Vyas et al. (2020) provides specific examples of the dangers associated with these tools. For example, the heart failure risk tool consistently predicts lower risk for Black patients but does not provide a rationale. As a result, providers and hospitals could dedicate fewer resources to these patients and potentially delay heart failure diagnosis. Similarly, the kidney function tool consistently overestimates Black patients' kidney functioning, which may delay intervention and result in poorer outcomes. Most troubling about these tools is that providers typically cannot easily access the formulas that are used and thus cannot immediately see how impactful race or ethnicity is on the overall outcome (Vyas et al., 2020).

Structural Urbanism

Structural urbanism in healthcare is best defined as a bias toward large population centers. Large population centers are favored over rural areas because of the volume of paying patients required to make healthcare services viable. Simply put, providers need to see patients to maintain a feasible business. Under structural urbanism, healthcare is viewed as a service rather than infrastructure needed to support the population's needs. Less healthcare infrastructure is available in rural areas where profit is more difficult to

generate due to smaller populations. For example, rural hospitals and related organizations have been closing for several decades, directly resulting from reduced public health and healthcare funding for rural areas (Probst et al., 2019). More manifestations of structural urbanism will be discussed below.

Structural urbanism is often upheld by misconceptions about rural people and poor data (Dewees & Marks, 2017). For example, the term “white trash” refers to white people – most often rural – living– living in poverty., The term has always been loaded with misconceptions about social behaviors and intelligence. From 1880 to 1920, the United States Eugenics Records Office (ERO) conducted many studies on poor, rural white people to prove that they were genetically defective. Studies would start by locating incarcerated or institutionalized relatives and tracking genealogies back to a “defective” person. These studies were critical to establishing poor, rural, white identities as degenerates, hillbillies, dirty, drunken, incestuous, criminal, and unintelligent (Newitz & Wray, 2013).

In the early twentieth century, politicians used poor, rural whites as propaganda to support their desire to end welfare and private giving to the poor. Under the guise of research, medical practitioners conducted involuntary sterilizations and forced institutionalization upon poor, rural whites (Newitz & Wray, 2013). Between 1927 and 1957, approximately 60,000 Americans were forcibly sterilized. Many sterilized individuals were poor, rural, white women (Stubblefield, 2007).

Andersen’s Behavioral Model of Health Services Use

The Behavioral Model of Health Services Use by Andersen et al. (2013) has six dimensions: potential access, realized access, equitable access, inequitable access,

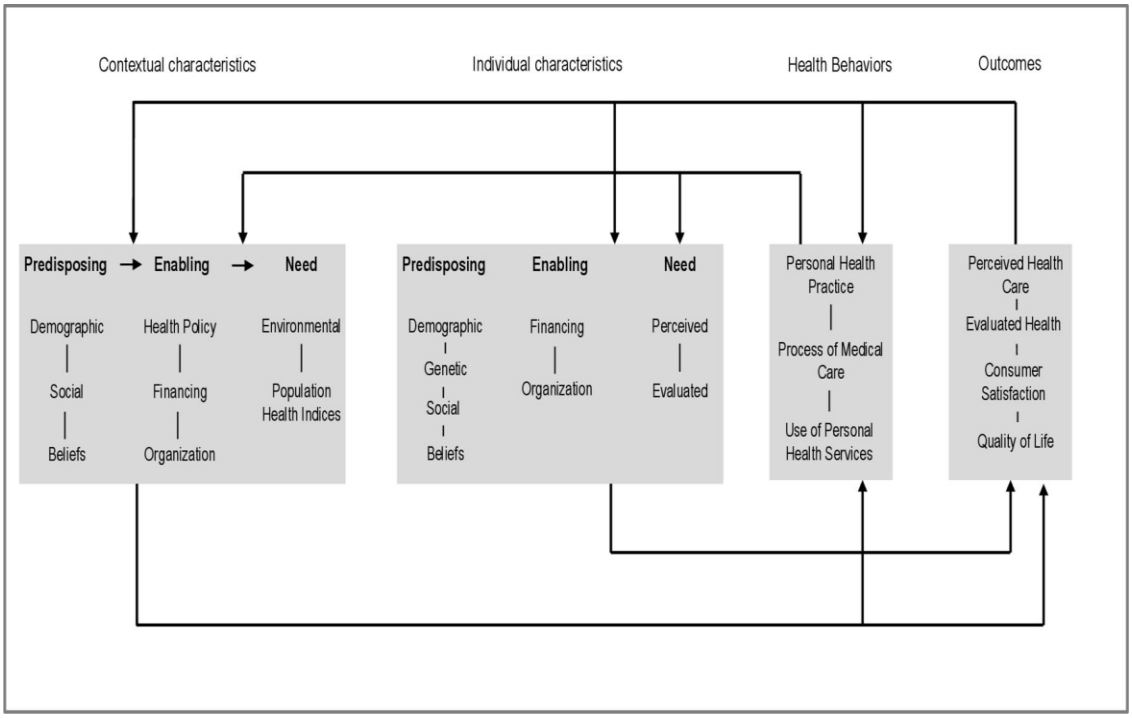
effective access, and efficient access. Each one of these dimensions contains individual and contextual factors that increase or decrease the kind of access measured by the dimension. Potential access is concerned with factors that increase or decrease the likelihood of access to the healthcare system, such as health insurance status or household income. Realized access measures the actual use of healthcare services. Examples of this dimension include the number of physician visits. Equitable access focuses on the impact of individual sociodemographic factors such as age, ethnicity, and insurance status on realized access. The idea here is that equitable access is present when sociodemographic characteristics and personal resources do not account for most of the variance in utilization. Inequitable access is present when health services are distributed based on those factors. Effective access focuses on improving health outcomes such as self-perceived health status or satisfaction with a healthcare provider. Efficient access is similarly concerned with improving health outcomes and considers the cost-effectiveness of services.

Some areas overlap between the models presented by Levesque et al. (2013) and Andersen et al. (2013). Approachability, acceptability, availability and accommodation, and affordability complement potential access. An individual's ability to perceive the need for healthcare services, seek them out, reach them, and pay for them will influence the likelihood of accessing healthcare. In negative terms, an individual who cannot perceive the need for care nor the ability to seek or reach it or pay for services does not have potential access to the healthcare system. Both models also utilize a social justice lens to examine healthcare access; however, Andersen et al. (2013) are more explicit in espousing this lens, evidenced by its equitable access dimension. The Andersen et al.

(2013) model also lends itself well to identifying potential interventions to address inequities, and the BRFSS covers more of the constructs in the Andersen et al. (2013) model. Although systemic interventions can make the most considerable impact in narrowing health disparities, interventions targeting individuals can also improve individual health and well-being.

The Behavioral Model of Health Services Use by Andersen et al. (2013) emphasizes both individual and contextual factors determine an individual's access to medical care. These factors can be further classified into three components: 1) individual or contextual conditions that predispose individuals to use or not use services (e.g., sociodemographic characteristics such as education level, ethnicity, age, etc.), 2) enabling conditions that facilitate or impede the use of services (e.g., health policies, income, etc.) and 3) the need that individuals or health care providers determine to require treatment (e.g., the prevalence of any disease, disability, perceived health status, etc.). It has been applied to a broad range of health services and diseases, including but not limited to long-term care, nursing homes, HIV, dental care, and mental health services (Babitsch et al., 2012). An illustration of the model can be seen below in *Figure 2*.

Figure 2: Andersen's Behavioral Model of Health Services Use.



Usual Source of Care

A usual source of care (USC) provides ongoing primary care, coordination with specialty and ancillary services, and early disease identification. A key feature of USC is preventive care, which contributes to less life lost to disease (i.e., lower mortality rates) and fewer incidences of inefficient care (i.e., emergency room visits for non-emergent issues) (Blewett et al., 2020). USC also contributes to higher patient satisfaction and lower healthcare costs (Doherty et al., 2020). However, despite the strong evidence of the benefits of USC and primary care, it has been dramatically underfunded in the United States (US). On average, the US spends 5-7% of total healthcare spending on USC/primary care. Peer countries, such as those in the Organization for Economic Cooperation and Development, spend an average of 14% on USC/primary care. The lack of investment is concerning because USC/primary care accounts for 48% of all physician

office visits and influences up to 90% of healthcare costs through referrals, testing, procedures, and hospitalizations (Jabbarpour et al., 2019).

Because of underinvestment in primary care and access barriers, the US has higher mortality rates for most of the leading causes of death compared to other countries, except for cancer. Furthermore, other key population indices, such as maternal mortality, tobacco use, suicide, substance use disorders, and poor nutrition, are seeing a reversal in progress made in previous years (Doherty et al., 2020).

Using the Andersen et al. (2013) model as a framework, several known individual factors would predispose an individual to have a usual source of care. For example, there is a significant association between age and access to a usual source of care (USC), with older adults having increased access. For adults aged 18-44 years, the reported rate of primary care access was 60.6%, for adults aged 45-64 years, the reported rate was 78.8%, and for adults aged 65 years and older, the rate was 89.3% (ODPHP, 2018a). This finding is not consistent with Thompson et al. (2016), which found that younger patients were more likely to see their USC for a health concern than their older counterparts. Thompson et al. (2016) acknowledge that this finding is unusual and inconsistent with the literature. However, they suggest that public health messages may have encouraged younger people to speak more freely about their health and pursue care.

Additionally, race and ethnicity are associated with varying access rates to a primary care provider. The rates of access to a primary care provider reported by the HP2020 update in 2016 are as follows: 69.4% for the Hispanic or Latinx population, 72.3% for the black non-Hispanic population, 71.8% for the Asian population, 73.4% for the American Indian or Alaska Native population, 78.1% for persons of two or more

races, and 79.6% in the white non-Hispanic population (ODPHP, 2018a).

Educational attainment is also associated with having access to a primary care provider. For example, according to the 2016 data from HP2020, approximately 69% of adults with less than a high school education reported having access to a primary care provider, whereas 75% of adults with some college education reported having access (ODPHP, 2018a). Higher educational attainment is associated with higher health literacy. Specifically, individuals with higher educational attainment are better at appraising health information and navigating the health care system. These skills contribute to increased access to primary care services (Jansen et al., 2018; Azzopardi-Muscat et al., 2019).

According to the latest HP2020 update, access to a primary care provider was 8.6% higher for women than men (79.5% versus 73.2%). A healthcare-seeking behavior study of 7,260 participants by Thompson Anisimowicz et al. (2016) found that women were significantly more likely to visit their USC for a physical health concern than men were.

In addition to predisposing factors, some factors enable or impede the use of healthcare services. Perhaps the most apparent factor in the United States is health insurance. Having health insurance is associated with an individual's likelihood of having a primary care provider. For example, approximately 44% report having no usual source of care for adults without any health insurance coverage. However, for individuals with private or public insurance coverage, about 80% and 76%, respectively report having a usual source of care (ODPHP, 2018a).

Similarly, individuals in households with family incomes at 600% of the Federal Poverty Guidelines (FPG) had the highest rate of access to a primary care provider at

79.8%. For individuals in households with incomes of less than 100% of the FPG, the rate of access to primary care was 72.8%. The other income groups report the following rates: 73.7% of individuals in households with incomes between 100% and 199% of the FPG, 75.6% of individuals in households with incomes between 200% and 399% of the FPG, and 78.9% of individuals in households with incomes between 400% and 599% of the FPG (ODPHP, 2018a).

According to ODPHP (2018a), no disparities are associated with disability status and access to a USC. However, others such as Kennedy, Wood, & Frieden (2017) report that individuals with disabilities face significant barriers to accessing a USC, typically due to having public insurance options such as Medicaid and Medicare. Okoro et al.(2018) note that younger people with disabilities are less likely to have health insurance and access to a USC. This finding is consistent with other findings regarding age: the older a person is, the more likely they are to have health insurance and a USC.

Obesity status is associated with having a USC. Individuals with obesity are more likely to have a USC than individuals without obesity (75.3% versus 71.4%, respectively) (ODPHP, 2018a). This finding is consistent with Thompson et al.'s (2016) finding that having a chronic condition significantly predicted a visit to a usual source of care. Several chronic conditions diagnosed and treated in primary care, such as diabetes, high blood pressure, and high cholesterol, are linked with obesity. Obesity is worsening in many states, including Texas, Arkansas, Oklahoma, and Louisiana. Women, minorities, and those aged 40-65 years are most likely to be obese (Ndetan et al., 2020).

Contextual Factors

Living in a Medicaid expansion state is a significant factor in determining whether an individual has access to health insurance and a USC (Griffith et al., 2017). Arkansas implemented the Medicaid expansion in January 2014. At the time of the expansion, Arkansas had a work requirement attached to its Medicaid program, which has been dropped. Louisiana implemented it in July 2016, and Oklahoma did in July 2021. Oklahoma's expansion language includes a prohibition on any additional burden or restrictions on eligibility or enrollment for the expansion population. Texas has not yet implemented expanded Medicaid and is one of twelve states without it. There have been no significant legislative efforts to expand Medicaid in Texas. (Kaiser Family Foundation, 2022).

Telehealth has become an increasingly popular way to access healthcare services, including USC/primary care, especially for those with transportation barriers experienced by low socioeconomic and rural populations. However, many individuals in rural areas lack broadband or do not have access to the internet speeds required for telehealth (Azzopardi-Muscat et al., 2019; Rural Health Information Hub, 2021). Broadband Internet is available to 74% of rural Americans. However, as of 2016 –2016 – just two years before this study's data was collected – only 69% of rural Texas had access to broadband (Mulverhill, 2019). Rural Oklahoma fares worse. In 2017, only 48% of rural Oklahomans had broadband access (Whitacre, 2021). Similarly, only 63% of rural Arkansans and 65% of rural Louisianans have access (Arkansas State Legislature, 2021; The Pelican Institute for Public Policy, 2021).

ODPHP (2018a) states no disparities are associated with either urban or rural residence and access to a USC. However, others, such as Kirby & Yabroff (2020), report that rural residents are more likely to have a USC than urban residents. These findings are surprising because of the number of rural counties that are designated as Health Professional Shortage Areas (HPSAs). An HPSA designation is given to an area, population, or facility experiencing a shortage of primary care, mental health, or dental providers. The Health Resources and Services Administration (HRSA) created this designation under its National Health Service Corps (NHSC) program, which was designed to connect medical workers with high-need areas. Other programs, such as the Centers for Medicare and Medicaid Services (CMS) use HPSAs to identify facilities that should receive a bonus payment. Other programs that utilize the HPSA as eligibility criteria include loan repayment programs and a J-1 visa program that allows internationally trained medical graduates to enter the United States to practice medicine in rural areas on an H-1B visa (HRSA, 2021).

HPSAs reflect a severe threat to healthcare access in rural communities because the supply of healthcare professionals in the area is limited. In March 2021, 61.47% of all primary care HPSAs in the US were located in rural communities (Rural Health Information Hub, 2021). As of March 2022, the percentage of primary care HPSAs in rural communities has increased to 65.55%. Nearly 5,000 primary care providers are needed to end the shortages (HRSA, 2022). Primary care is especially critical in rural areas as it can fill some of the responsibilities of specialty care, which can significantly distance isolated communities. For example, primary care may be appropriate for addressing some mental health concerns. Almost 61% of mental health HPSA

designations are in rural communities, placing even greater importance on primary care access (Rural Health Information Hub, 2021).

The National Health Services Corps (NHSC) program was created in the 1970s in response to the primary care access crisis in the 1950s and 1960s. Congress created the NHSC through the Emergency Health Personnel Act of 1970. This program has been reauthorized and amended several times. However, its purpose has remained the same: it aims to place clinicians at facilities in HPSAs that may have difficulty recruiting and retaining providers (Heisler, 2017).

Several healthcare facilities aim to curb the impact of HPSAs: Federally Qualified Health Centers (FQHCs), Rural Health Clinics (RHCs), and Critical Access Hospitals (CAHs). These facilities serve rural areas, though FQHCs also serve urban areas. For primary care, only FQHCs and RHCs will be discussed. Both FQHCs and RHCs are considered safety net providers. Their goal is to increase access to primary care services. While there are many similarities in their mission and goals, there are some apparent differences. FQHCs must be nonprofit or public facilities that provide services across the lifespan, while RHCs can be for-profit and may offer specialized care. FQHCs are considered patient governed because of the 51% patient board member requirement, and there is no requirement for RHCs to have a board of directors. There are no minimum service requirements for RHCs, but FQHCs must provide maternity and prenatal care, preventive health and dental services, emergency care, and pharmaceutical services (Rural Health Information Hub, 2021).

The impact of FQHCs and RHCs is significant. FQHCs serve 1 in 5 rural residents and 63% of health center patients are a racial or ethnic minority (Nath et al.,

2016; Rural Health Information Hub, 2021). From 2005-2014, there was a significant increase in racial and ethnic minority patients and the young, low-income, uninsured, and Medicaid insured. Policy and funding changes, like the Affordable Care Act and subsequent Medicaid Expansion, can increase or decrease the capacity of these facilities (Nath et al., 2016). According to the Health Resources and Services Administration (2022), there are currently 14 FQHCs in Arkansas, 40 in Louisiana, 22 in Oklahoma, and 73 in Texas. Each of these FQHCs may have multiple service delivery sites. The Kaiser Family Foundation (2021) reports 110 RHCs in Arkansas, 190 in Louisiana, 102 in Oklahoma, and 317 in Texas.

It is important to note that there is a state regulatory mechanism to approve significant capital expenditures and projects for certain healthcare facilities. This mechanism is called a Certificate of Need (CON). A state health planning agency or other entity must review and approve projects that create new healthcare facilities or expand existing service capacity in states with a CON program. The goal of the CON program is to control healthcare expenditures by reducing duplicative services and ensuring all new facilities meet an established community need. Texas does not have a CON program. Oklahoma, Louisiana, and Arkansas do have a CON program, though only Louisiana`s program potentially affects primary care services. Louisiana requires approval for behavioral health service providers (Garcia & Pitsor, 2021).

Patient Satisfaction with Care

Patient satisfaction with care is an essential measure of effective healthcare access. It affects patient outcomes and retention in care and is a factor in provider reimbursement. The focus on patient satisfaction was pushed to the forefront by the

ACA's mandates to report quality measures such as patient satisfaction. Providers and hospitals are rewarded for how well they do on these quality measures and are often required to conduct quality improvement cycles on patient satisfaction. Some authors suggest that patient satisfaction is a proxy for a provider's ability to meet a patient's expectation of good service depending on sociodemographic factors such as age and gender. High levels of patient satisfaction are also associated with greater adherence to treatment plans (Prakash, 2010; Farley et al., 2014; Panda et al., 2016; Cohen et al., 2017; Dunsch et al., 2018).

Patient satisfaction is often analyzed utilizing patient surveys. The Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey is one of the most common (Fenton et al., 2012; Farley et al., 2014; Panda et al., 2016; Dunsch et al., 2018). CAHPS surveys are administered at multiple healthcare system levels and ask about patients' experiences with their providers. Surveys are also available for specific conditions, health plans, and facilities (Agency for Healthcare Research and Quality, 2021). Some facilities also develop their own patient satisfaction surveys, which commonly require patients to agree or disagree with a statement. These surveys frame experiences positively, creating an implicit bias in patient responses (Dunsch et al., 2018). On the BRFSS, there is only one question about satisfaction: "In general, how satisfied are you with the healthcare you received?" (CDC, 2018b). While this is a simplified measure, this variable has been used in dozens of publications, most recently by Wray et al. (2021) and Feldman et al. (2021).

Identifying patient-level factors that consistently affect satisfaction in the same direction is challenging, particularly for gender (Thiedke, 2006; Vranceanu & Ring,

2011). For example, some studies suggest no gender-based differences in patient satisfaction (Khan et al., 2022). However, other studies indicate gender differences (Panda et al., 2016; Plichta et al., 2018).

A study by Panda et al. (2016) found that income, age, race, and education are associated with patient satisfaction. There is an association between income and patient satisfaction: higher income levels report greater satisfaction. Seniors (65 years and older) have higher odds of being satisfied than any other group. Individuals who graduated from college had higher odds of being satisfied than those with a high school degree or lower. (Panda et al., 2016). Work by Thiedke (2006) is consistent with these findings.

The quality of a patient-provider relationship strongly impacts satisfaction with care (Weinhold & Gurtner, 2018). A provider's race and ethnicity impact patient satisfaction (Thiedke, 2006; Panda et al., 2016). However, there is an overall lack of diverse providers, too. A diverse workforce is needed to care for a diverse patient population. While the healthcare workforce is becoming increasingly diverse, most racial and ethnic minorities obtain entry-level or lower-paying jobs and do not often take provider-level positions (Wilbur et al., 2020).

Among active physicians in 2018, about 23% identified as a racial or ethnic minority, with Asians accounting for 17%, and Hispanic /Latinx and Black physicians accounted for 5.8% and 5.0%, respectively. One percent of Hispanic physicians identified as two or more races, and 0.1% identified as Native Hawaiian or Pacific Islander. The remaining 14.5% is classified as unknown or other (Association of American Medical Colleges, 2019). For perspective, the most recent Census Bureau (2021) report indicated that 43% of the United States population identified as a racial or ethnic minority: 18.5%

Hispanic/Latinx, 13.4% Black, 5.9% Asian, 2.8% two or more races, 1.3% American Indian or Alaska Native, and 0.2% Native Hawaiian or Pacific Islander.

Contextual Factors

The Patient-Centered Medical Home (PCMH) is a form of advanced primary care that is team-based, comprehensive, patient-centered, coordinated, accessible, and high-quality (Doherty et al., 2019). The hallmarks of PCMH include shared decision-making, care coordination, and 24/7 access to clinical advice. This integrated care model can address patients' medical, behavioral health, and social needs (Blount, 2003; Martin et al., 2014; Fraser et al., 2018; Perez Jolles et al., 2019; Kieu, 2021; Robinson et al., 2021). One of the rationales for this integrated model of care is that up to 80% of patients with a mental health condition will visit their primary care provider for treatment (Narrow, 1993). Furthermore, as much as 50% of all mental health conditions are treated in primary care (Kessler et al., 2005). As many as two-thirds of primary care providers report being unable to access mental health services for their patients due to workforce shortages, incompatible insurance, and other access barriers (Cunningham, 2009). There is some evidence that integrated primary care increases patient satisfaction (Blount, 2005; Martin et al., 2014; Fraser et al., 2018; Possemato et al., 2018; Kieu, 2021; Robinson et al., 2021).

Many health plans and states have adopted this service delivery model. As of 2019, almost 20% of primary care providers were practicing in a PCMH (Doherty et al., 2019). While the model purports to reduce cost while improving patient outcomes and satisfaction, the results are mixed due to the underinvestment in primary care overall (Doherty et al., 2019; Perez Jolles et al., 2019). Despite the mixed evidence, Oklahoma,

Arkansas, and Louisiana legislatures have approved several initiatives to bolster PCMH (The National Academy of State Health Policy, 2019).

Oklahoma benefited from Section 2703 of the Affordable Care Act, which allowed states to design health home services for Medicaid beneficiaries with chronic conditions. Oklahoma and Arkansas opted to participate in the Comprehensive Primary Care Initiative offered by the Centers for Medicare & Medicaid Services (The National Academy of State Health Policy, 2019; Primary Care Collaborative, 2022). This program strengthens primary care through population-based care management fees available to practices that provide five primary care functions. These functions are: (1) risk-stratified care management; (2) access and continuity; (3) planned care for chronic conditions and preventive care; (4) patient and caregiver engagement; and (5) care coordination across the medical system (Centers for Medicare & Medicaid Services, 2021). Louisiana is participating in the Comprehensive Primary Care Plus Initiative, which incorporates lessons from the original program, including practice readiness, care delivery redesign, performance-based incentives, health information technology, and claims data sharing (Centers for Medicare & Medicaid Services, 2021).

All states of interest, including Texas, participate in private payer innovations (Primary Care Collaborative, 2022). The most common form of private payer innovation is accountable care organizations. Accountable care organizations (ACOs) are groups of providers across different care settings that work together better to manage their shared patients in pursuit of financial incentives. ACOs aim to reduce duplication of services and provide effective, efficient care that results in cost savings to patients and the Centers for Medicare & Medicaid Services (Doherty et al., 2019).

Providing Culturally and Linguistically Appropriate Services (CLAS Standards) in healthcare can contribute significantly to a patient's quality of care and satisfaction. The initial CLAS Standards were released in 2000, and an enhanced version was released in 2013. These standards provide a framework for healthcare organizations to provide culturally and linguistically appropriate services that respect patients' health beliefs, preferences, and communication needs. All levels of a healthcare organization can benefit from CLAS Standards, as there are recommendations for governance, leadership, workforce, quality improvement, accountability, and direct care (National Committee on Quality Assurance, 2016). Arkansas, Oklahoma, and Louisiana do not have any state-led initiatives requiring cultural competency training or adherence to CLAS Standards. In 2019, there were three attempts to pass such legislation in Texas. However, it was unsuccessful and has not been tried again (Department of Health and Human Services, 2022).

One way the states of interest attempt to provide culturally and linguistically appropriate healthcare services is through community health workers. Community health workers (CHWs) are lay people in the community who serve as a bridge between patients and the healthcare system. They typically share the same race, ethnicity, language, experiences, and socioeconomic status as the patients they serve. Other names for CHWs include community health advisors, lay health advocates, promotoras, outreach educators, community health representatives, peer health promoters, and peer health educators. CHWs can provide translation, interpretation, culturally appropriate health education, care navigation, informal counseling, advocacy, and direct care services such as blood pressure screenings (Department of Health and Human Services, 2014).

According to the US Bureau of Labor Statistics (2022), CHWs are employed in all states of interest, with Texas reporting 4,690, Oklahoma reporting 450, Louisiana reporting 470, and Arkansas reporting 150. Overall, Texas uses the third highest amount of CHWs in the country. Interestingly, according to the National Academy for State Health Policy (2022), the work of CHWs is only reimbursable in Louisiana. Louisiana is one of fifteen states that reimburse CHW services.

The Intersection Race/Ethnicity and Urbanicity/Rurality

Racial/ethnic inequities in healthcare access exist regardless of urban or rural residence (Fiscella & Sanders, 2016; Park et al., 2021). However, rural residence and racism often combine to exacerbate health inequities (Ziller & Milkowski, 2020). For example, rural Black and American Indian/Alaska Native populations have a greater risk of developing care and experiencing poorer outcomes, including survival rates (Zahnd et al., 2021). Similarly, rural Black men have more advanced penile cancer at diagnosis and shorter survival (Hensley et al., 2021). Rural Black populations in West Virginia were least likely to receive COVID-19 testing (Hendricks et al., 2021).

CHAPTER 3: METHODS

This study aims to explore realized and effective access domains as outlined by Andersen et. al (2013)'s Behavioral Model of Health Services Use. This study is significant because it explores the relationship between race/ethnicity and urbanicity/rurality in two under-researched domains of healthcare access. It also allows for exploring access inequities within rural communities amongst minority populations. Exploring this relationship is important because little is known about the interaction of race/ethnicity and rural residence and the effects on access to a usual source of care or satisfaction (Caldwell, Ford, Wallace, Wang, and Takahasshi, 2016).

The available literature generally indicates that racial and ethnic minorities in rural areas have lower healthcare access compared to their urban counterparts or rural non-Hispanic whites (Mueller, Ortega, Parker, Patil, and Askenazi, 1999; Probst, Moore, Glover, Samuels, 2004; Cole, Jackson, and Doescher, 2013; Caldwell, Ford, Wallace, Wang, and Takahashi, 2016; Kirby & Yabroff, 2020). However, these studies do not tie their findings to theoretically distinct domains of access, which is helpful because differences in access to care are complex. Tying studies and findings to access domains provides organization and structure to the field. These studies also do not explore the interaction between race/ethnicity and urbanicity/rurality on the proposed outcomes. The table below summarizes the research questions and hypotheses.

Table 2: Research Questions and Hypotheses	
Research Question	**Hypotheses**
1. Is there a relationship between race/ethnicity and a usual source of care?	Racial and ethnic minorities will be less likely to have a usual source of care.
2. Does this relationship vary by urbanicity/rurality?	Rural, minority populations have less access to a usual source of care compared to their urban and white, non-Hispanic counterparts.
3. Is there a relationship between race/ethnicity and satisfaction with care received?	Racial and ethnic minorities will be less likely to be satisfied with care.
4. Does this relationship vary by urbanicity/rurality?	Rural, minority populations are less satisfied with care than their urban, white, non-Hispanic counterparts.

Data Source

This exploratory study will involve a cross-sectional secondary data analysis of the 2018 Behavioral Risk Factor Surveillance System (BRFSS) data. The BRFSS is a nationally representative, cross-sectional telephone and cellular survey of adults in the United States that utilizes stratified geographic sampling. Its objective is to "collect uniform state-specific data on health risk behaviors, chronic diseases and conditions, access to health care, and use of preventive health services related to the leading causes of death and disability in the United States" (Center for Disease Control and Prevention, 2018b, p.1). This survey began in 1984 and is the longest continuously conducted health survey worldwide (CDC, 2019).

Since 2012, when cellular phones were included in the survey, response rates have risen slightly. In 2018, the BRFSS had a response rate of over 53% for landline

contacts and over 43% for participants contacted via cell phone (CDC, 2019). This response rate is well above response rate thresholds in the literature. For example, some suggest 18%, while others recommend 33% (Groves, 2006; The Pew Research Center, 2012; Lindermann, 2021).

The BRFSS was also selected because it contains variables related to the access domains that Andersen et al. (2013) described. Although the National Health Interview Survey and the Medical Expenditure Panel Survey also have variables related to these access measures, they do not indicate whether a participant lives in an urban or rural area, which is a critical variable for empirically grounded hypotheses. No publicly available, nationally representative surveys categorize urban and rural participants in detail because of privacy concerns (Ziller & Milkowski, 2020).

Additionally, the BRFSS has been used for similar studies. Several studies have used the BRFSS to examine racial and ethnic disparities (Tung et al., 2017; Min, 2019; Stone & Carlisle, 2019; Tuthill et al., 2020; Adam et al., 2022). The BRFSS has also been used to evaluate urban-rural differences (Cohen et al., 2018; Carmichael et al., 2020; Cohen et al., 2022; Feiss et al., 2022; Locklar & Do, 2022). Having a usual source of care has also been evaluated using the BRFSS (Carpenter et al., 2018; Johnson, 2019; Baumgartner et al., 2020; Kendrick et al., 2022). Studies on patient satisfaction with care have also been conducted using this survey data (Ferrucci et al., 2021; Wray et al., 2021; Crittendon et al., 2022; Kim et al., 2022).

Study Inclusion Criteria

Only cases within Arkansas, Louisiana, Oklahoma, and Texas are included in the study. This area of focus is consistent with the Census Bureau's Region 3, Division 7.

This region was selected to ensure an adequate sample of urban/rural and racial/ethnic minority populations while also narrowing the scope. Narrowing the scope was crucial because it allowed for a deep dive into the framing of this study and the meaning of results. Also, as shown in Chapter 2, this region has historical significance for many racial and ethnic minorities and some variations in healthcare policies. The sample is composed of adults aged $\geq$ 18 years residing in Arkansas, Louisiana, Oklahoma, and Texas. These parameters resulted in a sample size of N = 26,955.

Dependent Variables

Two dependent variables are examined in this study: access to a usual source of care and satisfaction with care received. A usual source of care ("PERSDOC2") is addressed in the BRFSS question, "Do you have one person you think of as your personal doctor or health care provider?" Respondents had the option to indicate they do have a usual source of care (coded as a 1), multiple providers (2), or none (3). Whenever a respondent indicated no usual source of care, interviewers followed up by asking, "Is there more than one, or is there no person who you think of as your personal doctor or health care provider?". This follow-up ensured clarity and accuracy for individuals who have more than one usual source of care. Because "PERSDOC2" is a nominal variable with three categories, it was recoded into a binary variable. Responses coded (1) or (2) were recoded as 1 to indicate access to a usual source of care, while responses coded (2) shall remain the same to indicate no access to a usual source of care.

Satisfaction with care ("CARERCVD") is addressed in the BRFSS with the question, "In general, how satisfied are you with the health care you received? Would you say - very satisfied (1), somewhat satisfied (2), not satisfied (3)?" Similar to the

PERSDOC2 variable, this is a nominal level data point with three categories and was recoded into a binary variable. Responses now reflect satisfied (0) and not satisfied (1).

Independent and Control Variables

As illustrated in Chapter 2, the Behavioral Model of Health Services Use by Andersen et al. (2013) provides a framework for organizing individual and contextual factors that determine an individual's access to and satisfaction with health care services. Individual factors are immutable (e.g., race),) whereas contextual factors can be changed and influenced (e.g., state policy).) These factors serve as the independent and control variables for the study. Several of these variables have known effects on access to and satisfaction with healthcare services. Others, such as state of residence, may have an impact due to the policies enacted by the state. The table below details the independent and control variables included in the study, as well as corresponding descriptions and justifications for their inclusion.

Table 3: Independent and Control Variables

Variable	Description	Justification
State ("_STATE")	State FIPS code; only includes Arkansas, Louisiana, Oklahoma, and Texas.	This region was selected to ensure an adequate sample of urban/rural and racial/ethnic minority populations.
Insurance Status ("HLTHPLN1")	Question: Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?	Having health insurance is associated with an individual's likelihood of having a primary care provider (ODPHP, 2018a)
Sex ("SEX1")	Question: What is your sex?	Access to a primary care

	or What was your sex at birth?	provider was 8.6% higher for Women than men (79.5% versus 73.2%) (ODPHP, 2018a)
Education (“EDUCA”)	Question: What is the highest grade or year of school you completed?	Approximately 69% of adults with less than a high school education reported having access to a primary care provider, whereas 75% of adults with some college education reported having access (ODPHP, 2018a)
Income (“INCOME2”)	Is your annual household income from all sources: Less than $10,000, less than $15,000 ($10,000 to less than $15,000), less than $20,000 ($15,000 to less than $20,000), less than $25,000 ($20,000 to less than $25,000), less than $35,000 ($25,000 to less than $35,000), less than $50,000 ($35,000 to less than $50,000), less than $75,000 ($50,000 to less than $75,000), or $75,000 or more.	Individuals in households with family incomes at 600% of the Federal Poverty Guidelines (FPG) had the highest rate of access to a primary care provider at 79.8%. For individuals in households with incomes of less than 100% of the FPG, the rate of access to primary care was 72.8 (ODPHP, 2018a).
Overweight or obese (“_RFBMI5)”	Calculated: Adults who have a body mass index greater than 25.00 (Overweight or Obese)	Individuals with obesity are more likely to have a USC than individuals without obesity (75.3% versus 71.4%, respectively) (ODPHP, 2018a)
Race/ethnicity (“_IMPRACE”)	This value is the reported race/ethnicity or an imputed race/ethnicity, if the respondent refused to give a race/ethnicity. The value of the imputed race/ethnicity will be the most common	Racial/ethnic disparities in healthcare access exist regardless of urban or rural residence (Fiscella & Sanders, 2016; Park et al., 2021). However, little is known about the

	race/ethnicity response for that region of the state	interaction of race/ethnicity and rural residence and the effects on healthcare access (Caldwell, Ford, Wallace, Wang, and Takahasshi, 2016).
Urban/Rural Residence ("_URBSTAT")	Interviewer logs urban/rural counties.	Little is known about the interaction of race/ethnicity and rural residence and the effects on healthcare access (Caldwell, Ford, Wallace, Wang, and Takahasshi, 2016)
Age ("_AGE65YR")	Calculated: Reported age in two age groups calculated variable (18 - 64 and 65+)	There is a significant association between age and access to a usual source of care, with older adults having increased access (ODPHP, 2018a)

State of Residence. Each state and territory in the United States was coded numerically. The states of interest were recoded as follows: Arkansas (0), Louisiana (1), Oklahoma (2), and Texas (3). State of residence is an important contextual factor because each of these states have enacted differing policies around Medicaid Expansion, Certificate of Need programs, and support of Community Health Workers and Federally Qualified Health Centers. Only cases within these states were selected for the analysis.

Insurance Status. This nominal level variable is binary. Respondents that have health insurance of any type were coded (0), while those that do not have coverage were coded (1). While this is measured at the individual level, it can be influenced by contextual factors like policy. For example, whether or not an individual has insurance is related to

Medicaid expansion: states that have expanded the program have lower uninsurance rates than those that did not.

Sex. This nominal level variable is binary. Male respondents were coded (1) and female respondents were coded (0). This variable is an individual factor that cannot be changed.

Education. This variable had several categories that have been collapsed for parsimony. Others have also collapsed education into two categories (Hamki, 2018; Kava et al., 2019; Alishahi, 2022). The categories are high school or less (0) or more than high school (1). Education is an immutable characteristic of individuals and also significant: those with a college education are much more likely to have access to healthcare than those with less than a high school education (ODPHP, 2018a).

Income. This variable also had several categories that have been collapsed for parsimony. Others have also recoded income into two categories (Kava et al., 2019; Van Hooser et al., 2020; Ceres, 2022). This variable was recoded as $50,000 or less (0) and more than $50,000 (1).

Overweight or obese. Need factors such as being overweight or obese make individuals more likely to access care, which was consistent finding in the literature (Thompson et al., 2016; ODPHP, 2018a; Ndetan, 2020). Body mass index is a calculated variable in the BRFSS dataset. The variable was coded as follows: not overweight or obese (0) or overweight or obese (1).

Race and ethnicity. If respondents indicated a race or ethnicity, their response was coded appropriately. However, if race or ethnicity was not provided, the BRFSS dataset includes imputed values based on the region's most common demographics. The variable

is coded as follows: White, non-Hispanic (0), and non-white or Hispanic (1). This is a key variable in the study.

Urban/Rural residence. While the BRFSS offers several options for measuring urban or rural residence, the variable "URBSTAT" has the least missing data. Urban counties are coded as (0), while rural counties are coded as (1). This is a focal independent variable in the study.

Age. The BRFSS also offers a couple of options for measuring age. However, the variable "_AGE65YR" best suits the needs of the study. It is a categorical variable with two levels: aged 18-64 (0) and 65 and older (1).

Data Analysis

IBM SPSS Statistics 25 was used to analyze data. Data was downloaded from the CDC website and imported into SPSS. The data was then evaluated for missingness. It quickly became apparent that the variable representing satisfaction with care ("CARERCVD") was missing for 82% of responses. Further analysis revealed that satisfaction data was only collected for respondents in Louisiana (N = 5,125). This finding suggests that there is no relationship between the missingness of the data and any values, observed or missing. Therefore, this data is missing completely at random (MCAR) (Tabachnick & Fidell, 2013; Meyer et al., 2017; Lawson et al., 2019; Little & Rubin, 2020). It is unclear why satisfaction data was not collected in Arkansas, Oklahoma, or Texas.

There are two broad options to address data that is MCAR: imputation and deletion. Imputation methods such as multiple, single mean, or conditional are appropriate for data that is MCAR. However, enough cases were missing responses that

imputation would result in skewed data (Tabachnick & Fidell, 2013; Meyer et al., 2017; Lawson et al., 2019; Little & Rubin, 2020). Also, given the nature of the research question and the fact that satisfaction is the dependent variable, imputing a substantial amount of data threatens the trustworthiness of this study's findings. As a result, only cases from Louisiana (N = 5,125) will be included in analyses to answer questions 3 and 4.

Fortunately, a smaller sample size for questions 3 and 4 do not affect the study's power. G*Power, a tool to calculate statistical power for various tests and effect size Heinrich Heine Universität Dusseldorf (2020), was used to conduct an a priori power analysis. To perform a two-tailed logistic regression with an odds ratio of 1.3, $\alpha < 0.05$, and power of 0.8, the total sample size required is 721 participants. A power level of 0.8-0.9 is standard and sufficient (Jones, Carley, & Harrison, 2003; Meyer et al., 2017; Little & Rubin, 2020). Setting power above this convention to 0.95 would necessitate a sample size of 1,188, which is met with the sample size in this study

Analytic Plan

An analysis of missing values was conducted on all variables included in the study. The results of this analysis can be seen below in Table 4. Missing data across all participants and all variables was 2.1%. When less than 10% of data is missing, listwise deletion is an appropriate approach (Dong, 2013; Tabachnick & Fidel, 2013; Cheema, 2014). Therefore, listwise deletion was implemented.

Table 4: Number of Valid and Missing Cases

Variable	Cases Missing	Percent Missing
Insurance Status	132	0.5%
Sex	79	0.3%
Education Level	3	0%
Income	4,949	18.4%
Urban/Rural Residence	0	0%
Race/Ethnicity	0	0%
Age	0	0%
Urban/Rural Residence	0	0%
Overweight or Obese	0	0%
Usual Source of Care	121	0.4%
Satisfaction	0	0%

Statistical Tests and Assumptions

Research questions (RQ) #1 and 3 can be met using logistic regression, as the goal is to determine which individual and contextual factors may predict an individual having a UPCP ("PERSDOC2") and their satisfaction with services (CARERCVD"), respectively. Additionally, the outcome variables are binary, making other regressions inappropriate. Logistic regression is an excellent predictive analysis because it identifies the most robust combination of variables with the greatest probability of leading to the observed outcome (Stoltzfus, 2011).

Basic assumptions for each logistic regression were checked, including high correlation between predictor variables, absence of multicollinearity, and no outliers. Violations in these assumptions will be addressed using the generally recommended

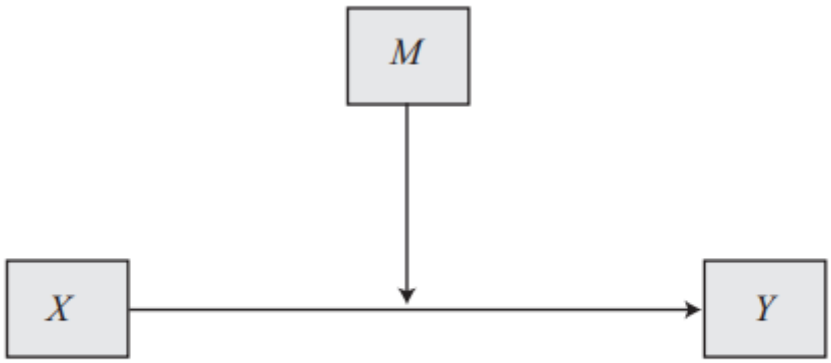
strategies in the field. For example, if multicollinearity is present, i.e., a correlation coefficient of >0.7 between two or more predictors is discovered, one of those variables will also be dropped. Should outliers exist in the predictor variables, they will be carefully examined and potentially removed (Stoltzfus, 2011; Tabachnick & Fidel, 2013). If data does not meet the requirements of the selected test, then an alternative test will be selected.

After the model is created, it is essential to determine how well the model fits the data. The Hosmer-Lemeshow goodness-of-fit test will be used to determine if the model shows participants equally distributed across outcomes, which would mean this model is poorly fit. The Hosmer-Lemeshow goodness-of-fit test is straightforward to apply and easy to interpret. However, this comes at the cost of reduced power in identifying poorly fitting models in some circumstances (Stoltzfus, 2011). If the results of the Hosmer-Lemeshow test are significant, the Nagelkerke pseudo R^2 will be reported to quantify how much variance is accounted for in the model.

Next, assessing whether participants can be correctly classified from the independent and control variables in this model is essential. This will be assessed by looking at the classification table and determining the model's percentage accuracy in classification, sensitivity, specificity, positive predictive value, and negative predictive value. The Wald test will be used to determine the statistical significance of each independent variable, and odds ratios for each significant independent variable will be reported (Stoltzfus, 2011). These odds ratios can then be used to determine for whom access is equitable and inequitable, which is required to answer RQ #2 and #4.

An interaction term will be included in the logistic regression model, i.e., race/ethnicity * urbanicity/rurality to determine their impact on outcomes for RQ 1 and 3. Should a statistically significant interaction be found, further probing will be conducted using the PROCESS macro v4.1 in SPSS (Hayes & Matthes, 2009). The PROCESS macro automatically detects whether an outcome variable is binary and if so, will estimate the model using logistic regression. Because the proposed moderator (urbanicity/rurality) is dichotomous, the PROCESS macro will estimate the coefficient for the focal predictor at both levels of the moderator (Hayes & Matthes, 2009). The PROCESS macro package includes a template file with models illustrating moderation or mediation analyses. For the purposes of these analyses, Model 1 is most appropriate and can be seen below.

Figure 3: Conceptual Diagram of Model 1 Moderation Analysis in PROCESS macro



Ethical Consideration

Generally, research and datasets involving medical diagnoses, comorbidities, drug and alcohol use, and physical activity often require extra care with regard to ethics. However, the data contained in the BRFSS is publicly available and de-identified and therefore does not meet the requirements of human subjects research as defined by the Department of Health and Human Services (Jacobsen et al., 2021). While this study was submitted to the Institutional Review Board (IRB) per the University of Louisville requirements, an expedited review with an informed consent waiver was obtained because this study presents minimal risk to participants.

CHAPTER 4: RESULTS

This study aimed to explore realized and effective access domains as outlined by Andersen's Behavioral Model of Health Services Use. Logistic regression was the most appropriate approach to explore these domains because analyses include independent and control variables of varying levels and a dichotomous dependent variable. This chapter begins with the presentation of descriptive statistics for all relevant variables. It concludes with the results of bivariate and logistic regression analyses.

Descriptive Statistics

The study sample included 26,955 survey participants from four states: Arkansas (19.9%), Louisiana (19.0%), Oklahoma (19.5%), and Texas (41.6%). Slightly more than half of the participants were female (57.5%). Over a third (67.5%) of the sample were White, non-Hispanic and 30.6% were non-White or Hispanic. Most participants had completed education beyond high school (61.4%). Income levels ranged from less than $10,000 per year (4.6%) to $75,000 or more (24.5%). Only adults were included in the sample, with 61.6% aged 18-64 and 36.6% aged 65 or older. Most participants reported having health insurance (88.2%), being overweight or obese (63.6%), and living in an urban area (88.2%).

Table 5: Sample demographics

Variable	N	% of Total
State		
Arkansas	5,360	19.9%
Louisiana	5,125	19.0%
Oklahoma	5,253	19.5%
Texas	11,217	41.6%
Gender		
Male	11,379	42.2%
Female	15,497	57.8%
Race/Ethnicity		
White, non-Hispanic	18,199	68.5%
non-White or Hispanic	8,239	31.5%
Education		
High school or less	10,308	38.6%
More than high school	16,549	61.4%
Income		
$50,000 or less	11,967	44.4%
More than $50,000	14,988	55.6%
Age		
18 to 64	16,607	62.7%
65 or older	9,872	37.3%
Insurance Status		
Insured	23.787	88.5%
Uninsured	3,036	11.5%
Overweight or Obese		

Yes	17,145	69.3%
No	7,580	30.7%
Urban/Rural Status		
Urban	23,775	88.2%
Rural	3,180	11.8%

Logistic Regression Analysis for Usual Source of Care

The assumptions of logistic regression were met prior to analysis. For example, the dependent variables (usual source of care and patient satisfaction) are binary. Observations are not matched or repeated. None of the predictor variables is scale, so there is no requirement that they be linearly related to the log odds. This study uses a large sample size. The table below illustrates the absence of multicollinearity. Furthermore, Variance Inflation Factors statistics for all predictors were less than 4, indicating multicollinearity was not present (Lawson et al., 2019).

Table 6: Regression Coefficients

	Gender	Race /Ethnicity	Education Level	Income	Age	Insurance Status	Overweight or Obese	Urban/ Rural
Gender	1.00							
Race/ Ethnicity	-.15	1.00						
Education Level	-.16**	-.16**	1.00					
Income	.06**	-.01	-.03**	1.00				
Age	.07**	-.14**	.01	.17**	1.00			
Insurance Status	.01	.12**	-.10**	.06**	-.09**	1.00		
Overweight or Obese	.09	.08**	-.05**	.16**	.05**	.06**	1.00	

Urban/Rural Status	-.00	-.06**	-.09**	.00	.01	.00**	.00	1.00

Note. ** Correlation is significant at the 0.01 level (2-tailed)

Block 0

The table below shows the classification for the first block in the analysis, which contains no predictors.

Table 7: Classification Table for Block 0

	Observed		Predicted		
			Usual Source of Care		Percentage Correct
			Yes	No	
	Usual Source of Care	Yes	21652	0	100
Step 0		No	4908	0	0
	Overall Percentage				81.5

a. Constant is included in the model.
b. The cut value is .500.

The results in this table indicated that the constant only model correctly classified 81.5% of the cases.

Block 1

In Block 1, all variables of interest were added to the model.

Table 8: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4342.98	9	.000

Block	4342.98	9	.000
Model	4342.98	9	.000

Table 9: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	21079.10[a]	.15	.25

a. Estimation terminated at interaction number 6 because parameter estimates changed by less than .001.

Table 10: Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	9.00	8	.34

Table 11: Classification Table for Block 1.

	Observed		Predicted		
			Usual Source of Care		Percentage Correct
			Yes	No	
Step 0	Usual Source of Care	Yes	20819	833	96.2
		No	3481	1427	29.1
	Overall Percentage				83.8

c. Constant is included in the model.
d. The cut value is .500.

Table 12: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% CI
Step 1[a]	Insurance	1.68	.05	1415.15	1	<.001	5.34	4.89-5.83
	Sex	-.67	.04	349.76	1	<.001	.51	.48-.55
	Education	-.18	.04	22.65	1	<.001	.84	.78-.90
	Income	-.22	.04	34.14	1	<.001	.80	.75-87
	Urban/Rural	-.25	.07	13.10	1	<.001	.78	.68-.90
	Race	.33	.04	74.44	1	<.001	1.40	1.29-1.51
	Age	-1.42	.05	833.34	1	<.001	.24	.22-.27
	Overweight or Obese	-.43	.04	139.14	1	<.001	.65	.61-.70
	Race * Urban/Rural	.12	.12	.92	1	.34	1.13	.88-1.43
	Constant	-.68	.05	172.13	1	<.001	.51	

A test of the full model against the constant model was statistically significant, indicating that the predictors can reliably distinguish between having a usual source of care or not (X2 (9, N=26,6560)=4342.98, p=0.000). The Hosmer and Lemeshow Test indicated that the model was a good fit (p = .34). The model explained 24.5% of the variance in having a usual source of care or not (Nagelkerke R Square=0.245). The model correctly classified 83.8% of cases. Wald statistics indicate that race (p = <.001) and urbanicity/rurality (p = <.001) were significant predictors of having a usual source of care. White, non-Hispanic individuals are 1.4 times more likely to have a usual source of care than their non-White or Hispanic counterparts. Those living in an urban area are .78

times (22%) less likely to have a usual source of care. The interaction between race and urbanicity/rurality was not significant (p = .34), so no further analysis was conducted.

Logistic Regression Analysis for Satisfaction with Care

Listwise deletion and recoding were implemented before analysis. Missing data across all participants and all variables was 1.8%, therefore listwise deletion was implemented. Only 186 participants (3.6% of the sample) indicated that they were not satisfied with care. Recoding when one of the binary categories is less than 10% of the total sample is recommended because the model could overestimate the magnitude of the relationships and yield a larger odds ratio and narrow confidence band (Tabachnick & Fidel, 2013). Therefore, this variable was recoded as follows: yes (0) and no (1). All other variables had previously been recoded.

Block 0

Table 13 shows the classification for the first block in the analysis, which contains no predictors.

Table 13: Classification Table for Block 0

	Observed		Predicted		
			Satisfaction with Care		Percentage Correct
			Yes	No	
Step 0	Satisfaction with Care	Yes	4619	0	100
		No	186	0	0
	Overall Percentage				96.1

e. Constant is included in the model.
f. The cut value is .500.

The results in this table indicated that the constant only model correctly classified 96.1% of the cases.

Block 1

In Block 1, all variables of interest were added to the model.

Table 14: Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	124.66	9	<.001
	Block	124.66	9	<.001
	Model	124.66	9	<.001

Table 15: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1449.66[a]	.03	.092

b. Estimation terminated at interaction number 6 because parameter estimates changed by less than .001.

Table 16: Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	2.85	8	.94

Table 17: Classification Table for Block 1.

	Observed		Predicted		
			Satisfaction with Care		Percentage Correct
			Yes	No	
Step 1	Satisfaction with Care	Yes	4619	0	100
		No	186	0	0
	Overall Percentage				96.1

g. Constant is included in the model.
h. The cut value is .500.

Table 18: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I
Step 1[a]	Insurance	-1.18	.18	39.59	1	<.001	.31	.21-.44
	Sex	.58	.16	13.50	1	<.001	1.78	1.31-2.42
	Education	-.05	.16	.08	1	.78	.96	.70-1.31
	Income	.68	.17	16.56	1	<.001	1.97	1.42-2.73
	Urban/Rural	.20	.28	.27	1	.51	1.22	.58-2.56
	Race	.06	.17	.12	1	.73	1.06	.76-1.48
	Age	1.24	.26	22.33	1	<.001	3.44	2.06-5.75
	Overweight or Obese	-.09	.17	.29	1	.59	.91	.66-1.27
	Race * Urban/Rural	-1.24	.54	5.255	1	.02	.290	.10-.84
	Constant	2.65	.22	149.58	1	<.001	14.16	

A test of the full model against the constant model was statistically significant,

indicating that the predictors can reliably distinguish between being satisfied with health care or not (X2 (9, N = 4805) = 124.66, p < .001). The Hosmer and Lemeshow Test indicated that the model is a good fit (p = .94). The model explained 9.2% of the variance in being satisfied with the care received or not (Nagelkerke R Square=0.092). The model correctly classified 96.1% of cases. Wald statistics indicate that race (p = .73) and urbanicity/rurality (p = .61) were not significant predictors of being satisfied with the healthcare received. However, the interaction between race and urbanicity/rurality was also significant (p = .02). This interaction was probed using Model 1 in PROCESS macro v4.1. A 5,000-sample bootstrap procedure was used to estimate bias-corrected 95% confidence intervals (CIs) to test the significance of the indirect effect of the relationships.

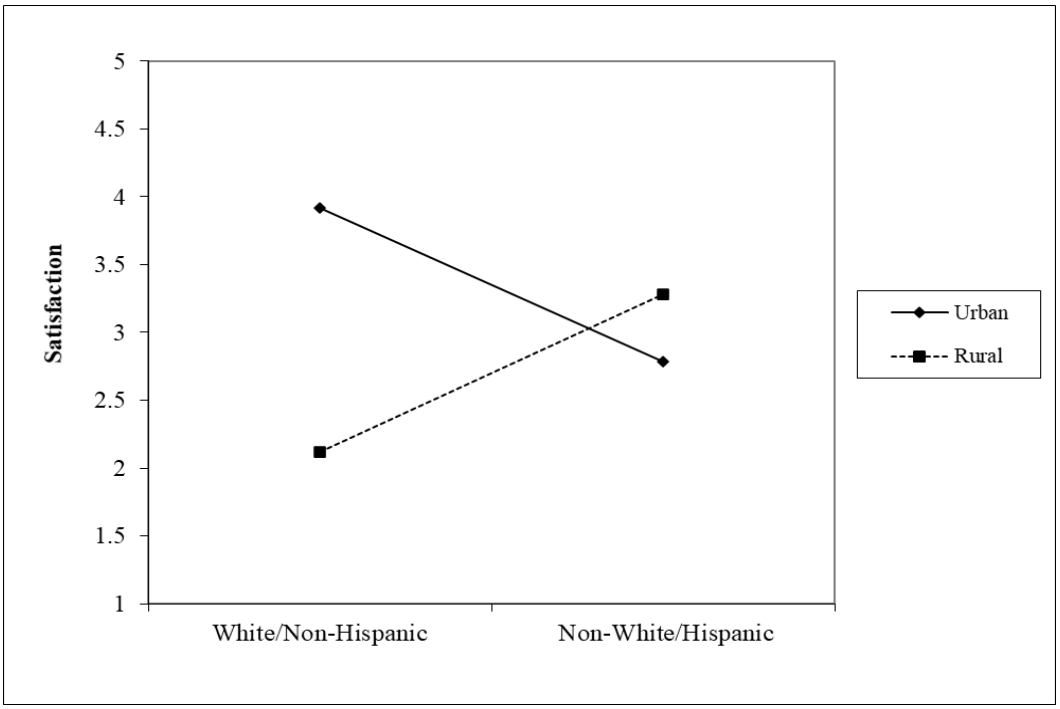
An assessment of the moderating role of urbanicity/rurality on the relationship between race/ethnicity and satisfaction with care revealed a positive and significant moderating impact (b = 1.04, z = 1.97, p =0.05). The interaction effects summary appears in Table 19.

Table 19: Interaction Effects of Race/Ethnicity and Urbanicity/Rurality on Satisfaction

	Beta	SE	Z	p	LLCI	ULCI
Constant	-3.32	1.0	-34.39	.000	-3.51	-3.13.49
Race/ Ethnicity	.18	.16	1.14	.25	-.13	.49
Urbanicity/ rurality	-.17	.37	-.45	.66	-.89	.56
Interaction	1.04	.53	1.97	.05	.01	2.07

Figure 4 depicts the results of simple slope analysis conducted to better understand the nature of the moderating effects. A Microsoft Excel template for two-way interaction by Gaskin (2016) was used to visualize the simple slopes. This tool required entering unstandardized regression coefficients for the IV, DV, and moderator. As can be seen in Figure 4, the area in which patients lived determined the nature and direction of the association between race/ethnicity, with non-White/Hispanic coded as 1 and White/non-Hispanic coded as 0, and satisfaction with care. In urban areas, there was a negative association, such that urban, White/non-Hispanic individuals had higher levels of satisfaction than their non-White, Hispanic counterparts. In rural areas, this association was positive: White/non-Hispanic individuals had lower levels of satisfaction than their non-White, Hispanic counterparts.

Figure 4: Visualization of the Two-Way Interaction of Race/Ethnicity and Urbanicity/Rurality



In summary, these results indicate that there is a relationship between race/ethnicity and access to a usual source of care. This relationship does not vary by urbanicity/rurality. Similarly, there is a relationship between race/ethncity and satisfaction with care, and this relationship varies by urbanicity/rurality. The next chapter will discuss the meaning of these results and the implications for social work.

CHAPTER 5: DISCUSSION

This study examined the relationship between urbanicity and race/ethnicity and their impact on access to a usual source of care and satisfaction with care. The predictor and control variables were based on sociodemographic characteristics. Logistic regressions and tests of association were performed to examine the relationship, determine differences in access to care and satisfaction with it (i.e., odds ratios), and the impact of urbanicity and race/ethnicity on the dependent variables (i.e., moderation effects). This chapter expands on the meaning of the results from chapter four.

Additionally, the strengths and weaknesses of this study, implications, and suggestions for future research are discussed.

Usual Source of Care

Overall, results suggest that urbanicity/rurality and race/ethnicity are significant predictors of having access to a usual source of care. This is consistent with the literature. The finding that white, non-Hispanic adults are 1.4 times more likely to have a usual source of care than their non-white or Hispanic counterparts provides evidence of inequitable access to care, per the Andersen et al. (2013) model. Inequitable access is also evident for urban populations: urban residents were 22% less likely to have access to a usual source of care than their rural counterparts (see Table 12).

This finding is somewhat counterintuitive but there are several possible explanations. First, while there are more rural counties with HPSA designations, 60% of the individuals affected by them live in urban areas (HRSA, 2022). Second, Texas represents 41.6% of the study's sample and 84.7% of its population lives in an urban area (Texas Demographics Center, 2020). Third, Texas has not expanded Medicaid. Medicaid expansion is strongly associated with having access to a usual source of care (KFF, 2022). Therefore, it is possible that this result is skewed by Texans, particularly urban residents.

Furthermore, the effect of urbanicity on the interaction between race/ethnicity and having a usual source of care was not significant, suggesting there is no moderating effect. This finding builds off the work of James et al. (2017), who found all racial/ethnic minority populations were less likely than white, non-Hispanic individuals to report having a usual source of care. James et al. (2017) suggested conducting multivariate

analyses that take into account the kind of area, i.e., urban or rural, when examining health disparities or inequities. Specifically, this study clarifies the complex relationship between race/ethnicity, urbanicity, and access to a usual source of care using the BRFSS. While this study offers some clarification, additional work is needed to better understand the relationship. For example, given the limitations on race/ethnicity and urbanicity/rurality data, we do not know if the findings are generalizable across all racial/ethnic groups or along the continuum of urban/rural communities. Also, examining this relationship related to other outcome variables such as cancer screenings would add to the literature because early detection of cancer and testing for acute illnesses are primary functions of primary care. Additionally, because so little is known about the interaction of these variables on a usual source of care, conceptual replication would add to the field (Nosek & Lakens, 2014; Chavarro et al., 2017).

Clarifying the relationship between race/ethnicity, urbanicity, and a usual source of care is important because health care access is a priority in the Healthy People 2030 plan (Office of Disease Prevention and Health Promotion, n.d.). By 2030, The U.S. Department of Health and Human Services aims to increase access to a usual source of care by eight percentage points, from 76% to 84%. The datapage for this goal does not provide any details or context for differences between racial and ethnic groups or urban and rural areas. However, increasing access to a usual source of care requires interventions targeted to groups that need it the most. This study identified that non-White/Hispanic and urban individuals are less likely to have a usual source of care, thus interventions targeting these populations should be prioritized

Beyond the Healthy People 2030 plan, a high-quality usual source of care provides whole-person, integrated, accessible, and equitable health care that addresses most of a patients' needs (National Academies of Sciences, Engineering, and Medicine, 2021). Many primary care providers have long standing relationships with their patients, which helps the response to structural inequities like racism (Primary Care Collaborative, 2022). This relationship is intended to be proactive in preventing and managing chronic health conditions before they become more severe and costly (Levine et al., 2019). Because primary care is foundational step in the healthcare system, it delivers a disproportionate amount of care compared to specialists, and is critical for populations experiencing health inequities (Willis et al., 2020).

Satisfaction with Care

In this study urbanicity/rurality and race/ethnicity were not significant predictors of satisfaction with care. These findings are consistent with most of the literature. Regardless of regional constraints or patient race/ethnicity, evidence suggests that the patient-provider relationship is the most significant predictor of satisfaction with care, with racial and ethnic congruence being of highest importance (Thiedke, 2006; Panda et al., 2016; Weinhold & Gurtner, 2018). Although prior research has documented an association between rurality and satisfaction with care in a sample of Medicare beneficiaries (Henning-Smith et al., 2020), the present study's findings more accurately reflect adults aged 18 and older.

The effect of urbanicity/rurality on the association between race/ethnicity and satisfaction with care was significant but with a small effect. This finding has statistical and practical significance. When a sample size is 10,000 or more, statistical significance

with a small effect is likely, and is generally considered meaningless (Sullivan & Feinn, 2012). However, because this sample was below the 10,000 threshold, one could argue that these results are meaningful. Further probing of the interaction revealed a negative association in urban areas and a positive association in rural areas.

In urban areas, non-White/Hispanic had lower levels of satisfaction with care compared to their White/non-Hispanic counterparts. One significant factor is that racial and ethnic congruence between patient and provider is extremely limited nationally. Only 22% of Black patients experience racial and ethnic congruence with their providers, while just over 34% of other racial and ethnic minorities do (Xierali & Nivet, 2018; Gonzalez et al., 2022). Racial and ethnic congruence between patient and provider is a significant factor in determining patient satisfaction (Thiedke, 2006; Panda et al., 2016; Weinhold & Gurtner, 2018). This dissatisfaction due to incongruence is exacerbated by the fact that from 2009 to 2017, more primary care providers were added to urban workforces, promoting greater choice in provider, while not increasing congruence (Zhang et al., 2020).

In rural areas, non-White/Hispanic individuals had higher levels of satisfaction with care. This finding may be explained by the overall lack of provider options in rural areas. For example, nationally, only about 8% of rural adult primary care providers are Black and 7% are Hispanic, limiting the possibility of racial and ethnic congruence between patient and provider (Xierali & Nivet, 2018). Some studies have shown that when provider options are limited, tolerance increases, resulting in higher levels of satisfaction than expected (Nottingham et al., 2018; Weinhold & Gurtner, 2018; Salman et al., 2020; Versluijs et al., 2020). In these cases, patients report high levels of

satisfaction because of their respect and appreciation for services delivered in a limited resource environment.

Strengths and Limitations

This study had several strengths. First, the Andersen et al. (2013) framework was used to identify potential confounders for access to care and satisfaction and evaluate equitable access to a usual source of care. The framework requires the identification of individual and contextual factors, which lends itself well to generating solutions to inequities. Because demographic factors are immutable, solutions are generally targeted at changing contextual factors such as policy. Over decades, many studies have successfully used this framework across various health topics (Babitsch et al., 2012).

Second, this study leveraged the use of the Behavioral Risk Factor Surveillance System (BRFSS), an annual, large, well-established, publicly available dataset on health access, behaviors, and conditions. The BRFSS is generally regarded as having a high level of reliability and validity in its measures (Pierannunzi et al., 2013).

Despite its strengths, this study also had several limitations. First, telephone surveys are inaccessible to those who do not have a telephone or telephone service. Several studies have demonstrated that telephone and non-telephone survey populations are different demographically, socially, and economically (Aneshensel et al., 1982; Marcus & Crane, 1986; Szolnoki & Hoffmann, 2013; Fowler et al., 2019). The BRFSS has ameliorated this limitation by incorporating cellular phone survey data and implementing raking or iterative proportional fitting (IPF). Raking or IPF assigns a weight value to each survey participant so that the weighted distribution of the sample is

in very close agreement with two or more marginal control variables. The BRFSS uses up to 16 raking margins (CDC, 2019).

Second, this study utilized a research question-driven approach in its design, meaning a priori hypotheses were developed before selecting a dataset (Cheng & Phillips, 2014). The analytic plan, including the specific variables to be considered, was determined before looking at the actual data available in the dataset. It was not until frequency tables, and cross-tabulations of all variables were conducted that the extent of missing data – particularly for satisfaction – was revealed. Because a significant amount of satisfaction data was missing for Arkansas, Oklahoma, and Texas, the scope of the question had to be narrowed to only Louisiana.

One explanation for the missing satisfaction data is nonresponse bias. While the BRFSS is generally considered reliable and valid, others have noted the potential for nonresponse bias. For example, Gettens et al. (2015) indicated that BRFSS data generated much higher prevalence estimates for disability status than the American Community Survey. Nonresponse bias was identified as a potential cause for the discrepancy, though sampling error was also offered as an explanation. Similarly, Kim & Fredriksen-Goldsen (2015) noted that the BRFSS question on sexual orientation had a nonresponse bias based on race and ethnicity. Asian Americans and Hispanic participants were more likely to respond that they were not sure or did not know their sexual orientation or refused to answer the question at much higher rates than their non-Hispanic, white counterparts.

Another possibility is that the satisfaction variable was influenced by social desirability bias. Social desirability bias has been linked to ceiling effects in measuring

satisfaction with care. Ceiling effects occur when a high proportion of respondents have maximum or near-maximum scores on an observed variable. This effect may occur because patients see their satisfaction rankings as expressions of gratitude, respect, or deference. Scores could also be influenced by fear of their provider becoming aware of their criticism or feelings of guilt or remorse for reporting less than perfect scores (Badejo et al., 2022).

Future Research

Future research may consider examining a wider geographic area to allow for stratification of results by racial and ethnic groups to identify differences between groups. While the West South Central Division is the most diverse in the country, there were not enough participants in each racial and ethnic category to allow for a more specific analysis. Utilizing the racial and ethnic data standards by HHS (2011) would provide the most detail. For example, should a participant indicate they are of Hispanic, Latinx, or Spanish origin, an additional question would clarify whether they are Mexican, Mexican American, or Chicano/a, Puerto Rican, Cuban, or of another Hispanic, Latinx, or Spanish origin. Asian participants could further identify themselves as Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or other.

Similarly, future work may also move beyond publicly available national surveys that indicate urbanicity/rurality in a binary fashion. The reality of classifying urbanicity/rurality is much more complicated than two categories (Henning-Smith, Hernandez, Neprash, & Lahr, 2019). Perhaps one of the most nuanced classifications is the Department of Agriculture's rural-urban commuting area (RUCA) codes. RUCA codes contain nine categories based on population size and adjacency to a metro area.

They are at the census tract level rather than county level, which provides more variability (Henning-Smith et al., 2019; Ziller & Wilkowski, 2020). Analyses using RUCA codes could produce more nuanced results.

Future work may also explore the healthcare experiences of urban and rural ethnic and racial minority populations with regards to patient-provider congruence in the context of limited provider choice. More specifically, it is important to examine whether racial congruence with a provider is as strong of a predictor of patient satisfaction as the current literature states. Much of the literature on this topic is based on urban populations. However, with a growing diverse rural population, it is now possible to explore this perspective, too. A qualitative phenomenological approach would be beneficial to exploring patient satisfaction because it would not be prone to the ceiling effects noted by quantitative approaches (Badejo et al., 2022).

Conducting research in this area is important because evidence continues to be limited, perhaps because researchers fear "discovering the obvious" (Mueller et al., 1999, p. 239). Novel and positive results are generally more publishable than replication or negative results. Even conceptual replications, which tests the same hypothesis but perhaps with a different operationalization of the phenomenon or methodology, are not viewed as favorably as novel and positive results (Nosek & Lakens, 2014; Chavarro et al., 2017). However, there remains a critical need for research that takes an intersectional approach to understanding health disparities and inequities (LeBrón & Viruell-Fuentes, 2020; Homan et al., 2021; Zahnd et al., 2021).

Implications for Social Work

The person-in-environment perspective is a cornerstone of social work and suggests that people are best understood when their environment is considered (Hutchinson, 2018). This study, particularly Chapter 2, framed the social, historical, geographic, and political context for racial and ethnic minorities living in urban and rural areas in the West South Central Division. The health disparities and inequities experienced by this population are collective and contextual: their experience is rooted in the aggregate of disadvantages – disadvantaged by their racial and ethnic minority status, rural residence, and limited educational and economic opportunities (Probst et al., 2004).

Social work is deeply concerned with health disparities and inequities experienced by disadvantaged groups like racial and ethnic minorities. As a profession, social work recognizes how the social, historical, geographic, and political contexts of the West South Central Division may impact health equity. Social work also understands well how marginalized identities may intersect and exacerbate existing disparities and inequities (Gorin et al., 2010). Both the National Association of Social Workers (NASW) and the American Academy of Social Work and Social Welfare (AASWSW) have advocated for increased attention to the social determinants of health, broadening our understanding of healthcare access, and improving it.

As social work seeks to respond to the needs of disadvantaged populations and address structural forms of injustice, there are several interventions for which social workers can advocate. For example, the COVID-19 pandemic highlighted weaknesses in the U.S. healthcare system, offering a policy window to advocate for a more equitable, single-payer system (Yingling, 2021). A single-payer system would promote access to affordable care based on need rather than ability to pay and could improve racial and

ethnic inequities that have persisted despite reforms such as the ACA (Geyman, 2022). This system of care is supported by the NASW and AASWSW.

The trend toward racially and ethnically diverse rural communities presents new challenges and a need for interdisciplinary and interprofessional responses (McBeath, 2016). Social work has the opportunity to advocate for more widespread use of Patient-Centered Medical Homes (PCMH), which are designed to address patients' medical, behavioral health, and social needs. PCMH have also been shown to increase patient satisfaction with care (Blount, 2003; Martin et al., 2014; Fraser et al., 2018; Perez Jolles et al., 2019; Kieu, 2021; Robinson et al., 2021).

Innovation is needed to increase access to a usual source of care (U.S. Department of Health and Human Services, n.d.). A usual source of care is seen as the entry point to the healthcare system as it coordinates with other providers (Blewett et al., 2020). Several innovations relevant to social work have been demonstrated to increase access to a usual source of care and satisfaction with care. For example, community health workers (CHWs) can improve access to healthcare and satisfaction. CHWs are critical to linking underserved and diverse populations with needed healthcare services (Spencer et al., 2010). A compelling benefit to CHWs is that they are typically members of the communities they serve, thereby facilitating greater trust and engagement in healthcare (Ziller & Milkowski, 2020).

While the CHW profession is distinct from social work, it is highly complementary. For example, CHW values and ethics are very closely aligned with social work. Spencer et al. (2010) refers to CHWs as “ready and natural allies of social work” (p. 177) because of their commitment to social justice, culturally competent care,

and working on interdisciplinary teams to serve disenfranchised populations. CHWs can provide translation, interpretation, culturally appropriate health education, care navigation, informal counseling, advocacy, and direct care services such as blood pressure screenings (Department of Health and Human Services, 2014). Social work should consider partnering with this profession to better serve patients or advocating for their representation on interdisciplinary teams.

Social workers may also advocate for expanding Patient-Centered Medical Homes (PCMH) because it is an integrated model of care that addresses the medical, behavioral health, and social needs of patients. This model increases access to a usual source of care and patient satisfaction (Blount, 2003; Martin et al., 2014; Fraser et al., 2018; Perez Jolles et al., 2019; Kieu, 2021; Robinson et al., 2021). It is a potential source of employment for social workers that is consistent with its ethical code and values. PCMH services are team-based, comprehensive, patient-centered, coordinated, accessible, and high-quality (Doherty et al., 2019).

Other potential policy interventions include Medicaid expansion in Texas because health insurance is a strong predictor of having a usual source of care (Griffith et al., 2017; KFF, 2022). Passing legislation to mandate the Culturally and Linguistically Appropriate Services (CLAS) Standards would increase access to care and potentially satisfaction with care by racial and ethnic minorities (National Committee on Quality Assurance, 2016). Continued support for Federally Qualified Health Centers (FQHCs) is necessary because of the diverse population they serve. FQHCs serve 1 in 5 rural residents, and 63% of health center patients are a racial or ethnic minority (Nath et al., 2016; Rural Health Information Hub, 2021). Advocating for a more racially and

ethnically diverse primary care workforce should also be a priority for social workers (Zhang et al., 2020).

Conclusion

This study illustrated the impact of urbanicity/rurality and race/ethnicity on access to a usual source of care and satisfaction with service. It addressed gaps in the literature by exploring the complex relationship between race/ethnicity, urbanicity, access to a usual source of care, and satisfaction. Findings suggest no meaningful interaction effect of urbanicity/rurality on the relationship between race/ethnicity and access to a usual source of care or satisfaction. However, additional research in these areas is needed before a conclusive determination can be made. Social workers have an opportunity to improve healthcare access through practice and advocacy activities and further research.

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CURRICULUM VITAE

Katie Cameron

PROFESSIONAL SUMMARY

A robust, inspired, Project Manager and Grant Writer with the educational background and proven work ethic to guide and support the ideation, development, and assessment of healthcare projects such as grants and proposals, budgets, and policy compliance. Creative thought leader who is known for meeting tight deadlines in dynamic environments, with the skillset to gather and assess key information, engage with diverse stakeholders, and build productive partnerships. Organized and with a keen eye for detail, with demonstrated ability to prioritize and manage multiple projects simultaneously. Leverages strong communication skills to foster long-lasting relationships with colleagues, clients, and stakeholders, thriving in multicultural environments.

CORE COMPETENCIES

- Grant Writing
- Team Collaboration
- Compliance
- Grant Management
- Advocacy/Lobbying
- Integrated teams
- Social Work
- Partnership Building
- Research

PROFESSIONAL EXPERIENCE

YOUTHBUILD LOUISVILLE, LOUISVILLE, KENTUCKY, MAY 2022 – PRESENT

GRANTS MANAGER

- Provides oversight and management of the data coordinator.
- Identifies opportunities to optimize the grant administration process.
- Prepares and monitors grant applications, program implementation, and outcomes.
- Designs new grant initiatives aligned with the organization's mission, vision, and values.
- Builds relationships with a diverse community of staff, partners, and funders.
- Drafts proposals, letters of intent, grant applications, budgets, and other grant materials for submission.
- Oversees compliance with grant terms and conditions, and local, state, and federal regulations.
- Secures approximately 80% of the organizational budget through grant funding.

J2 STRATEGIC SOLUTIONS, REMOTE, JULY 2020 – MAY 2022

PROJECT ASSOCIATE

- Develops proposals and reports for federal, state, and private foundation grant opportunities to meet the client's needs, leading the preparation and completion of grant applications.
- Garners deep understanding of the needs and interests of grant-making agencies to persuasively communicate the client's goals within grant proposals.
- Investigates and identified grant opportunities and barriers to implementation, collaborating closely with client officials to produce applications, proposals, and supporting materials.
- Partners with grant-issuing agencies to apply for joint funding when necessary.

- Architects a monitoring and reporting systems to track grant compliance while partnering with relevant stakeholders throughout the grant writing process.
- Oversees a database of forms, contracts, templates, or other material needed for grant writing.
- Serves as lead writer for specialized topics in HIV, mental/behavioral health, school-based services, medication assisted therapy, and substance abuse disorders.
- Provides evaluator services for substance abuse and mental health services administration (SAMHSA) grants.

UNIVERSITY OF LOUISVILLE, LOUISVILLE, KY, AUGUST 2016 – JUNE 2020

GRADUATE RESEARCH ASSISTANT

- Develops proposals and reports for federal, state, and private foundation grant opportunities to meet the client's needs, leading the preparation and completion of grant applications.

FAMILY COMMUNITY CLINIC, INC., LOUISVILLE, KY, JANUARY 2019 – AUGUST 2019

SPECIAL PROGRAMS COORDINATOR

- Develops proposals and reports for federal, state, and private foundation grant opportunities to meet the client's needs, leading the preparation and completion of grant applications.

FAMILY COMMUNITY CLINIC, INC., LOUISVILLE, KY, AUGUST 2017 – DECEMBER 2018

MEDICAL SOCIAL WORK INTERN

- Develops proposals and reports for federal, state, and private foundation grant opportunities to meet the client's needs, leading the preparation and completion of grant applications.

LEARNING DISABILITIES ASSOCIATION OF PETERBOROUGH, ONTARIO, CANADA, JANUARY 2011 – JULY 2014

RESOURCE FACILITATOR

- Develops proposals and reports for federal, state, and private foundation grant opportunities to meet the client's needs, leading the preparation and completion of grant applications.

LEARNING DISABILITIES ASSOCIATION OF PETERBOROUGH, ONTARIO, CANADA, JANUARY 2009 – JANUARY 2011

TUTOR

- Develops proposals and reports for federal, state, and private foundation grant opportunities to meet the client's needs, leading the preparation and completion of grant applications.

EDUCATION AND CREDENTIALS

DOCTORAL DEGREE (PH.D.) IN SOCIAL WORK, 2022

University of Louisville – Louisville, Kentucky

MASTER OF SOCIAL WORK (MSW), 2019

University of Louisville – Louisville, Kentucky

MASTER OF EDUCATION (M.ED.) IN ADULT EDUCATION AND COMMUNITY DEVELOPMENT, 2015

University of Toronto - Toronto, Ontario, Canada

BACHELOR OF ARTS (B.A.) IN SOCIOLOGY, 2011