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Emergency Encounters: A Cross Sectional Study of a Rural Emergency Room

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Abstract

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MEd, Anderson University, 2008

BS, Anderson College, 2004

Dissertation Submitted for Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

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Abstract

It is very difficult for certain populations to obtain access to healthcare within the United States, particularly in rural areas. Typically, individuals who live in rural areas are far less healthy than those who live in more urbanized areas. Although there have been some improvements made to ensure there is adequate health care for all, barriers still exist.   A few examples of these barriers are socioeconomic status, education, and job status. In this study, adult patients from a rural Southeastern hospital were surveyed via those who came to the emergency room seeking care, and via those who came to the transitional care clinic seeking care. This study was conducted over four weeks and a total of 230 participants were surveyed. The statistical analyses that were used in this study were multiple linear regression and a t-test. While the results from this study determined that there was no statistically significant relationship between the emergency room and the transitional care clinic groups adjusting for demographics and insurance, there were some interesting factors that emerged. When comparing patients who went to the emergency room to those patients who went to the transitional care clinic, there was a difference between the numbers of emergency room visits for both groups. Both groups also had similar preexisting conditions. Future studies about healthcare access in rural areas should utilize alternative study methods to gain more expansive and reliable insights into the way that rural populations are affected by barriers to healthcare access. These future studies can also determine how ethnicity relates to healthcare barriers in rural communities and provide more insight into specific populations who reside in those communities. Thus, more open-ended approaches may enable those who live in rural communities to expand upon how the barriers to healthcare have affected them.

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Dedication

This work is dedicated to all individuals around the world who need access to healthcare.

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Chapter 1: Introduction to the Study

The purpose of the Affordable Care Act (ACA) is to improve access to care for all individuals and families, whether they are insured or not insured. Even though this act was created to provide care for all, lack of access to care still exists (Plescia & Dulin, 2017) for many individuals and families within the United States. When these individuals and families are not afforded the access to care that they need, typically they could possibly be unhealthier than those who have the access to care and will typically have poorer health outcomes than those who have access to care. Barriers often play a major role in individuals and families not having the access to care that they need. Access to care barriers can include, but is not limited to, poverty, education, employment, cultural beliefs, insurance, and transportation (Zimmerman & Anderson, 2019). Many times, those who do not have the access to care not only suffer from a healthcare position, but from other vital positions in life as well. Individuals who live in rural areas often have more difficulty in obtaining access to care than their urban counterparts (Douthit, Kiv, Dwolatzky, & Biswas, 2015). Typically, urban areas will have more resources than the rural areas. Urban areas will also be more attractive to many health care providers when they are thinking about employment. While obtaining access to care is relevant to all populations within the United States, this study was limited to an examination of rural southeastern hospital in South Carolina. In this study, I addressed the barriers and trends of access to care in rural areas; specifically, via the emergency room and transitional care clinic. Chapter 1 includes the background, problem statement, purpose statement,

research questions, hypotheses, theoretical framework, nature of the study, definitions, assumptions, delimitations, limitations, and significance of the study.

Background

There have been numerous studies that focused on emergency room utilization (Bellolio, M., Bellew, S., Sangaralingham, L, Campbell, R., Cabrera, D., Jeffery, M., & Hess, E., 2018; Fishman, J., McLafferty, S., & Galanter, W., 2018; Heffner, Wexler, & McAlearney, 2015). Some of the topics centered around emergency room utilization included frequent usage, nonurgent usage, emergency room usage versus primary care usage, and emergency room overcrowding. All of these topics are relevant to access to care. I applied the access to care model and patient centered medical home model when investigating emergency room usage and transitional care usage. The World Health Organization (WHO) seeks for all individuals to attain the best health care that they could possibly have (WHO, 2017). Depending on where a person lives, then they may not be afforded the opportunity to obtain the access to care that is needed. This is often the case in rural areas (Caldwell, J., Ford, C., Wallace, S., Wang, M., & Takahashi, L., 2016)

Rural communities are different from urban communities. Rural communities often face more challenges when compared to urban communities (Seright & Winters, 2015). Currently, over 50 million people in the United States live in rural areas. These individuals face more challenges when dealing with poverty, insurance, stress, and activity limitations [CDC/NCHS], 2015). These problems also add to the increase in the number of individuals who live in rural areas that have at least one chronic illness, which equates to nearly half of the 50 million people who live in rural areas. These problems

are especially crucial for minorities who live in rural communities (Nielsen, M., D'Agostino, D., & Gregory, P., 2018). Rural hospitals and urban hospitals also differ. Because rural hospitals are often isolated, they may serve as the only place for health care for a large population. Rural hospitals may also lack the number of resources that urban hospitals may have (Douthit, N., Kiv, S., Dwolatzky, T., & Biswas, J (2015). Some rural communities lack practicing physicians and only have a physician's assistant or advanced practice registered nurse. This can impact the quality of care that is received.

Problem Statement

Charges for common illnesses in the emergency room (ER) can be significantly higher than charges in a primary care setting (Heffner et al., 2015). Studies on specific reasons for this problem have indicated that patients with nonurgent health problems, many of whom are from rural communities, often use ER services inappropriately as a means of primary care (Hudon, C., Sanche, S., & Haggerty, J (2016). In the United States, many ER visits are avoidable and are considered nonurgent. Not only can nonurgent ER use cause a financial burden to local rural communities, but it can lead to several other challenges such as available rooms for patients, extended patient stays, and patients who leave the ER before getting the proper care they need (Heffner et al., 2015).

Research has been conducted on *frequent users* of the ER and how barriers in relation to primary care can relate to this use (Chen, Cheng, Bennett, & Hibbert, 2015). However, limited research is available on why these *frequent users* go to the ER for nonurgent issues; particularly in rural settings. Individuals who live in rural communities may not be able to overcome barriers that can lead to serious consequences to patients'

health and well-being, including missed appointments, delayed care, delayed medication use, and improper health care utilization (Heffner et al.,2015). Due to the lack of literature on ER encounters and its relationship to primary care, specifically in rural hospitals, many of which have a large minority and migrant population (Duran, 2012; Sansfacon et al., 2014), more comprehensive research is needed on these topics. In this cross-sectional study, I focused on an emergency room (ER) serving a local rural community to examine characteristics of patients who utilize the emergency room in this community as compared to a characteristic of patients who utilize a transitional care clinic (TCC) in the same community. I focused on demographic factors and other characteristics that may indicate that certain populations and/or groups may utilize the ER and TCC more than others.

Purpose of the Study

The purpose of this quantitative cross-sectional study was to research patients who utilize a ER and TCC at a rural hospital in Southeastern United States, with a focus on their characteristics that influence ER and TCC encounters. The name of this hospital is Self Regional Healthcare (Hospital XO), located in Greenwood South Carolina. ER and TCC encounters were defined as visits and experiences among patients. I examined characteristics of adult patients and their reasons for coming to the ER or TCC. I collected relevant information regarding emergency care, primary care, healthcare access, health insurance, and preventative healthcare from ER patients. Since no individual who comes to an ER can be turned away due to the 1986 Emergency Medical Treatment and

Active Labor Act, [EMTALA], (Zibulewsky, 2001), there is a significant demand for patient care in emergency rooms that can lead to other issues that compromise care.

Framework

The theoretical framework that I used in this study was the access to medical care model created by Aday and Andersen (1974). Aday and Andersen (1974) described this model as a framework to conceptualize health policy objectives and includes characteristics of the health care system, a description of the population at risk, as well as outcomes. According to Aday and Andersen (1974), different aspects of access to care are conceptualized to be reviewed and integrated when dealing with health policy, health care services, and the individuals who utilize those services. Concepts of this model included various definitions of access, based on patient characteristics and has been used in previous studies to determine factors that attribute to access to medical care (Heffner et al., 2015). I also used a more recent model, the patient-centered medical home model, to understand access to primary care (Fandre, McKenna, Beauvais, Kim, & Mangelsdorff, 2014).

Research Questions

1. What is the relationship between access to care variables and ER utilization, adjusting for demographics and insurance?

   Null hypothesis: There is no relationship between access to care variables and ER utilization, adjusting for demographics and insurance.

   Alternative hypothesis: There is a relationship between access to care variables and ER utilization, adjusting for demographics and insurance.

2. What is the relationship between access to care variables and TCC utilization, adjusting for demographics and insurance?

   Null hypothesis: There is no relationship between access to care variables and TCC utilization, adjusting for demographics and insurance.

   Alternative hypothesis: There is a relationship between access to care variables and TCC utilization, adjusting for demographics and insurance.

3. Based on differences in access to care variables, how does the study participant sample who utilize the ER at Hospital XO compare to the study participant sample who utilize the TCC at Hospital XO?

   Null hypothesis: There is no comparability between the study participant sample who utilize the ER at Hospital XO to the study participant sample who utilize the TCC at Hospital XO.

   Alternative hypothesis: There is comparability between the study participant sample who utilize the ER at Hospital XO to the study participant sample who utilize the TCC at Hospital XO.

Nature of the Study

Based on the purpose and research questions, I selected a quantitative design as the most suited research design. In a quantitative study, a phenomenon is explained by use of data that are analyzed based on a particular statistical approach. The approach that I chose for this study is multiple regression. This is an extension of linear regression but is used to help predict values for multiple variables. In this case, the dependent variable

was ER and TCC usage. The independent variables were: race, age, residence, income, insurance, employment, education, self-reported health status, and access to healthcare services. Key informants, in this study, included ER and TCC patients. Once I obtained approval from Walden University's Institution Review Board (IRB) and Self Regional's IRB, I invited participants to take part in this study.

Definition of Terms

The following terms and phrases are defined as used in this study.

Access: Having a primary care physician, having a dentist, having a reliable method of transportation, trusting your healthcare provider, having a reliable source for childcare, and the availability of healthcare services when needed

Encounter: A visit to the ER or TCC for healthcare services.

ER: This will be the abbreviation for the Emergency Room.

Rural: Rural will be defined as not urban and encompassing all populations that Hospital XO serves.

TCC: This will be the abbreviation for the Transitional Care Clinic.

Assumptions

I assumed all participants answered questions truthfully and were unbiased in their responses.

Scope and Delimitations

The scope of this study was limited to participants who were seeking care at the ER or TCC at Hospital XO. The hospital is located in South Carolina, and individuals may have chosen to seek care elsewhere. The study was delimited to patients seeking

care at the TCC or ER from September to October 2018 (4 weeks). Names were not used in the data collection process for this study.

Limitations

Throughout this study, I did not include all individuals who attempted to complete the questionnaire, only the individuals who completed the questionnaire were included. Another limitation of this study was that the information provided was based on participants' personal experiences which were not verifiable. Despite these limitations, I used the results from this study to provide information in regard to access to healthcare services.

Significance

There is limited research on groups that utilize ER services and TCC services, specifically inside a rural hospital (Duran, 2012; Sansfacon et. al. ,2014). I sought to understand barriers to primary care and why certain populations with specific characteristics utilize the ER and TCC. Research findings from this study may contribute to the literature regarding ER or TCC encounters and the conditions influencing the provision of quality health services to its local rural community. In addition, this study could help other rural hospitals to better assess their emergency rooms and provide awareness to their professional staff about emergency room services and primary care. I wanted to offer relevant information that local medical professionals, community members, front line staff, hospital administrative/executive staff and other stakeholders could use to be informed about the needs of the local community. Research findings from this study could also provide relevant information to rural nonprofit hospitals. My goal

was to aid in improving the continuum of care for those within the United States who live in rural areas and lack access to healthcare services.

Summary

There is much to be done to improve the access to care in the United States. There are also challenges and revisions that are currently being made to the ACA as a result of the current political landscape within the United States (Davis, 2017). Research is still needed to educate and inform the public that barriers may still exist for individuals who try to obtain access to care. This is particularly true in rural communities. In the Chapter 2, I will review the literature that has been published on access to care and access to care in rural settings.

Chapter 2: Literature Review

Introduction

In this literature review, I focused on the access to healthcare services that are currently encountered within the United States. I examined these two aspects of healthcare faced by persons with no healthcare or healthcare utilization, barriers that exist which allow persons to use the ER or other clinics as primary care, and circumstances that allow these challenges to exist. I explored the overall access to healthcare services challenges and information detailing how to change these challenges. In this literature review, I examine the constructs of access to medical care and patient centered access to health care.

Literature Search Strategy

The articles that I reviewed for this study were located from Walden University's library databases and included ProQuest Nursing & Allied Health Source, ProQuest Health & Medical Collection, PubMed, MEDLINE, and Google Scholar. The key terms that I used during searches were *access to care, healthcare utilization, barriers to primary care, emergency room, emergency department, frequent utilization, non-emergent,* and *nonurgent.* I also reviewed South Carolina's Rural Health Action Plan (created by the South Carolina Office of Rural Health).

Access to Medical Care Theory/ Patient-centered Access to Health Care

The primary theory that I used in this study was the access to medical care theory along with the constructs of patient-centered access to health care model. The framework for the study of access to medical care was introduced by Aday and Anderson (1974) as a

cognitive theory to study concepts of health care access. As this model was produced a number of years ago, the access to medical care model evolved to include a focus on patient centered access to care (Berry, L. L., Seiders, K., & Wilder, S., 2003). Patient centered access to health care expands on the concepts of accessibility and also focuses on the population's ability to interact with the dimensions of accessibility. These dimensions are approachability, acceptability, availability, accommodation, affordability, and appropriateness. I used the access to medical care theory in this study along with concepts of patient centered access to health care to research patient demographic traits and indictors for ER/TCC usage and explored healthcare access and healthcare utilization of a rural ER and rural TCC.

This review consisted of studies conducted by researchers who used the access to medical care theory and patient centered access to health care theory in their research. Behr and Diaz (2016) conducted a study using the model created by Aday and Anderson (1974) that examined individuals who used the emergency department frequently for non-emergent presentments at a regional urban trauma center. The participants included a randomized sample of 1,443 adult patients. As the patients received treatment, they were interviewed by physicians and research staff. The dependent variable for this study was the emergency department encounters.

Behr and Diaz (2016) tested the hypothesis in their 2016 study using logistic regression to identify factors that were related statistically to emergency department utilization. The patients' encounter's utilization was labeled as two visits or more, three visits or more, four visits or more, and five visits or more and treated as dichotomous and

not continuous. Behr and Diaz (2016) used the Bonferroni adjustment because relationships were adjusted for inflation and patient characteristics. The results showed that utilization of the emergency department is associated with prescription drugs for mental health issues (2.06 OR sig=.00). Women (1.75 to 1) were found to be statistically more likely, relative to men, to utilize the ER at all four levels and are 1.75 times more likely to have two or more visits relative to men (sig=.01). Furthermore, and within Behr and Diaz's 20016 study, descriptive statistics showed that Black Americans were more than twice as likely to report two plus and three plus visits when compared to non- Black Americans (2.10 OR sig = .00 and 2.36 OR sig = .00). There was no statistical difference in utilization odds for four visits or more or five visits or more. The findings of this study (Behr & Diaz 2016) indicated that people can become *frequent users* of the ER for a variety of reasons which includes lack of access to healthcare services; which is what I studied to determine patient predictors of ER usage.

Chang and Chan (2016) studied the access to medical care model to understand usual sources of care for Asian Americans. Chang and Cahn (2016) studied to determine if the health care access model explained having usual sources of care in Asian Adults, does factors including relationships among predisposing characteristics, resources, need, and having a usual source of care vary by ethnic group, and does acculturation roles influence the Asian American usual source of care model. The participant sample included 4,021 Asians from 18–64 years old. The 2009 California Health Interview Survey served as the secondary data source. The dependent variable in this study was having a usual source of care other than the emergency room. Other factors such as

insurance, income, length of residence, and employment status were included. Variable such as age, gender, and marital status were included as control variables. The results indicated that statistical differences were in all categories excluding employment and marital status.

Hefner et al. (2015) used the Aday and Anderson framework (1974) to study primary care access barriers. The authors researched various emergency department sites. One site served as the sole emergency department for four freestanding campus hospitals and the other site served as the primary emergency department for underserved and minority populations. Hefner et al. (2015) used convenience sampling at both sites for patients who came to the emergency department with nonurgent medical conditions. There weas a total of 349 surveys used for Hefner et al.'s study and the researchers used descriptive statistics to calculate the sociodemographic profile for patients and patient reported barriers to primary care. Hefner et al. (2015) qualitatively coded barriers reported via insurance status. The results of the study detailed a considerable variability via insurance status, constraints for health care access, and reported infrastructure barriers. Since I focused on demographic traits and other characteristics for ER and TCC usage within my study, barriers to primary care access were essential when considering factors related to access to healthcare services.

Epidemiology of Emergency Rooms

In the 1950's, emergency rooms were often seen as a reserved room for emergency situations (Hospitals & Health Networks, 2016). Different types of medical staff provided care regardless of their specific expertise. Years after World War II,

groups of practitioners volunteered to help staff hospitals' emergency rooms full time (Hospitals & Health Networks, 2016). In years to come, these same innovative practitioners created the American College of Emergency Physicians. As the practitioners grew in number, the special hospital rooms became converted into emergency departments which covered a variety of life-threatening events. In 1965, Medicaid and Medicare were two federal laws that were passed that institutionalized a legal right to health care. Medicare focused on providing healthcare to individuals 65 years of age or older and those who are 65 and younger with disabilities and end stage renal disease. Medicaid focused more on providing a right to health care for individuals and families with low incomes. In 1966, the National Academy of Sciences published *Accidental Death and Disability: The Neglected Disease of Modern Society.* This report focused on the lack of care throughout the public. In an effort to respond to this report, Congress passed the Highway Safety Act of 1970. This act focused on training medical personnel and establishing legislature to create emergency medical services (EMS). As time progressed, the United States Congress passed the Emergency Medical Treatment and Active Labor Act (EMTALA) in 1986. This act served to guarantee medical attention for all persons who come to the emergency room in a hospital that accepts Medicare. Key concepts under this act involved screenings, stabilization, and in some cases maneuvering of unstable patients. Although this act was created to ensure access to care, access to care may have been reduced by way of ER overcrowding and reducing patients' continuum of care.

Hospitals and ERs are challenged with overcrowding, overutilization, escalating healthcare costs, and avoidable admissions (Salvador-Kelly, A., Kwon, N., & Wheatley, M., 2016). Emergency room are unique due to a wide variety of available services offered not directly impacted by the ability of the patient to pay, and the fact that they operate 24 hours, 7 days a week, and 365 days per year. ER's are often the primary form of health care in many communities. This causes an influx of patients from time to time (Mareno, as cited in de Chesnay & Anderson, 2016). ER utilization continues to grow in the United States. More than 20% of U.S. adults seek some form of healthcare in by way of the ER (Gindi, Black, & Cohen, 2016). Some factors associated with frequent ER use are unemployment, poverty, age, gender, race, poor mental health, social networks and education (Behr, Diaz 2016). Individuals who have preexisting conditions such as hypertension, diabetes, asthma, and emphysema are also more likely to frequently visit the ER and use the ER for a place of usual dependent care (Gindi et al., 2016; Garcia). Health insurance also factors into this equation as well. Challenges involve reducing medical expenses but also extending coverages. Frequently, health insurance impacts health care utilization within the ER (Mareno, as cited in de Chesnay & Anderson, 2016). Some studies have also shown that individuals come to the ER due to lack of insurance, lack of providers, and other needed resources (Hunt et al, 2016). When the aforementioned events take place, ERs can begin to become overcrowded. In 2007, the Institute of Medicine reported and described ERs that were crowded which led to delays in care. BBehr and Diaz (2016) have directly related this overcrowding due to nonurgent ER use.

Primary Care in Rural Areas

Having a usual primary care provider can increase the likelihood of quality care given to a patient; however, this is not always the case in rural areas (Rural Health Information, n.d.). Primary care in rural areas can be challenging. Individuals who live in rural areas are not likely to have a usual source of care (Rural Health Information, n.d.). The Patient Protection and Affordable Care Act (ACA) has presented some challenges and unique opportunities nationwide; even more noticeably in rural areas (Janke et. al., 2015). Details of this act involve healthcare access and its expansion to numerous Americans, which also indirectly affects the physician supply and demand for primary care (Rhodes et al., 2017). Further details of the act encourage physicians to recognize the need to change and revise outdated scope of practice laws, lead in restructuring the primary care practice, and lastly integrate population health into their practice through the ACA's focus on wellness and prevention. According to the American Medical Colleges, there will be a deficit between 124,000 and 159,000 across physicians of all specialties by 2025 (Dill & Salsberg, 2008). It is estimated that by 2020, the primary care deficit will be greater than 44,000 (Dill & Salsberg, 2008). As resources are very scarce in rural areas, it is increasingly challenging to recruit primary care physicians to rural communities (Hospitals & Health Networks, 2016). Often, factors such as low education quality for families and financial constraints deter physicians from practicing in rural communities. Since the demographics in rural areas are often different than other areas, Medicaid can greatly affect the rural population as it is the largest provider of health insurance for children and adults in the United States. Depending on

an individual's state of residence, this factor is often impacted due to political procedures and individuals may not have access to primary care.

Rural South Carolina

More than 50 million Americans live in the rural areas (Douthit et. al., 2015). According to the U.S. Census, the estimated total population of South Carolina in 2015 was 4, 896,146 (Allen et al., 2017). Counties in the state that were rural had a total population of 1,317,037 and counties in the state that were urban had a population of 3,579,109 (Allen et al., 2017). The rural population in South Carolina is decreasing over time as people tend to be moving into urban counties. There are also difference between rural and urban counties when reviewing age and gender. The number of residents who are 65 and older is higher in rural areas (18%) than in urban areas (15%). Gender is very similar as the female population in rural areas is 50.7% and the male population is 49.3%. Racial composition varies among rural and urban counties within South Carolina. Fifty-three percent of rural residents are non-Hispanic White versus 64% for urban residents. Forty percent of rural residents are African American while only 26% of urban residents are African American.

Focusing on access to care and improving health outcomes in rural communities is essential to South Carolinas growth (SC Rural Health Action Plan, 2018). Because many residents who live in rural communities often face issues that revolve around poverty, they are more likely to be ill and die prematurely than if they lived in an urban community. According to the World Health Organization (WHO) (2017), the social determinants of health greatly impact rural communities. These determinants refer to the

conditions in which people are born, grow, live, work, and age. In the 2016 edition of America's Health Rankings (United Health Foundation, 2016), South Carolina ranked 42 out of 50 states for health outcomes. From a local perspective, the annual County Health Rankings show that those residents who live in rural South Carolina counties fare worse than those who live in urban South Carolina counties when comparing both health outcomes and health factors (University of Wisconsin Population Health Institute, 2017). Data were provided that included the best aspects of rural South Carolina were low pollution, low drug overdose deaths, low opioid use, high school graduation rates, high home ownership, high rate of social groups, and low rate of uninsured children. The worst aspects of rural South Carolina were high poverty, high road fatality rate, low/poor birth outcomes, high STD rates, high obesity rates, high rates of heart disease, high rates of cancer, and low/poor exercise opportunities. In January 2017, a policy brief was issued by the National Advisory Committee on Rural Health and Human Services (Allen et al., 2017). The committee found zip codes to be extremely important when reviewing factors such as housing and jobs. Lack of resources often lead to rural communities being coined as "human service deserts". According to the Centers for Disease Control and Prevention (CDC) the five leading causes of death in rural America were cancer, respiratory disease, heart disease, stroke, and unintentional injury. With better access to health care, some of these mortalities may have been prevented.

Affordable Care Act and Healthcare Disparities

The ACA was created with three primary goals in mind. These goals were to make health insurance more affordable and available, expand Medicaid to cover all adults with income below the 138% federal poverty level, and to lower health care costs. The purpose of the ACA was to improve health care access regardless of race, ethnicity, or financial status. Race and ethnicity were two factors that continued to equate to healthcare disparities when I researched access to care. Typically, individuals who are African American or Hispanic and live in rural areas; have lower quality of health care (Agency for Healthcare Research & Quality). These same groups are also more likely to not have insurance and not have a usual source of care than their urban counterparts (Caldwell, Ford, Wallace, Wang, & Takahashi, 2016). In order to address these disparities, rural areas must be discussed by involving racial and ethnic disparities (Caldwell et al., 2016). Moving forward, policies and procedures must be implemented and or revised to effectively decrease this disconnect. The ACA, along with other policy implementations, must be continuously revised and reviewed to improve access to care for all.

Access to Care Barriers

Having trouble with access to care does not simply mean a person embodies financial constraints or non-financial constraints. Access to care is more of a multidimensional concept. Research has informed readers of documented issues with access to care and insurance, but other factors play a role. Often times, non-financial/insurance barriers can play a larger role than the finances/insurance itself as

many uninsured adults struggle with nonfinancial barriers as well as the financial barriers
Financial and non-financial barriers must be addressed for improvement to take place.
There are even times that access to care becomes problematic for those individuals and
families that do have insurance coverage based on poor access to services and
unaffordable costs. According to Healthy People 2020, these barriers lead to unmet health
needs, delays in receiving appropriate care, inability to obtain preventative services, and
preventable hospitalizations.

Poverty

Poverty is a major barrier in rural communities in regard to access to health care
(Douthit et al., 2015 & Towne, 2017). The 2010 US Census suggest that over 16% of
individuals who are not living in urbanized areas encounter poverty while the national
level is slightly above 14% percent. Women, minorities, and the elderly population are
affected by this the most. Since rural areas typically are poorer, individuals earn less at
their respective jobs and often have lower levels of employer sponsored health insurance.
Often times if an individual has to choose between heat, air, food, shelter, water,
children/childcare, and healthcare; often times the healthcare will be the last thing
chosen. In instances where people need to obtain prescriptions for better health care,
many times they cannot due to financial constraints and poverty; which results in a poorer
health status (Norris et al., 2016). This may not be due to defiance nor the will to get
needed care, but simply because they can't afford the medicines.   When reviewing the
Centers for Disease Control and Prevention's Health Impact Pyramid, poverty is has the
largest impact when reviewing factors that impact access to healthcare (James, et al.,

2017). Those individuals who face poverty may also deal with a stigma; which is that they feel a sense of shame by having public insurance and/or charity care which can lead to unmet health needs, poorer perceptions of quality of care, and declined self-reported measures.

Cultural Beliefs

Individuals who reside in rural areas may have different cultural beliefs than those who live in urban areas. Often times this is impacted by the closeness of the relationship between provider and patient; as these may be the same individuals that one sees regularly within the rural community. Distrust among patient and provider can occur in rural areas also. Concerns about discrimination and confidentiality can impact a patient and cause them to be without pertinent medical information as they may fear that this information will be shared. Minorities and other vulnerable populations in rural areas are often times the ones who suffer the most. In a study conducted by Vyavacharker, Moneyham, Murdaugh, & Tavakoli, 2012, patients in rural South Carolina felt that they were judged and perceived a certain way based on their race and diagnosis. Mental health was also perceived differently in rural areas than in urban areas.

Lack of Transportation

Transportation is a key concept in rural communities when it comes to being able to have access to care. This barrier can lead to changed appointments and delayed continuum of care. The concept is very simple but yet desperately needed for proper health care.   This also can affect patients and the ability to access the pharmacy to get prescribed medications. When an individual in a rural community does not have

transportation to a medical facility, health outcomes can worsen. Rural communities are far less likely to have a means of public transportation than their urban counterparts. If a rural resident lives a great distance from a medical facility, then he or she will be less likely to obtain the health care they need. In a study conducted by Smith et al. (2017), cost and difficulty in finding travel accommodation were much higher in rural areas than in urban areas. Many of these trips did not address any aspects of prevention, but rather just trying to address the current healthcare problem.

Health Literacy

Health literacy is very important. Knowing and understanding health literacy allows individuals to make informed decisions about their health and the health of those within their families (Zheng M., Hui, J., Naiyang, S., Chunxiao, D., Donglei, W., Xiaoge, Y., & Xiaoning, L., 2018).) Health literacy plays a significant role in health outcomes. Studies have been conducted that reveal patients with minimal amounts of health literacy are more likely to not report their health status as poor when compared to individuals with adequate amounts of health literacy (Zheng et al., 2018; Rademakers & Heijmans, 2018). Health literacy also correlates with insurance. Frequently, as individuals begin to explore different insurance levels and options, they cannot adequately choose the best plan based on coverage and expense needs. Not only does health literacy impact patients, but providers must also embrace aspects of health literacy. Both patients and providers must actively work to improve within health literacy to improve patient outcomes for all. Moving forward, health literacy concepts should be a focal part of medical trainings and

residencies to help health care professionals understand their own health literacy weaknesses (Hudon et. al., 2016).

Initiatives to Improve Access to Care

Population Health and Accountable Care Communities

According to Kaufman, A, Boren, J., Koukel, S., Ronquillo, F., Davies, C., & Nkouaga, C. (2017), population health is extremely important and changing the way healthcare is delivered. Aspects of population health are health outcomes, identified patterns of health determinants, and policies and interventions between outcomes and determinants. Within population health, the term "accountable communities" and a model was also created. This model focuses on multiple stakeholders working together to improve access to care by placing a greater emphasis on addressing social and economic issues that ultimately define health (Plescia & Dulin, 2017). This is particular helpful in rural areas because of the impact that barriers and determinants have on access to care. Community Health Workers serve as a liaison for those individuals in the community who need assistance for access to care, reducing barriers, and obtaining healthcare services. This is one of the most common collaborations of healthcare services and social services. Community Health Workers are extremely important and vital in continuing to increase the access to care for those who need it. Ultimately, collaborations between public health officials, health systems, academic institutions, and state/local government helps with the process of obtaining access to care for all (Plescia & Dulin, 2017).

Changes to Policies, Programs and Payment Incentives

As access to care becomes more demanding for all, programs, policies, and incentives must be thoroughly examined and reviewed to ensure progress is taking place. The Affordable Care Act is perhaps the act that seeks to establish these three factors. Not only does the programs and policies play a major role, but compensation for health care providers does as well. Often times, providers are offered different incentives (loan forgiveness, bundle payments, benefits for children) to work in highly critical hospitals or rural areas due to the shortage of providers. This impacts Medicare and Medicaid services in terms of fee for service.   Establishing such entities as community health centers and health education centers also help to improve the access to healthcare services for all.

Chapter 3: Research Method

Introduction

 In this chapter, I will provide an overview of the research study, an explanation of the research methodology including the study design, secondary data source, data collection, instrumentation, sample, target population, data analysis, and a discussion of ethical considerations. The overview includes the rationale for selecting a quantitative research design and characteristics of the sample from the secondary set.

Research Design

Nature of the Study

For this research study, I designed a quantitative cross-sectional study and I focused on visits to the ER or TCC within the last 12 months, patient demographic traits, and predictor's of ER and TCC usage. Cross-sectional designs can be used to study relationships between independent and dependent variables when using surveys (Mann, 2003). Researchers use this design to view several variables at once. Other researchers used the cross-sectional design when studying predictors of use and inappropriate ER use (Ng, C. J., Liao, P. J., Chang, Y. C., Kuan, J. T., Chen, J. C., & Hsu, K. H., 2016; Giebel, C., McIntyre, J. C., Daras, K., Gabbay, M., Downing, J., Pirmohamed, M., Walker et al, 2019). I did not choose a qualitative research method because the focus on qualitative research was more of why individuals make decisions and what motivates them. A qualitative approach was not an ideal choice for this research as I was looking to identify relationships between ER visits and TCC visits at Hospital XO. The TCC

serves as patients' temporary place to receive medical care at Hospital XO. As patients utilize this resource, they have access to medical and social resources to assist them in managing their medical condition and improving their overall health. I also researched patient demographic traits at Hospital XO and how both participant samples (ER and TCC) compare to one another in regard to healthcare access. For the purpose of this study, access to healthcare services was defined as having a primary care physician, having a dentist, having a reliable method of transportation, trusting your healthcare provider, having a reliable source for childcare, and having the availability to obtain healthcare services when needed. A descriptive analysis identified adults who use the ER at Hospital XO and those who use the TCC at Hospital XO.

I first considered a secondary data set for this research, and three data sets were reviewed. These data sets were the National Hospital Ambulatory Medical Survey (NHAMCS), Nationwide Emergency Department Sample (NEDS), and the National Health Information Survey (NHIS). Ultimately, I did not choose either of these data sets because they were not aligned with my research topic and my research questions. Because predictability for this study required specific and pertinent data from the ER patients and the TCC patients at Hospital XO, I created a questionnaire to obtain personal attributes and health status descriptors. The data that I collected were specifically cross-sectional quantitative research data and were created specifically for research purposes at Hospital XO.

Dependent Variable(s)

The dependent variables included patient ER and TCC encounters for the last 12 months. The data were collected for 4 weeks at Hospital XO. The variable type was continuous.

Independent Variable(s)

The independent variables in this study were categorical variables and continuous variables. I collected demographic information via the patient questionnaires.

1. Race was defined as White, Black, Hispanic and Other.

2. Age was categorized as a continuous variable.

3. Income levels were defined as annual individual income.

4. Income levels were also defined as annual household income.

5. Health insurance status was defined as Private insurance, Self pay, Medicaid, Medicare, Worker's Compensation, & Other.

6. Employment Status was defined as more than full time, full time, part time, and not working.

7. Education Level was defined as years of education completed.

8. Access to healthcare services was defined as having a primary care physician, having a dentist, having a reliable method of transportation, trusting your healthcare provider, reliable source for childcare when needed for healthcare services, and is your healthcare provider open when you need care.

9. Type of visit was defined as ER visit or TCC visit.

10. Preexisting conditions were defined as having diabetes, hypertension, asthma, chronic obstructive pulmonary disease (COPD), cancer, and obesity.

11. Self-Reported health status was defined as excellent, very good, good, fair or poor.

12. Residence was reported via zip code.

13. Number of visits represented the number of visits to the ER in prior 12 months.

14. Number of visits represented the number of visits to the TCC in prior 12 months.

Data Source

I sourced ER and TCC clinic data from questionnaires that the patients completed during their encounter with me at the ER or TCC. The process to gain informed consent from patients to participate in the study is explained in further detail in the Data Collection, Participant Recruitment, and Participation section later in this chapter. Additionally, those who agreed to participate in the study were asked demographic information in the questionnaire. I did not ask for the patients name nor did I have a place for it on the questionnaire. However, I found that using zip codes were very useful within the data collection and helped me to provide an analysis for healthcare access in the form of geographic mapping. I gathered all data via the questionnaire and I did not have access to any of the participants' medical records.

Population and Sample

Target Population

The target population for this study was adults who came to the rural emergency room at Hospital XO and adults who came to Hospital XO's rural transitional care clinic

during a specific designated four-week data collection period. The target population was inclusive and involved adults (18-64 years old) who came to Hospital XO's ER and received care as well as adults (18-64 years old) who received care at Hospital XO's TCC. Participant recruitment, informed consent, and the process involved in describing participation and obtaining consent is described in detail in the Data Collection, Participation Recruitment, and Participation section of this chapter.

Sampling and Sampling Strategy

The use of sampling is a critical technique in studies that allows the researcher to make empirical generalizations while utilizing a representative sample of the population to be studied. I used convenience sampling for this study. Since convenience sampling involves deliberately choosing participants based on the ease of their accessibility, this sampling technique coincided with my study as I am chose ER and TCC patients based on the fact that they were already seeking care at the ER and/or TCC. The sampling frame for this study was adults (18-64 years old) who are patients at Hospital XO's ER and patients at Hospital XO's TCC who consented to taking part in the study. I oversampled the population to ensure that there were enough completed surveys to meet the minimum sample population suggested by the G power analysis.

Instrumentation

Questionnaires served as the instrument for data collection. Data that were recorded included race, age, gender, income, insurance status, employment status, education level, access to healthcare services, type of visit, preexisting conditions, and self-reported health status. The data were collected from adults who utilized Hospital

XO's ER and Hospital XO's TCC during a 1-month time frame. I described the study to

participants and obtain consent. The participants were responsible for completing the

questionnaire on their own and I checked for completeness.

Sample Sizes and Response Rate

In order to minimize sampling inaccuracies and to make sure that relationships

between variables will not be coincidental, sample size must be computed correctly. I

used GPower3 to determine the minimum sample size for this study. With a value of

alpha = 0.05, should the p-value be greater than .05, I failed to reject the null hypothesis.

Should the effect size value be greater than 0.5, I assumed a moderate to large difference

in effect. The G Power results for the multiple linear regression suggested a sample size

of 107, with an effect size of .15 and a 95% confidence interval. This suggested that I

needed a sample size of 214. This includes 107 participants for the ER patients and 107

participants for the TCC patients. The effect size of .15 was between a small and medium

effect size and demonstrated the proportion of variance in one variable explained by the

other variable(s). The G power results for the t-tests showed a sample size of 88 for the

TCC patients and 88 for the ER patients, with an effect size of .53. The effect size of .53

for the t-tests indicated that the mean of one group (Group 1) was at the 53rd percentile

of the other group (Group 2). Thus, someone from Group 2 whose questionnaire

indicated average ratings (i.e., mean) had a higher rating than 53% of the people from

Group 1. The distribution overlap would be by only 33% (Sullivan & Feinn, 2012). I

used G Power to calculate the effect sizes for the multiple linear regression and *t*-test.

Data Collection, Participant Recruitment, and Participation

Since the data that were involved pertains to Hospital XO's ER and Hospital

XO's TCC, I sought approval from the ER and TCC administration before moving

forward. I described my interest and research focus to Hospital XO's ER medical

director and Hospital XO's TCC manager. Both gave me their full support and offered

their assistance along the way. According to Hospital XO's ER medical director, there

are slightly over 4,000 ER patients seen per month at Hospital XO and top preexisting

conditions are diabetes, hypertension, cancer, COPD, asthma, and obesity. According to

the TCC manager, over 200 patients per month are seen at the TCC with the same top

preexisting conditions mentioned for the ER. I gained clearance from Hospital XO's IRB

to complete this study. As I obtained consent from patients during their encounters at the

ER and TCC within the 4-week data collection period, I explained the purpose of my

study to them and give my action plans for research. During each of the 4 weeks, I was at

both the ER and TCC on different days and times (3 days per week at each location for

four-hour time periods) to collect data. This included a detailed explanation of the

purposes of the research and the expected time that it would take to complete the

questionnaire. When the study was approved by Hospital XO's IRB, I gave a consent

form to participants to ensure that they understood the study and to obtain their consent.

At this time, participants either accepted or declined and I was available to answer any

questions. Questionnaires were distributed to patients who consented to the study by the

researcher. I informed potential participants that only I would have access to their completed questionnaires and that the questionnaires would not be given to anyone else for any reason. I informed the participants that at any time during their patient encounter, they could be excluded from the study with no ramifications. When participants completed the questionnaire, they returned it to me and I placed it inside a locked briefcase. After the 4 weeks concluded, I conducted a statistical analysis to answer all research questions.

Data Analysis Plan

The research questions and hypothesis were addressed in this study are:

1. What is the relationship between access to care variables and ER utilization, adjusting for demographics and insurance?

    Null hypothesis: There is no relationship between access to care variables and ER utilization, adjusting for demographics and insurance.

    Alternative hypothesis: There is a relationship between access to care variables and ER utilization, adjusting for demographics and insurance.

2. What is the relationship between access to care variables and TCC utilization, adjusting for demographics and insurance?

    Null hypothesis: There is no relationship between access to care variables and TCC utilization, adjusting for demographics and insurance.

    Alternative hypothesis: There is a relationship between access to care variables and TCC utilization, adjusting for demographics and insurance.

3. Based on differences in access to care variables, how does the study

    participant sample who utilize the ER at Hospital XO compare to the study

    participant sample who utilize the TCC at Hospital XO?

    Null hypothesis: There is no comparability between the study participant

    sample who utilize the ER at Hospital XO to the study participant sample who

    utilize the TCC at Hospital XO.

    Alternative hypothesis: There is comparability between the study participant

    sample who utilize the ER at Hospital XO to the study participant sample who

    utilize the TCC at Hospital XO.

Table 1

Proposed Statistical Analysis

Research Question	Proposed Statistical Analysis
What is the relationship between access to care and ER utilization, adjusting for demographics and insurance?	Multiple linear regression
What is the relationship between access to care and TCC utilization, adjusting for demographics and insurance?	Multiple linear regression
Based on differences in access to care variables, how does the study participant sample who utilize the ER at Hospital XO compare to the study participant sample who utilizes the TCC at Hospital XO?	T-test

Multiple Linear Regression

The use of multiple linear regression attempts to model the relationship between

two or more explanatory variables and a response variable by fitting a linear equation to

observed data (Field, 2009). Every value of the independent variable x is associated with a value of the dependent variable y. The results from the multiple linear regression allowed me to review how much and which independent variables impacted the dependent variable. The regression model included variables that may have had some impact or relationship on the outcome (visits to ER and TCC). The use of multiple linear regression concedes that the model has at least two predictors (independent variables). The regression model for this study included the following variables: race, age, gender, income, insurance, health status, and healthcare access.

Independent samples T-tests

The use of independent samples *t*-test compares the means of two independent groups in order to determine whether there is statistical evidence that the associated population means are significantly similar or different. The independent samples *t*-test is a parametric test. For this study, t-test results showed if there are significant differences or similarities between both study participant samples. These results helped in identifying different trends and factors that individuals living in rural areas faced, in regard to access to healthcare. This information also showed evidence of healthcare inequities within the communities that Hospital XO serves. This information assisted Hospital XO in strategically allocating healthcare resources throughout the rural community and addressed access to care issues.

Chapter 4: Results

The purpose of this quantitative cross-sectional study was to research patients who utilized an emergency room (ER) and transitional care clinic (TCC) at a rural hospital in Southeastern United States. The dependent variable were patient ER and TCC encounters within the last 12 months. The independent variables included race, age, annual individual income, annual household income, health insurance status, employment status, education level, access to healthcare services, type of visit, preexisting conditions, self-reported health status, and zip code. In this Chapter, I present the data preparation, data collection, method of analysis, and results of the study.

Data Preparation

The time frame for the data collection was four weeks. I posted flyers in both the TCC and ER four weeks prior to data collection in an effort to recruit participants for the study. The two original datasets had 115 cases each, one for the ER patients and one for the TCC patients. The response rate for the TCC was 54.2% and the response rate for the ER was 53.5%. I recoded all of the demographic variables to reflect actual categories rather than numbers assigned for each demographic category (age, race/ethnicity, gender, annual income, annual household income, level of education, employment status, and healthcare status). I used listwise deletion for missing values during the analyses. A priori power analysis indicated that in order for the results to be generalizable, the minimum sample size required for this study was 88. The sample had 115 participants, so the power requirement was met. Additionally, this sample was reflective of the general population as the dispersion of race, gender, and age follow a standard pattern.

Additionally, the effect size of the significant *t*-test was calculated using Cohen's D. The effect size was $d = (0.9 - 1.5) / 2.070085 = 0.29$, which indicated that the results had a moderate effect size.

Descriptive Statistics

Descriptive analysis results are presented in Table 3. In this table, ER and TCC data were examined separately and combined. For the ER data set, the mean ER visits was 1.50 times with a standard deviation of 2.20. The minimum was zero visits and maximum was nine visits. TCC visits had a mean of .71 times and a standard deviation of 1.21 times. The minimum was zero times and maximum was six times. For the TCC data set, the mean ER visits was .90 times with a standard deviation of 1.92. The minimum was zero times and maximum was 13 times. TCC visits had a mean of one with a standard deviation of 2.18. The minimum was zero times and the maximum was 13 times.

Table 2

Descriptive Statistics for Dependent Variables

		ER Visits	TCC Visits
ER Data	Mean	1.5043	.7130
	N	115	115
	Std. Deviation	2.20992	1.20500
	Minimum	.00	.00
	Maximum	9.00	6.00
TCC Data	Mean	.8957	.9912
	N	115	114
	Std. Deviation	1.92114	2.18399
	Minimum	.00	.00
	Maximum	13.00	13.00
Total	Mean	1.2000	.8515
	N	230	229
	Std. Deviation	2.08844	1.76336
	Minimum	.00	.00
	Maximum	13.00	13.00

The predictor variables in the study were reliable transportation, trust provider, childcare, healthcare provider hours, and health insurance variables. Table 4 presents the frequencies and percentages for the ER and the TCC groups. For reliable transportation, there were more ER participants who have a reliable transportation ($n = 61$, 53%). For the trust provider variable, there were also more participants who answered yes from the ER participants ($n = 75$, 65.2%). In terms of childcare, more TCC participants responded yes ($n = 40$, 34.8%). For the healthcare provider hours, the ER group has more participants who responded yes ($n = 66$, 57.4%) while the TCC group has more participants who responded no ($n = 94$, 81.7%). For the healthcare insurance, majority of

TCC group participants have no insurance ($n = 104$, 90.4%). In terms of the primary care

doctor, the TCC group has more participants without a primary care doctor ($n = 99$,

86.1%) while ER group has more participants with a primary care doctor ($n = 59$,

51.3%).

Table 3

Frequencies and Percentages of Predictor Variables

		ER		TCC	
		Frequency	Percent	Frequency	Percent
Reliable	N	54	47.0	70	60.9
Transportation	Y	61	53.0	45	39.1
	Total	115	100.0	115	100.0
Trust Provider	N	40	34.8	56	48.7
	Y	75	65.2	59	51.3
	Total	115	100.0	115	100.0
Childcare	N/A	56	48.7	31	27.0
	N	30	26.1	44	38.3
	Y	29	25.2	40	34.8
	Total	115	100.0	115	100.0
Healthcare	N	49	42.6	94	81.7
Provider Hours	Y	66	57.4	21	18.3
	Total	115	100.0	115	100.0
Health Insurance	No Insurance	40	34.8	104	90.4
	Other	30	26.1	10	8.7
	Self Pay	45	39.1	1	.9
	Total	115	100.0	115	100.0
Primary Care Doctor	N	56	48.7	99	86.1
	Y	59	51.3	16	13.9
	Total	115	100.0	115	100.0

I calculated percentages and frequencies for all categorical variables in Table 5.

Laerd Statistics (2019) noted that for categorical variables, percentages and frequencies

are the appropriate descriptive statistics to report. In the age category for participants, most ER patients (41.3%) were 25-44 years old followed closely by patients (37.4%) who were 45-64 years old. For the TCC group, most TCC patients (41.3%) were 45-64 years old followed closely by TCC patients (42.6%) who were 25-44 years old. In the race/ethnicity category, most ER patients were Black (50.4%) followed by patients who were White (26.1%), and most TCC patients were Black (47.0%) followed by TCC patients who were White (40.0%). In the gender category, most ER patients were male (53.9%) and women comprised 42.6% of the ER sample; 3.5% of the ER respondents reported their gender as Other. In recoding and transforming the gender data for both the ER and TCC samples, the respondents who checked Other for this demographic variable were left out of the dummy variables and also the regression analysis as the Other category as Male and Female were mutually exclusive categories (Laerd Statistics, 2019). I excluded 4 samples from the regression analysis because they responded Other as their gender. Most patients in the TCC group were male (51.3%), females accounted 41.7%, and 7% of the TCC sample reported their gender as Other. In the annual income category, 64.3% of ER participants earned at least or less than $35,000 and 87.8% of TCC participants earned at least or less than $35,000. For household income, 55.6% of ER participants earned at least or less than $35,000 and 80.5% of TCC participants earned at least or less than $35,000. In the years of education category, most ER participants did not graduate from high school (40.9%), while 33.9% of the ER sample did earn a high school diploma. For the TCC participants, most (51.8%) did not graduate from high school and the second highest group in the TCC sample received a high school

diploma (26.1%). In the employment status category, most ER patients worked full time

(57.4%) and most TCC patients worked full-time as well (40.9%). Most ER participants

had no health insurance (34.8%) and a large proportion of TCC participants did not have

health insurance as well (90.4%).

I used a chi-square analysis to compare the ER and the TCC groups for each

demographic variable and found that the groups were statistically significantly different

in the categories of income ($\chi^2 = 19.25$, p-value < 0.05), household income ($\chi^2 = 23.22$, p-

value < 0.05), highest level of education ($\chi^2 = 10.06$, p-value $< .05$), and health insurance

status ($\chi^2 = 80.53$, p-value < 0.05).

Table 4

Comparative Demographics for Subjects in the ER and TCC Groups

	ER Group (N = 115)		TCC Group (N = 115)		ER vs. TCC Comparison Chi Square Results	
	Frequency	Percent	Frequency	Percent	Value	p-value
Q1. Age						
18-24 years old	26	22.6%	15	13%		
25-44 years old	46	40.0%	49	42.6%	3.73	.16
45-64 years old	43	37.4%	51	44.3%		
Q2. Race/Ethnicity						
White	30	26.1%	46	40%		
Black	58	50.4%	54	47%	7.00	.07
Hispanic	19	16.5%	10	8.7%		
Other	8	7.0%	5	4.3%		
Q3. What is your gender?						
Male	62	53.9%	59	51.3%		
Female	49	42.6%	48	41.7%	1.42	.49
Other	4	3.5%	8	7%		

Table 4 (Continued)

Q4. Income						
$0 – $20,000	39	33.9%	52	45.2%		
$20,001 – $35,000	35	30.4%	49	42.6%		
$35,001 –$50,000	30	26.1%	13	11.3%	19.25	$p < .05$
$50,001 – $80,000	11	9.5%	1	.9%		
Q6. Household Income						
$0 – $20,000	32	27.8%	50	43.5%		
$20,001 – $35,000	32	27.8%	46	40%		
$35,001 – $50,000	36	31.3%	17	14.8%	23.22	$p < .05$
$50,001- $105,000	15	13.0%	2	1.7%		
Q7. Highest Level of Education						
Did not graduate from high school or GED	47	40.9%	59	51/3%		
High school diploma	39	33.9%	30	26.1%		
Some college, receive AA degree, or completed certificate	26	22.6%	15	13%	10.06	$p < .05$
Bachelor/Master's degree	3	2.6%	11	9.6%		
Q6. Employment Status						
Full-time	66	57.4%	49	42.6%		
Part-time	22	19.1%	32	27.8%	5.17	.08
Not working	27	23.5%	34	29.6%		
Q17. Healthcare Insurance Status						
No insurance	40	34.8%	104	90.4%		
Employer Sponsored	30	26.1%	10	8.7%	80.53	$p < .05$

Workers Compensation	45	39.1%	1	.9%
N	115	100%	115	

Descriptive Data for Preexisting Conditions

Details for the rates of preexisting conditions for the ER group and TCC group are

provided in Table 6 below. When I examined preexisting conditions within the study

sample, most patients in the ER group (51.3%) did not have diabetes, while most TCC

patients (55.7%) did have diabetes. This difference was not statistically significant. In

the high blood pressure category, most ER patients had high blood pressure (62.6%), and

most TCC patients had high blood pressure as well (55.7%). This difference was not

statistically significant. For the asthma category, most ER patients did not have asthma

(67.0%), and most TCC patients did not have asthma (62.6%). This difference was not

statistically significant. In the COPD category for the ER participants, 87.8% did not

have COPD and 91.3% of TCC patients also did not have COPD. This difference was

not statistically significant. In terms of obesity, 48.7% of ER patients were considered

obese, and 55.7% of TCC patients were considered obese. This difference was not

statistically significant. The majority of participants in both the ER (80.9%) and the TCC

(75.7%) did not have cancer. This difference was not statistically significant. Lastly,

most participants in the ER (55.7%) and the TCC (75.7%) did not have a regular dentist.

This result was statistically significant and could possibly play a major role when

exploring the overall health quality of the participants. Using a chi-square analysis to

compare the ER and the TCC groups for each preexisting conditions variable, the groups

were only found to be statistically significantly different in the category of having a

regular dentist (χ^2 = 10.20, p-value <. 05).

Table 5

Pre-Existing Conditions Descriptive Statistics (ER and TCC Group)

	ER Group		TCC Group		ER vs. TCC Comparison Chi Square Test Results	
	Frequency	Percent	Frequency	Percent	Value	*p*-value
Diabetes						
No	59	51.3%	50	43.5%	1.12	.29
Yes	56	48.7%	64	55.7%		
High Blood Pressure						
No	43	37.4%	51	44.3%	1.15	.28
Yes	72	62.6%	64	55.7%		
Asthma						
No	77	67%	72	62.6%	.47	.49
Yes	38	33%	43	37.4%		
COPD						
No	101	87.8%	105	91.3%	.74	.39
Yes	14	12.2%	10	8.7%		
Obesity						
No	59	51.3%	51	44.3%	1.12	.29
Yes	56	48.7%	64	55.7%		
Cancer						
No	93	80.9%	87	75.7%	.92	.34
Yes	22	19.1%	28	24.3%		
Dentist						
No	64	55.7%	87	75.7%	10.20	*p* < .05
Yes	51	44.3%	28	24.3%		
N	115	100%	115	100%		

Research Questions Testing

Research Question One was: What is the relationship between access to care and

ER utilization, adjusting for demographics and insurance? The regression model for this

research question was the following. For the ER sample group, considering access to

healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation, what is the relationship to ER utilization?

The predictors included reliable transportation, trust in provider, access to childcare, conducive healthcare provider hours, and access to healthcare insurance. I used Bivariate correlations, along with categorical correlations (Phi Coefficient),to determine the collinearity of the independent variables. Upon my examination of the results, there were no concerns over multicollinearity among the independent variables. The reliable transportation variable involved a response of yes or no which were numerically-coded as 1 for yes and 0 for no. The trust in provider variable involved a response of yes or no which were numerically-coded as 1 for yes and 0 for no. The access to childcare variable involved yes, no, and N/A responses which were numerically-coded as 2 for yes, 1 for no, and 0 for N/A. The conducive healthcare provider hours also involved yes or no responses which were numerically-coded as 1 for yes and 0 for no. The health care insurance involved responses of no insurance, self-pay, Medicaid, Medicare, other, employer sponsored, and workers compensation which were numerically-coded from 0 to 6. The dependent variable was the ER utilization which was based on the number of ER visits. The collinearity statistics were generated to determine whether the assumption of multicollinearity was violated. The result is presented in Table 7. The result showed that the VIF statistics ranged from 1.031 to 1.266 which are less than 2.5. Thus, the assumption of multicollinearity was not violated.

Table 6

Collinearity Statistics of Predictor Variables

| | Collinearity Statistics | |
Model	Tolerance	VIF
1 (Constant)		
Q13_RELIABLE_TRANSPORTATION	.790	1.266
Q14_TRUST_PROVIDER	.849	1.179
Q15_CHILDCARE	.970	1.031
Q16_HEALTHCARE_PROVIDER_HOURS	.839	1.192
Q17_HEALTH_INSURANCE	.844	1.184

A linear regression was calculated to predict ER utilization based on access to healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation while including demographic characteristics as control variables.   A significant regression equation was found (F(11, 114) = 2.031, p = .033) as presented in Table 8.

The regression results presented in Table 6 proved that reliable transportation (b = .598; p = .228), childcare access (b = .417, p = .191), healthcare provider hours (b = --.513; p = .281), and healthcare insurance (b = -.072, p = .798) were not significant predictors of ER visits. The trust provider variable was determined as a significant predictor of ER visits (b = -1.264, p = .006). The trust in provider coefficient was negative. This indicates that when participants do trust their provider, there is a decrease in ER visits. Overall, the model was statistically significant. There was sufficient evidence to accept the null hypothesis which stated that there was no relationship

between access to care variables and ER utilization, adjusting for demographics and insurance.

Table 7

Regression Analysis Results for Access to Care and ER Patients Utilizing ER, ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	99.239	11	9.022	2.031	.033
	Residual	457.509	103	4.442		
	Total	556.748	114			

a. Dependent Variable: Q18_ER_VISITS
b. Predictors: (Constant), Q17_HEALTHCARE_INS, Q14_TRUST_PROVIDER, Q15_CHILDCARE, Q16_HEALTHCARE_PROVIDER_HOURS, Q13_RELIABLE_TRANSPORTATION, Age, Gender, Race, Employment Status, Education, Household Income

Table 8

Regression Analysis Results for Access to Care and ER Patients Utilizing ER, Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
2 (Constant)	3.834	1.734		2.211	0.029
Q13_RELIABLE_TRANSPORTATION	0.598	0.493	0.136	1.212	0.228
Q14_TRUST_PROVIDER	-1.264	0.455	-0.274	-2.779	0.006
Q15_CHILDCARE	0.417	0.317	0.157	1.315	0.191
Q16_HEALTHCARE_PROVIDER_HOURS	-0.513	0.474	-0.115	-1.084	0.281
Q17_Health_Insurance	-0.072	0.281	-0.025	-0.256	0.798
Age	0.053	0.021	0.331	2.498	0.014
Race	-0.512	0.249	-0.195	-2.053	0.043
Gender	-0.538	0.355	-0.142	-1.515	0.133
Employment Status	-0.156	0.335	-0.059	-0.465	0.643
Education	-0.002	0.111	-0.003	-0.020	0.984
Household Income	-0.234	0.246	-0.134	-0.954	0.342

Dependent Variable: ER Visits

Research Question Two was: What is the relationship between access to care and TCC utilization adjusting for demographics and insurance? The regression model for this research question was the following. For the TCC sample group, considering access to healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation, what is the relationship to TCC utilization? The predictors (independent variables) included reliable transportation, trust in provider, access to childcare, conducive healthcare provider hours, and access to healthcare insurance. The control variables for demographic characteristics were added in the model. The variables were also numerically represented as in Research Question 1. The result of the regression analysis determined that the regression equation was not statistically significant ($F(11, 114) = 2.142, p = .023$).

The health insurance variable was statistically significant (b = .711, p-value = .042). Reliable transportation (b = .451; $p = .278$) and trust in provider (b = .427; $p = .283$) showed a positive coefficient. This indicated that if there is access to each of these items, there is higher TCC utilization. The result of the analysis was determined as logical and expected because the TCC is more of a primary care type setting, and often times, individuals are working with community healthcare workers who may connect them to other resources within the local community (daycare, insurance eligibility). Access to childcare (b = -.392; $p = ..143$) and conducive healthcare provider hours (b = -.352; $p = .499$) revealed negative coefficients. This means that the higher the level of access to childcare and conducive healthcare provider hours, the lower number of TCC visits. The result of the regression analysis was logical and expected because the

individual would have a means of seeing a physician whom meets his/her schedule.

Overall, the model was statistically significant and the null hypothesis accepted because

only one of the variables was significant. The null hypothesis was "There is no

relationship between access to care variables and TCC utilization, adjusting for

demographics and insurance."

Table 9

Regression Analysis Results for Access to Care and TCC Patients Utilizing TCC, ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	100.514	11	9.138	2.142	.023
	Residual	439.451	103	4.267		
	Total	539.965	114			

a. Dependent Variable: Q19_VISITS_TCC
b. Predictors: (Constant), Q17_HEALTHCARE_INS, Q13_RELIABLE_TRANSPORTATION,
Q15_CHILDCARE, Q16_HEALTHCARE_PROVIDER_HOURS, Q14_TRUST_PROVIDER,
Age, Gender, Race, Employment Status, Education, Household Income

Table 10

Regression Analysis Results for Access to Care and TCC patients Utilizing TCC

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
2	(Constant)	-3.316	2.118		-1.566	0.120
	Q13_RELIABLE_TRANSPORTATION	0.451	0.414	0.102	1.090	0.278
	Q14_TRUST_PROVIDER	0.427	0.395	0.098	1.080	0.283
	Q15_CHILDCARE	-0.392	0.266	-0.141	-1.475	0.143
	Q16_HEALTHCARE_PROVIDER_HOURS	-0.352	0.520	-0.063	-0.678	0.499
	Q17_Health_Insurance	0.711	0.345	0.187	2.060	0.042
	Age	0.003	0.016	0.020	0.215	0.830
	Race	0.164	0.252	0.059	0.650	0.517
	Gender	1.023	0.316	0.293	3.238	0.002
	Employment Status	0.439	0.321	0.170	1.366	0.175
	Table 11 (Continued).					
		0.189	0.126	0.145	1.502	0.136

Education					
Household Income		-0.575	0.330	-0.219	-1.744	0.084

Dependent Variable: TCC Visits

Research Question Three was: How does the study participant sample who utilized the ER at Hospital XO compare to the study participant sample who utilize the TCC at Hospital XO? Independent samples t-tests were run for the number of ER and TCC visits when comparing the ER and TCC groups. The results of the analyses are presented in Tables 12 and 13. Table 9 presents the descriptive statistics of the number of ER and TCC visits based on ER and TCC participant groups. The statistics showed that the ER group (M = 1.50, SD = 2.21) had a higher mean number of ER visits as compared to the TCC group (M = .90, SD = 1.92). On the other hand, the TCC group (M = .98, SD = 2.18) had a higher mean number of TCC visits as compared to the ER group (M = .71, SD = 1.20).

Table 11

Measures of Central Tendencies of ER and TCC Visits for ER and TCC Group Participants

		N	Mean	SD	SE Mean
ER Visits	ER	115	1.50	2.21	0.21
	TCC	115	0.90	1.92	0.18
TCC Visits	ER	115	0.71	1.20	0.11
	TCC	115	0.98	2.18	0.20

The results of the independent samples t-test are presented in Table 13. The results showed that equal variances cannot be assumed for both the number of ER and TCC visits. The results of the independent samples t-test determined that the number of

ER visits was significantly different between the ER and the TCC group (t = 2.229, *p*-value = .027). However, the number of TCC visits were not significantly different between the ER and the TCC group (t = -1.162, *p*-value = .247). The results determined that there is sufficient evidence to accept the null hypothesis which stated that there is no comparability between the study participant sample who utilized the ER at Hospital XO and the study participant sample who utilized the TCC at Hospital XO. The results showed that there was a difference between the number of ER visits between ER and TCC groups. The result was logical because the ER participants visited the ER significantly more than the TCC participants.

Table 12

Independent Samples T-test Results for the Number of ER and TCC Visits of ER and TCC Group Participants

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	T	df	p-value	Mean Difference	Std. Error Difference	Lower	Upper
ER Visits	5.632	.018	2.229	223.670	.027	.60870	.27306	.07060	1.14679
TCC Visits	4.281	.040	-1.162	177.891	.247	-.26957	.23198	-.72735	.18822

Summary of Findings

This chapter presented the demographic information regarding the participants in the study. The demographic information included age, race/ethnicity, gender, income, household income, employment status, highest level of education, and health insurance status. The information regarding the participants also included preexisting conditions and if the participants regularly visited a dentist. The chi-square analysis revealed that the ER and TCC groups were statistically significantly different in the categories of income ($\chi^2 = 20.25$, *p*-value < 0.05), household income ($\chi^2 = 23.61$, *p*-value < 0.05), highest level of education ($\chi^2 = 8.55$, *p*-value = .04), employment status ($\chi^2 = 6.56$, *p*-value = .04), and health insurance status ($\chi^2 = 45.99$, *p*-value < 0.05).

For Research Question One, I calculated a linear regression to predict ER utilization based on access to healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation. A significant regression equation was found ($F(11, 114)=2.031$, p = .033). Only the trust in provider was a significant predictor of ER utilization. Therefore, not all access to care variables were related to ER utilization. Thus, the null hypothesis was accepted. There was no relationship between all of the access to care variables and ER utilization, adjusting for demographics and insurance.

For Research Question Two, I calculated a linear regression to predict TCC utilization based on access to healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation. A significant regression equation was found ($F(9, 114)=1.885$, p = .062). The model was

statistically significant, however, only one of the predictors was significant. Therefore, the null hypothesis which stated that there is no relationship between all of the access to care variables and ER utilization, adjusting for demographics and insurance is accepted.

For Research Question Three, I calculated an independent samples t-test for the number of ER and TCC visits for each group. The result determined that the two groups had significantly different number of visits to the ER. The ER group had significantly higher ER visits as compared to TCC group. However, there was no statistically significant difference in the TCC visits for the ER and the TCC group. As for the pre-existing conditions, the results of the Chi-square analyses determined that both groups had statistically the same pre-existing conditions.

Chapter 5: Discussion

Introduction

The cost for ER visits being significantly higher than for the same charges in a

primary care setting has shown to cause a financial burden on communities, particularly

in rural areas. The purpose of this quantitative cross-sectional study was to research

patients who utilize a ER and TCC at a rural hospital in Southeastern United States, with

a focus on the characteristics that influenced their ER and TCC encounters. The collected

data came from relevant information regarding emergency care, primary care, healthcare

access, health insurance, and preventative healthcare found in ER patients at this rural

hospital. Throughout this analysis, I focused on barriers and trends of care access to the

ER and TCC with a cross-sectional analysis of data collected through self-report

questionnaires. The focused research questions included

1. What is the relationship between access to care variables and ER utilization,

   adjusting for demographics and insurance?

   Null hypothesis: There is no relationship between access to care variables and

   ER utilization, adjusting for demographics and insurance.

   Alternative hypothesis: There is a relationship between access to care

   variables and ER utilization, adjusting for demographics and insurance.

2. What is the relationship between access to care variables and TCC utilization,

   adjusting for demographics and insurance?

   Null hypothesis: There is no relationship between access to care variables and

   TCC utilization, adjusting for demographics and insurance.

Alternative hypothesis: There is a relationship between access to care

variables and TCC utilization, adjusting for demographics and insurance.

3. Based on differences in access to care variables, how does the study

participant sample who utilize the ER at Hospital XO compare to the study

participant sample who utilize the TCC at Hospital XO?

Null hypothesis: There is no comparability between the study participant

sample who utilize the ER at Hospital XO to the study participant sample who

utilize the TCC at Hospital XO.

Alternative hypothesis: There is comparability between the study participant

sample who utilize the ER at Hospital XO to the study participant sample who

utilize the TCC at Hospital XO.

Descriptive data findings for the variables provided standard deviations and

exhibited such means and minimums for reliable transportation, trust provider, childcare,

healthcare provider hours, and health insurance variables. Categorical variables between

ER and TCC groups showed statistically significant differences between individual

income, household income, highest level of education, and health insurance status. The

descriptive data on preexisting conditions showed only a significant difference with the

TCC group having access to dental care.

Interpretation of the Findings

What is the Relationship Between Access to Care Variables and ER Utilization,

Adjusting for Demographics and Insurance?

I used a linear regression to determine if ER utilization was based on access to healthcare insurance, access to childcare, having a regular healthcare provider, and reliable transportation. As the analysis showed a model being statistically significant with the regression results proving that these variables were not significant predictors in ER visits, the null hypothesis stating there is no relationship between access to care variables and ER utilization, adjusting for demographics and insurance was accepted. Yet the one significant predictor of ER visits was the variable of trusting the healthcare provider and thereby showing that ER visits decreased. This indication suggested that when a person has trust in their provider, the likelihood that they will wait for regular physician hours rather than visit the ER. This significant regression equation was found $(F(11, 114)=2.031, p = .033)$. Only the trust in provider is a significant predictor of ER utilization. Therefore, not all access to care variables were related to ER utilization. Thus, the null hypothesis was accepted. There is no relationship between all of the access to care variables and ER utilization, adjusting for demographics and insurance.

These findings are in direct contradiction of the access to medical care theory used in the current study. With the dimensions of Approachability, Acceptability, Availability and Accommodation, Affordability, and Appropriateness being the construct of the theory, there was no notation of trust in this dichotomy. However, the results of the regression model were in agreeance with the literature discussed claiming that individuals living in rural areas had a lack of accessibility to healthcare providers, a lack of

healthcare insurance and wee prone to poverty were more commonly known to use ER for healthcare services (Douthit et al., 2015; Smith et al., 2017; Towne, 2017).

2. What is the Relationship between Access to Care Variables and TCC Utilization, Adjusting for Demographics and Insurance?

I used a linear regression to predict TCC utilization based on access to healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation. In response to proving the hypothesis and answering this second question, I found a significant regression equation ($F(9, 114)=1.885$, $p =$ .062). The model is statistically significant as only one of the predictors was significant. Therefore, I accepted the null hypothesis which stated that there is no relationship between all of the access to care variables and ER utilization, adjusting for demographics and insurance.

The one significant variable was access to childcare and availability of healthcare provider's set hours equaling a lower number of visits to the TCC. For those individuals living in rural areas, healthcare provider service hours were considered important in considering healthcare services as most participants worked out of town and had to rearrange schedules based on the hours in which childcare was available and in conjuction with the healthcare provider's own service hours. This one significant result suggested that people living in rural areas considered their healthcare services based on strictures set in place outside of their control such as the hours of operations for both childcare and the healthcare provider.

3. Based on Differences in Access to Care Variables, How Does the Study

Participant Sample Who Utilizes the ER at Hospital XO Compare to the Study

Participant Sample Who Utilizes the TCC at Hospital XO?

I analyzed the final question and hypothesis using an independent sample *t*-tests for the number of ER and TCC visits for each group. The result determined that the two groups have significantly different number of visits to the ER. The ER group have significantly higher ER visits as compared to TCC group. However, there is no statistically significant difference in the TCC visits for the ER and the TCC group. As for the pre-existing conditions, the Chi-square analyses determined that both groups have statistically the same pre-existing conditions.

Significant results showed that ER visits were higher than TCC visits when compared side by side. The ACA was instated to improve access to healthcare for all individuals and families, whether insured or not. Even though the ACA was created to provide care for all, access to care is still lacking (for many of the most vulnerable within the United States including rural populations; (Plescia & Dulin, 2017). When rural groups are not afforded the access to care that they need, typically they are unhealthier than those who have access to care and will typically have poorer health outcomes (Nguyen & Sommers, 2016). Barriers often play a major role in persons not having the access to care that they need. Access to care barriers include, but are not limited to: poverty, education, employment, cultural beliefs, lack of health insurance, and lack of reliable transportation (Polster, 2018).

Those who do not have the access to healthcare often suffer from other circumstances in life as well. Individuals who live in rural areas oftentimes find more difficulty in obtaining access to care than their urban counterparts (Douthit, Kiv, Dwolatzky, & Biswas, 2015; Weinhold & Gurtner 2014). Typically, urban areas will have more resources than rural areas. Urban areas will also be more attractive to many healthcare providers when they are thinking about employment. To analyze how these factors impact healthcare accessibility, I examined the health and demographic factors of patients seeking healthcare from a rural southeastern hospital in South Carolina.

Access to Care

The ACA was instated to improve access to healthcare for all individuals and families, whether insured or not. Even though the ACA was created to provide care for all, access to care is still lacking (Plescia & Dulin, 2017) for many of the most vulnerable within the United States including rural populations. When rural groups are not afforded the access to care that they need, typically they are unhealthier than those who have access to care and will typically have poorer health outcomes (Nguyen & Sommers, 2016). Barriers often play a major role in persons not having the access to care that they need. Access to care barriers include, but are not limited to poverty, education, employment, cultural beliefs, lack of health insurance, and lack of reliable transportation (Polster, 2018).

Accessibility to care factors, including access to healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation did not have a statistically significant correlation with the

population's utilization of the ER and TCC. While this contradicts the expected findings, the results given are not without possible explanations found in the literature review. Behr and Diaz's (2016) analysis of emergent department utilization by patients determined that prescription drug for mental health issues use was significantly related to patient's use of the emergency department. The significance level ($P<0.001$) demonstrated that there is a strong correlation between these two variables. Since prescription drugs imply an ongoing history of healthcare, patients who seek emergency department health services may be more likely, in general, to have improved healthcare accessibility rates. Such a hypothesis may be worth testing in future studies since it was unexplored within the present one.

For example, prescription drugs used for mental health issues are frequently expensive. Therefore, patients who use them are more likely to have and work toward having healthcare insurance to cover their medical expenses. Similarly, accepting prescription drugs to help with one's mental health issues signifies a great deal of trust in the provider. Regular healthcare treatment is also a component of receiving adequate varieties and dosages of mental health prescription drugs. Thus, theorized, though untested, patients within this study who visited the ER likely had a history of healthcare needs and usage. As concluded by Behr and Diaz (2016), people can become frequent users of the emergency room for a variety of reasons which includes lack of access to healthcare services.

Using the ER in this manner, however, may have complications for a patient's health. If the ER is only used as a last result, then patients with conditions like

hypertension, diabetes, asthma, and emphysema are also more likely to visit the ER and use the ER for a place of usual dependent care (Garcia, Bernstein, & Bush, 2010; Gindi et al., 2016; Vinton et al., 2013). Thus, they may ignore health problems until they become an emergency requiring immediate medical attention. This trend is likely a driving force behind increased ER use and healthcare accessibility in urban areas. In rural areas like South Carolina, however, healthcare needs may be different than in urban areas, which could have confounded this anticipated effect.

For instance, South Carolina's rural areas are known for their high rates of road fatality (University of Wisconsin Population Health Institute, 2017). Since a serious automobile accident would bring anyone to the ER, regardless of their healthcare insurance, level of trust in their provider, access to childcare, having a regular healthcare provider, and reliable transportation, ER attendance demographics may differ from those in urban areas which have lower levels of traffic fatality. I did not explore this hypothesis within this study; however, future studies may consider the variables in order to better account for ER patient demographics and rationale for emergency care.

 Although not tested in this study, in theory having reliable transportation would be more of a liability since it would increase the participant's time on the road. People who spend more time on the road than those who do not would be more likely to be involved in automobile accidents. Such ER-related accidents are likely to extend beyond just road accidents as well. According to the CDC, unintentional injury is one of the five leading causes of death in rural America (James et al., 2017). Thus, patients within this study who may have had a reliable means of transportation, in theory, inadvertently

increased their likelihood of visiting the ER. Due to time constraints, this potential was an unexpected factor within this study which assumed to be one possible explanation for the results found through the course of the study. Nonetheless, with their reliable transportation, they would have overcome one of the main healthcare barriers that perpetuate a delayed continuum of care (Syed et al., 2013). Hence, automobile accidents in rural communities may influence the expected relationship between barriers to healthcare and visits to the ER. Future studies may consider assessing the degree to which automobile accidents affect ER attendance rates in rural areas by recording and analyzing reasons for attendance.

Other access to care barriers may be different for rural populations as well. For example, one of the access to care barriers is that of the patient's trust in their provider. In rural communities like South Carolina, however, there are often closer community ties (Nielsen, D'Agostino, & Gregory, 2017), likely because the patient and provider may see each other more regularly than in urban areas. The closeness of these ties may have led the participants in the study to have a greater level of trust in their healthcare provider than in urban areas.

Conversely, this closeness can also have challenging effects for the most vulnerable members of rural communities. Vyavacharker et al. (2010) found in their study of South Carolina patients that they felt negatively judged and perceived a certain way based upon their race as a Black person and diagnosis. Thus, the Black participants in the study may have felt stigma when receiving ER care, an effect that could have biased their reporting within the study.

The dichotomy of the findings in the literature review suggests there may have been variability in healthcare needs, experiences, and reporting within the population sample that confounded the identification of statistically significant variables. If, for example, ER utilization is more likely for those who have prescription drugs for mental health issues, yet many people still use the ER as a form of primary care when they are lacking alternative forms of healthcare, then a very mixed population sample can be found within the ER. The heterogeneity of the population surveyed suggested that a broader sample would be better suited to appropriately stratify the data and answer the research question. Further investigation into these contradictions is required.

Likewise, the increased rate of automobile accidents in rural areas may have confounded the expected results. Lack of reliable transportation is a significant barrier to healthcare access (Locatelli, Sharp, Syed, Bhansari, & Gerber, 2017), even in rural areas (Arcury et al., 2005). Nevertheless, in theory, an increased rate of accidents in the region for those with transportation would bring them more frequently into the ER in the event of an accident. Such a conclusion is supported by the nation's inpatient hospitalization records for motor vehicle crashes which indicate the parties most injured in motor vehicle crashes are the drivers themselves (Parreco et al., 2018).

Additionally, cultural beliefs in rural areas may have impacted the results as well since there are closer connections in rural areas. It is hypothesized that the closeness of these connections may inspire trust at times while at others it leads to judgment and resentment depending on racial characteristics of the provider and patient. As discussed

by Arnett, Thorpe, Gaskin, Bowie, and LaViest (2016), Blacks have a greater level of medical mistrust when choosing their source of usual care, especially in low-income communities. Thus, use of the ER for their healthcare needs more regularly than primary care for their main source of care (Arnett et al., 2016). Hence, the effect of rural relationships on the level of trust given to a provider is difficult to account for without measuring for the impact of racial characteristics. Future research studies should take these factors into account by measuring trust for differing patient demographics in their analyses. Further research should consider stratifying the ER and TCC patients by their racial categories to determine how these influences effected their healthcare behaviors and barriers within rural communities. Furthermore, trust relevant questions in the survey would be appropriate as well.

In sum, it is conjectured that-three identified factors could have undermined the expected significance of half of the access to care variables. Patients with prescription drugs for mental health issues in the ER more likely have some form of health insurance. Furthermore, automobile accident rates in rural communities could moderate the expected relationship between reliable transportation and ER visitation. A patient's level of trust in his or her provider was likely influenced by how well the patient knows and likes them in small-town communities, in addition to their racial characteristics. Considering how racial factors influence the patient's healthcare usage (Cook, Trinh, Li, Hou, & Progovac, 2017; Goodwin et. al, 2003; Kressin & Lin, 2015), these themes may have affected the results of the study.

Alternatively, the results of this study may suggest that there is not as strong of a connection between the described barriers to healthcare access and ER visitation. Since this conclusion, however, contradicts the majority of the literature identified, the study's disconfirming findings may reflect limitations in the study's design and variables.

Limitations

No study, no matter how well designed, is without its limitations. In this study, the choice to specifically analyze a single hospital did not make the findings highly generalizable to contexts outside the study hospital. The study participants were representative of the ER and TCC population. By exclusively examining a sample of patients from a single hospital, the results of the study may be exclusive to the region in consideration rather than rural settings in general. For example, South Carolina, as a whole, is ranked 42 in the United States for health outcomes. Thus, the health of the state is, in general, lacking compared to other states. Hence, the health outcomes found for its rural populations, which are worse than urban ones (University of Wisconsin, 2017), would be substantially lower than the average state of health in most of this country's rural settings.

Another limitation of this study was the use of self-report questionnaires to collect patient data. For example, this meant that data was only collected from those who completed the questionnaire. Furthermore, it excluded individuals who did not wish to volunteer in the study, behavior trend that would likely be influenced by lack of trust in healthcare. Thus, the study excluded participants who did not start and finish their questionnaire. To account for the selection bias this may have created, surveys should

include a place for participants to 'opt out' of the questionnaire with an optional 'fill-in-the-blank' for their specific reason. At least, in this way, participants would not feel pressure to complete the form, thus, providing insight into why they did not care to participate in the study. Future researchers may want to implement use of a mini pad for participants to complete their questionnaire. This way participants could complete the questionnaire and be completely anonymous.

Furthermore, because individuals often utilize the ER when they do not have sufficient insurance or other healthcare resources, the ER may be overcrowded (Becker & Friedman 2014; Behr & Diaz 2016). Such crowding may have made participants of relevance to the present study reticent to divulge such personal information about themselves while experiencing social scrutiny. This may have been especially true if patients felt guilty about contributing to the crowding of the ER without having the necessary health insurance coverage to pay for their visits. As indicated in Allen et al. (2014), there is a stigma amongst those who face poverty in receiving public insurance and/or charity healthcare.

Indeed, such a stigma is not only related to unmet health needs and poorer perceptions of quality of care but also declined self-report measures as well. The stigma would be greater as well based upon the population's race. As found by Vyavaharkar et al. (2010) patients in rural South Carolina report higher levels of perceived negative judgment from those in their community based upon their diagnosis, mental health, and race. Matters of race may be particularly challenging in rural South Carolina where 40% of the population is Black. Such a population size is attributable to South Carolina's

considerable role in the slave trade in colonial times with 40% to 60% of Blacks capable

of tracing their roots through Charleston (Stodghill, 2016). Future analyses should take

into account total racial composition of the patient population using the ER & TCC to

determine if Blacks have lower volunteer rates than White and Other participants.

Purposive sampling may be necessary as well to make the participants representative.

Another factor that may have impacted the validity of the self-report

questionnaires was the participant's health literacy. By knowing and understanding health

literacy, individuals can make informed decisions about their health and the health of

those within their families (Pop et al., 2011) which plays a significant role in health

outcomes (Dewalt et al., 2004). When individuals lack health literacy, however, their

health outcomes are not only worse, but they also inaccurately report their health status,

particularly when it is poor. Since the status of health was one of the main study

variables, having participants report this themselves jeopardized the reliability of the

study's findings. Future studies ought to use a reliable and valid health literacy scale, like

the Short Assessment of Health Literacy (Lee, Stucky, Lee, Rozier, & Bender, 2010).

The use of a quantitative design may also be a limitation to the study given the

complex and contextual nature of healthcare access. Aday and Andersen (1974) state that

access to care is a highly multidimensional concept that extends beyond just financial and

non-financial constraints. Indeed, non-financial barriers are known to play a larger role

than the finances/insurance as many uninsured adults struggle with nonfinancial barriers

as well (Luque et al., 2018). According to Levesque et al., (2013), access to care depends

on the patient's ability to interact with several dimensions of accessibility including

Approachability, Acceptability, Availability and Accommodation, Affordability, and Appropriateness. Reducing these complex dimensions to simple multiple-choice questions without room for further explanation may have limited the efficacy of the study.

Recommendations

Future studies should utilize alternative study methods to gain more expansive and reliable insights into the manner with which rural populations are affected by barriers to healthcare access. For example, a qualitative approach should be utilized to clarify the contradictory results of this study. For instance, patient-centered access to care depends on the patient's ability to interact with the dimensions of accessibility which include Approachability, Acceptability, Availability and Accommodation, Affordability, and Appropriateness (Levesque et al., 2013). Since many of these variables are subjective and contextual, a qualitative approach may be more applicable to their identification and analysis.

Thus, more open-ended approaches may enable study participants to expand upon how the barriers to healthcare have affected them. The utility of such a semi-qualitative approach was positively exemplified in Heffner et al. (2015)'s analysis of primary care access barriers. The study's researchers qualitatively coded the population's barriers to find that there was considerable variability via insurance status, constraints for health care access, and reported infrastructure barriers. Future research studies are advised to consider similarly efficacious approaches when working with these complex variables.

Likewise, self-report questionnaires likely affected the validity and reliability of the study. Since self-reports may become biased by social factors, like perceived stigma, and are invariably limited by the patient's health literacy, future studies should adopt more reliable data collection measures like patient interviews. Alternative data collection procedures were utilized in other studies that examine patient's accessibility to ER care. Behr and Diaz (2016), for example, had research staff and physicians interview the patients within their study rather than use self-report questionnaires. Although interviewing using research and medical staff may be more resource consuming than self-report measures, the added reliability this method brings likely justifies the effort. For this study, I elected not to use this approach in order to reach the widest number of participants possible, a target that ideally would have been met through self-report surveys. Use of electronic data collection devices has the potential to help reduce demands on the researcher's time, while standardizing the way questions are asked or issues str presented; and, enabling study participants to engage anonymously at their own location.

Furthermore, future studies examining the factors that impact rural resident's healthcare access and ER attendance should widen the scope of their analysis beyond a single hospital. By studying several rural hospitals, community-specific factors, like rural South Carolina's extraordinary rate of poverty, 21.8%, may be better accounted for (Rural Health Information Hub, 2020). In other words, a wider or randomized population sample would support the generalizability of future studies. Purposive sampling can also be more helpful when trying to consider "sensitive issues" which impact important but

smaller subpopulations. With weighting, representativeness can still be achieved. For this study, I elected to use just ER and TCC patients to increase the reliability of data set since surveys sent out to the community would require the sample to be intimately familiar with their healthcare usage, a characteristic uncommon to those without health literacy.

Additionally, researchers may consider broadening the focus of the study to include relevant racial-equity indicators in order to support findings which indicate racial/ethnicity disparities in health or healthcare. Just with zip code data, it may be possible to gather important information regarding patient's income, voting, law enforcement situation, and education. Taking these factors into account may help to resolve any discrepancies that arise between given hypotheses and the collected data.

Similarly, future studies could examine in-depth any of the other barriers to healthcare access within rural contexts to see how they compare to urban contexts. Presently, there is limited research on how the healthcare access barriers affect frequent ER users, especially in rural areas (Chen et al., 2015; Feinglass et al., 2014; Syed et al., 2013). Thus, studies that explicitly compare these regions may yield more substantial insights with helpful implications for social change and professional practice.

Finally, there is a need for greater exploration into the nature of TCC's and how their use is affected by the healthcare access barriers. Limited research on this domain of healthcare was a shortcoming which may have supported greater analysis of this study's results. Research Questions Two and Three pertained to TCCs. Thus, understanding how rural residents utilize TCCs may offer substantial insight into the findings of the study.

Implications for Professional Practice and Social Change

The mostly inconclusive nature of the present study suggests there are limited applications for social change and professional practice. If anything, the results of the study reiterate the need for further research in rural areas to determine how barriers to healthcare access affect the population. Specifically, it is prudent to examine racial characteristics of the total patient populations, along with survey participants, to determine how ethnicity relates to healthcare barriers in rural communities. This may best be achieved through user friendly research measures that invite participants to reflect on and share their lived experiences of healthcare within their community (Smedley, B., Stith, A., & Nelson, A., 2003). Rural communities are affected by numerous barriers to care, like poverty or physician availability, which makes further studies in this area of prime importance. Perhaps, such analyses may help to resolve some of the apparent contradictions specified within this study.

Conclusion

The purpose of this quantitative cross-sectional study was to research patients who utilizes an ER and TCC at a rural hospital in Southeastern United States. The dependent variables were patient ER and TCC encounters within the last 12 months. The independent variables included race, age, annual individual income, annual household income, health insurance status, employment status, education level, access to healthcare services, type of visit, preexisting conditions, self-reported health status, zip code, number of visits to ER in past 12 months, and number of visits to the TCC in the past 12

months. With self-report questionnaires to acquire such data and linear regression analyses, no statistically significant relationships were found.

Hence, it was not possible to reject the study's null hypotheses. The inconclusiveness of the study may be due to such complexities within the population. Possible contradictions that may have confounded the results of the study include the healthcare status of ER patients who utilize prescription drugs for mental health issues, ER visits for automobile accidents in rural areas and reliable transportation, and level of trust in healthcare providers in smaller communities.

Each of these factors may be considered for future studies by researchers who wish to explore the complex and contextual nature of healthcare accessibility. Until the relationships between these variables are clearer, researchers may consider utilizing qualitative methods to identify the nuances that affect these communities. Likewise, interviews, rather than self-reports, may be necessary to correct for limitations in participant's health literacy and perceived stigma. By following these recommendations, future researchers may help to expand the present understanding of when and why rural residents utilize the ER as a form of primary care instead of other healthcare services.

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