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Strategies to Implement Telemedicine Systems in Health Care Organizations

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Individuals living in rural areas face constraints in receiving quality and low-cost medical care. Healthcare leaders are concerned that ineffective telemedicine programs can increase costs and jeopardize the medical needs of patients. Grounded in the diffusion of innovation theory, the purpose of this qualitative multiple-case study was to explore how healthcare leaders implement telemedicine programs in a rural environment. The participants were 12 healthcare leaders from medical practices in Alabama, Georgia, and Illinois who successfully implemented at least one telemedicine program for rural patients. Data was collected through semistructured interviews and a review of company documents. Through thematic analysis, four themes emerged, including (a) training, (b) implementation, (c) advantages of telemedicine, and (d) barriers to implementing telemedicine. A key recommendation is for healthcare leaders to conduct monthly in-person or virtual training seminars, conferences, and workshops on multiple types of change management strategies to improve the success rate of implementing telemedicine programs in rural areas. The implications for positive social change include the potential to increase access to medical care in rural areas.

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Dedication

My beautiful and supportive wife, April, gave me the encouragement and strength I needed to endure this academic journey. To my twin sons, John III and Jeremiah, who inspired me with their impressive work ethics and drove me to succeed in their prospective careers. And finally, my parents, John Sr. and Delores Moore, the patriarch and matriarch of our family, instilled in me the key principles that led to my personal, educational, professional, and spiritual development.

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Section 1: Foundation of the Study

The U.S. federal government project reveals there will be a shortage of approximately 20,000 primary care doctors in rural locations by 2025 (Nielsen et al., 2017). National healthcare spending projection is to increase by 5.4% per year, on average, for 2019–2028, compared to a growth rate of 4.5% over the past 3 years (Keehan et al., 2020). Finding healthcare professionals and support staff in rural areas is challenging and may become more difficult in the future (Redford, 2019). Telemedicine is a way of providing health care utilizing information and communication technologies (ICT) or technological innovations through which it is possible to implement a medical consultation between the health care professional and patient even if they are in two different locations (Postorino et al., 2020). Telemedicine technology could bridge the gap between urban and rural areas concerning healthcare accessibility barriers and improve the business environment by reducing costs to providers (Mbunya et al., 2018).

Background of the Problem

Patients who live in rural communities in the United States face the challenge of finding adequate access to health care. This problem can be further complicated by the shortage of physicians, especially in rural and remote areas (Saito et al., 2020). Traditionally, rural areas are limited to a lack of access to medical care due to the challenges associated with the recruitment and retention of healthcare professionals (Wang et al., 2017). These challenges are a result of issues such as economic constraints, accountability, and patient privacy. Since 2010, healthcare organizations have rapidly adopted telemedicine as a part of their medical delivery system to patients living in rural

areas (Canfield & Galvin, 2018). In most countries, regardless of income levels, there is a shortage of doctors in rural regions, especially in areas where primary care is not strong (Saito et al., 2020). Telemedicine solutions are emerging quickly in health care and can reduce costs to insurers, providers, and patients in a wide variety of settings (Sasangohar et al., 2018). Telemedicine surveillance applications can detect preventable treatment-related illnesses that may otherwise go undetected by healthcare providers (Agboola & Kvedar, 2016). Further research is necessary to explore additional strategies to implement telemedicine programs in medical facilities to offer greater access to quality and low-cost healthcare medical treatment for patients in rural areas.

Problem Statement

The current coronavirus disease 2019 (COVID-19) healthcare crisis and the need for social distancing to protect medical practitioners and patients have resulted in the need to adopt initiatives for the treatment of patients (Anthony, 2021). Only 25% of the total physician workforce serve approximately 50% of the world's rural population (Johnson et al., 2018). The general business problem was the inability of some healthcare leaders to implement telemedicine systems for patients living in rural communities, which impacted the efficiency and profits of healthcare providers. The specific business problem was that some healthcare managers needed more strategies to successfully implement telemedicine systems in a rural environment.

Purpose Statement

The purpose of this qualitative multiple-case study was to explore what strategies healthcare leaders used to successfully implement telemedicine programs in a rural

environment. The targeted population consisted of 12 leaders from 12 separate healthcare organizations located in rural areas of Alabama, Georgia, and Illinois who successfully implemented at least one telemedicine system. Individuals who read the results of this study may effect social change by increasing the use of telemedicine programs to provide greater access to quality, low-cost medical care for patients who live in rural areas.

Nature of the Study

In this study, I used a qualitative research method to address the research questions. A qualitative methodology can describe any data collection technique or data analysis procedures that principally generates or uses nonnumerical data (Saunders et al., 2018). In conducting the research, Rogers's (2003) diffusion theory model was used to conceptualize the challenges associated with the implementation of telemedicine delivery services. The diffusion theory model provided an opportunity to understand the phenomena of implementing telemedicine programs in rural communities. Healthcare leaders, experienced in telemedicine implementation, participated in semistructured interviews to collect data for this study. One focus group meeting that consisted of three content experts in telemedicine was also used to triangulate the data obtained from the individual participants. The qualitative research method was the most appropriate means of capturing healthcare leaders' knowledge regarding the benefits and strategies they used to implement new telemedicine practices. Quantitative research is an interactive, multimethod approach that investigates people in their natural environment (Yin, 2018). Researchers use the quantitative method to describe any data collection technique (i.e., an interview) or data analysis procedure (i.e., graphs or statistics) that yields or uses

numerical data (Saunders et al., 2018). Quantitative researchers typically focus on numerical data instead of subjective connotations (Saunders et al., 2018). Most quantitative approaches rely on researchers' emphasis on hypothesis testing for examining key variables' characteristics or relationships through aggregating cross-case data for each variable (Yin, 2018). The quantitative approach was not suitable for this study because it does not offer participants the freedom to convey their real-life experiences in telemedicine integration to the researcher. Mixed-method research combines the use of quantitative and qualitative methods and associated analytical procedures (Saunders et al., 2018). The quantitative dimension of the mixed method made it inappropriate for this study.

Researchers use the following designs to conduct qualitative research studies: narrative, phenomenological, and case studies. Narrative researchers seek to preserve chronological connections and the sequencing of events as told by a participant (narrator) to enhance knowledge and assist in an analysis (Saunders et al., 2018). The data I collected did not consist of stories about participants' personal lives; therefore, the narrative design was not an appropriate option. A phenomenological design is a form of qualitative research that focuses on the study of an individual's lived experiences within the world (Neubauer et al., 2019). This study consisted of exploring strategies used, not the participants' attitudes, making phenomenological design inappropriate for my study. Qualitative case studies are nonnumerical in-depth inquiries into a topic or phenomenon within its real-life environment (Yin, 2018). When a study includes more than one single case, multiple studies are needed (Yin, 2018). Multiple case studies incorporate the use of

more than one case to focus on whether the results are replicated across cases. The multiple case study design was an appropriate choice for this research because I was able to obtain in-depth knowledge about telemedicine strategies from multiple healthcare leaders.

Research Question

What strategies have some healthcare managers used to successfully implement a telemedicine system in rural areas?

Interview Questions

1. What strategies did you use to successfully implement telemedicine systems in rural areas?
2. How did you introduce telemedicine to your physicians and other healthcare professionals?
3. What types of training did you provide to your staff when you implemented your new telemedicine system(s)?
4. How did you elevate the success of your telemedicine systems?
5. What key barriers, if any, did you encounter when implementing your system?
6. What strategies did you implement to overcome key barriers?
7. How, if at all, did implementing telemedicine affect the culture of your organization?
8. What additional information would you like to share regarding strategies your organization used to successfully implement a telemedicine system in a rural environment?

Conceptual Framework

The diffusion theory lens established this study's conceptual framework. Everett Rogers created the diffusion of innovations theory in 2003 by combining almost 50 years of research in diffusion and developing them into a set of foundational principles that described how a new idea or system of innovation could benefit a social system. Rogers (2003) established these principles as the diffusion theory. Today, this theory is commonly referred to as the diffusion theory. *Diffusion* is a social process that takes place among individuals in response to learning about an innovation like a new evidence-based method for expanding or enhancing health care (Dearing & Cox, 2018). The primary principle of the diffusion theory is that people, as part of a targeted social system, incorporate a new idea, behavior, or product, where adoption equates to a person or group of people doing something different than before. This theory aligned with my study because of its ability to change the behavior of individuals in a social setting. The diffusion theory provided insight into what influences physicians' and other healthcare professionals' attitudes toward the adoption of telemedicine services in rural areas. The diffusion theory was an applicable framework for this study because of its ability to serve as a change model for guiding technological innovation, where the innovation is modified and presented in ways that meet the needs across all levels of adopters.

Operational Definitions

Change agent: A change agent is an individual or group that takes on the responsibility of starting and managing change in an organization (Williams, 2019).

Health care leader: Health care practitioners such as physicians, dentists, chiropractors, psychiatrists, clinical psychologists, nurse practitioners, and clinical workers are licensed professionals authorized to deliver health services to their patients (Swanepoel et al., 2010).

Rural area: A rural area is any geographical area that is not covered under the definition of an urban community (Gurupur & Miao, 2022).

Store and forward: Store and forward is the process of sending data, including protected patient medical information, such as images, sounds, and medical records, to another location where clinical professionals retrieve and evaluate the information (Vidal et al., 2020).

Telehealth: Telehealth involves the use of electronic and telecommunication technologies to support and promote long-distance, and remote clinical health care, patient and professional health-related education, and public health and administration (Allen, 2017).

Telemedicine: Telemedicine is the use of telecommunication technologies to deliver medical information and support health when distance separates the patient and health care professional (Aiello et al., 2021).

Telepathology: Telepathology is the practice of pathology at a distance that clinicians use to deliver medical diagnoses using a digital transmission of information that involves the use of technology (Feroz et al., 2020).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are implied or obvious statements assumed to be true or taken for granted without providing evidence or proof of their validity (Theofanidis & Fountouki, 2018). My first assumption was that patients living in rural Alabama, Georgia, and Illinois need more access to medical facilities and healthcare professionals and that this group can benefit from the use of telemedicine delivery services. My second assumption was that participants would answer each question openly and honestly. Another assumption was that the implementation of telemedicine programs would improve the quality of medical care for individuals living in rural communities compared to traditional medical delivery services.

Limitations

The limitations of any study concern potential weaknesses that are typically out of my control and are closely related to the chosen research design, statistical model constraints, funding constraints, or other factors (Theofanidis & Fountouki, 2018). The first limitation was that the technology used in telemedicine is steadily evolving at a rapid rate, and as a result, it is possible that certain aspects of the collected data need to be updated and validated prior to the completion of this study. The second limitation of this study was the restriction of participants to healthcare managers of rural healthcare organizations in Alabama, Georgia, and Illinois. The third limitation was the small sample size of 12 healthcare leaders. The final limitation was the short duration of the study.

Delimitations

Delimitations are the limitations or boundaries set by authors to prevent the goals from becoming too large to complete (Theofanidis & Fountouki, 2018). Delimiting factors include the choice of objectives, the research question, variables of interest, theoretical perspectives adopted by a researcher (as opposed to what could have been adopted), and the population they elect to investigate (Theofanidis & Fountouki, 2018). The choice of geographical locations was the first delimitation of this study. The second delimitation was using healthcare leaders who previously implemented telemedicine programs as participants for this study. The third delimitation was the small number of participants used for the interviews. A larger sample size may be necessary to represent a wider segment of the rural population in the United States. Another constraint was that this study was limited to participants who only represented healthcare organizations in Alabama, Georgia, and Illinois. Limiting the number of participants in this study to 12 healthcare leaders was an additional delimitation. Not inviting nonmanagement level employees to participate in this study was also a delimitation.

Significance of the Study

Telemedicine is an effective tool in fighting patient disparity and physician shortages (Aghdam et al., 2019). This study is significant due to its emphasis on identifying and implementing strategies for delivering innovative medical services for patients who reside in rural areas, which can benefit patients currently using traditional healthcare systems that require them to travel long distances for medical treatment.

Contribution to Business Practice

The findings from this study provide useful information that healthcare leaders may use to cultivate an atmosphere in their organization to encourage and enable physicians, male nurse practitioners, dentists, clinical psychologists, and other medical professionals to adopt new telemedicine technologies. Healthcare providers' use of telemedicine can result in several advantages for their patients, including workforce sustainability, reduced provider burnout, limitation of medical staff exposure, and reduction of personal protective equipment waste (Doshi et al., 2020). Providers who adopt the use of telemedicine may reduce operational costs by using such measures as remote analysis, monitoring services, and electronic data storage, which could then transfer to lower costs of medical services. During this study, I examined ways telemedicine practices were used to reduce unnecessary nonurgent emergency room visits and eliminate or reduce transportation expenses for regular check-up visits. Telemedicine may also create cost-saving measures to increase revenue by turning on-call hours into more productive and billable time for physicians and other medical personnel.

Implications for Social Change

The implications for social change from this study are that it can provide insights that healthcare leaders can use to promote the adoption of new telemedicine technologies. The findings from this research may help reduce the mortality rates of patients in rural areas by providing them with increased access to medical care. In summary, the findings from this study could provide organizational leaders with additional ways to improve patient care using telemedicine technologies.

A Review of the Professional and Academic Literature

This literature review provides a foundation of knowledge about the topic in this study. The need to cite relevant literature in academic writing is essential because doing so can provide previously developed knowledge by others to extend a reader's knowledge on a particular subject (Arsyad et al., 2018). This review identifies strategies that healthcare leaders used to implement telemedicine systems to address the medical needs of patients living in rural areas. The objective of this literature review was to provide a basis for inquiry for the primary research question: What strategies do some healthcare managers use to successfully implement a telemedicine system in a rural environment? The review of the literature for this study begins with an overview of the diffusion theory and its application to this study. I then highlight information that pertains to telemedicine adoption barriers, the role that telemedicine can play in bridging the gap in urban versus rural health care service, shortage of professional health care workers in rural areas, barriers to telemedicine adoption in health care settings, licensing, and regulation issues.

Many of the sources used to build the scholarly framework for this study were obtained from the Walden University online library. I used the following search engines: MEDLINE, Pubmed, Google Search, and Scopus. Additional sources were also obtained from the Athens State University online library. Various keywords included *telemedicine, adoption, acceptance of I.T. in health services, computerized physician order entry, hospital information system,* and *communication systems.*

The multiple case study involved the use of 175 references. Resources published within 5 years of graduation represent 76% of total references. The number of references

in the literature review is 96 sources, 100% of which were peer-reviewed sources. Data and support came from journals and seminal works such as texts, along with conference proceedings and organizational reports obtained from the internet.

The underutilization of telemedicine ended when the COVID-19 pandemic resulted in people limiting their in-person visits to local hospitals and clinics (Singh et al., 2022). The use of telemedicine technology acceptance has grown as patients living in rural areas are more accepting of remote evaluation, diagnosis, and treatment. The telemedicine industry has experienced rapid growth since the outbreak of the coronavirus disease outbreak in 2019 (Luo et al., 2021). However, additional research about the socioeconomic gaps and disparities is essential to improve the adoption of telemedicine services among patients and healthcare providers (Luo et al., 2021). Technological tools, such as telemedicine, can provide medical monitoring and treatment services to patients, especially individuals who reside in rural locations. The difussion theory was an appropriate framework that helped healthcare managers identify strategies to implement telemedicine systems in rural areas.

Diffusion Theory

The diffusion theory is a systematic outline for determining the acceptance of innovation that considers potential adopters' perceptions (Rogers, 2003). Researchers use the diffusion theory to explain the relationship between technological innovations and the adoption of new ideas (Petry et al., 2019). Adopting an innovation as the best course of action available is considered acceptance; conversely, the failure to adopt an innovation in an organization is viewed as rejection (Rogers, 2003). Researchers use the classical

diffusion theory to focus primarily on technological factors in the diffusion process. Existing literature shows that internal organizational and external environmental factors are crucial for diffusion (Reddick et al., 2019). Existing research offers diffusion theory as a normative framework in which individual innovation competencies are identified and classified (Beausoleil, 2018).

Innovation is the application of creative solutions to problems or opportunities to enhance people's lives (Scarborough & Cornwall, 2019). The diffusion theory process involves information seeking and information processing, during which an individual passes through the following five stages before they adopt or reject an innovation: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003). In the first stage of the innovation-decision process model, knowledge is gained when an individual learns of the new technology's existence and obtains information to determine how it operates (Scott & Lewis, 2017). At this stage, individuals have obtained enough information about the new technology to overcome the problem of uncertainty about how it works and the mechanism by which the innovation may solve their specific problem (Rogers, 2003). Second, is the persuasion stage, which occurs when an individual's perception of the innovation changes from positive to negative or vice versa (Rogers, 2003). In the decision stage, the third step in the diffusion theory process, individuals have completed the information-seeking and information-processing activities to learn about the advantages and disadvantages of innovation (Hussin et al., 2018), and they then make a choice to accept or reject the innovation (Rogers, 2003). The acquisition of new information, along with the individual's attitude, plays an important part in the adoption

decision of the innovation (Rogers, 2003). Implementation takes place towards the end of the diffusion theory process when an individual begins to seek support for their decision (Rogers, 2003). This is also the stage when the individual either agrees to fully implement the innovation or discontinue it (Rogers, 2003). Finally, the confirmation stage, where the individual continues to seek information to confirm that the adopted decision was beneficial (Rogers, 2003).

Rogers's diffusion theory theory is the most cited of the diffusion theories (Fry et al., 2018). diffusion theory theory can help to explain how an idea or product gains popularity and support then spread throughout a population group (Singh et al., 2022). Knowledge and persuasion are the two separate stages that precede the decision (Rogers, 2003). These two constructs of the diffusion theory model were the primary focus of this study, along with the prior conditions that initially formed the setting for the innovation. Knowledge takes place when an individual is exposed to an innovation's existence and gains an understanding of how it functions, and persuasion occurs when a person develops a favorable or unfavorable attitude toward an innovation (Rogers, 2003).

The diffusion theory's broad range of applications across multiple research disciplines demonstrates its versatility (Fry et al., 2018). The diffusion theory presupposes that the characteristics of the technology, the adopter, and the social system are all influential factors in the adoption decision (Rogers, 2003). According to Singh et al. (2022), adoption does not happen all at once, and characteristics vary from people who adopt early compared to those who adopt late. The population that is adopting the product or idea is the priority of the researcher using the diffusion theory theory (Singh et

al., 2022). However, the person must perceive that the idea or product is innovative or valuable for adoption to occur.

Rogers classified five types of adopters based on their timing of adoption in a given time frame among members of a social system (Scott & Lewis, 2017). These social system members can be viewed as heterogeneous regarding their desire to accept an innovation (Hopkins, 2019). This heterogeneity results in an s-shaped diffusion or adoption curve that consists of five adopter categories: innovators, early adopters, early majority, late majority, and laggards (Scott & Lewis, 2017). Innovators, who represent the first 2.5% to adopt the innovation, are the first individuals to try new ideas regardless of the level of risk or uncertainty (Scott & Lewis, 2017). Early adopters, who account for 13.5% of the population to try the new technology, serve as role models and opinion leaders for the following categories (Scott & Lewis, 2017). If early adopters are well-informed, their decision-making ability can play a major role in influencing a large sector of the social system (Mohammad et al., 2019). The late majority adopters, representing 34% of the population (Scott & Lewis, 2017), are typically the individuals who are skeptical and apprehensive about accepting a new technology due to high levels of perceived risk and uncertainty; however, intense levels of peer pressure may lead them to eventually give in and adopts an innovation (Mohammad et al., 2019). The last category is the laggards, the last individuals to adopt a new technology, comprising 16% of the total adopters (Hopkins, 2019). Laggard are described as being reluctant to change, having a low socialeconomic status, and being older (Rogers, 2003). Researchers have

investigated these five categories of innovations most extensively to explain about half of the variance in innovations' rate of adoption (Rogers, 2003).

Researchers may use diffusion theory theory to further examine the elements that impact the rate of integration among individuals who may be prone to adopt a new innovation (Rogers, 2003). The use of diffusion theory can also help individuals in a healthcare organization who are typically identified as the late majority or laggards switch into an earlier integration category for more efficient use of the telemedicine adoption testing tool (Rogers, 2003). The decision-making process involves the initial awareness and knowledge of innovation. Knowledge does not guarantee the successful adoption of the new technology (Rogers, 2003). After an individual has been introduced to the new technology and becomes more familiar with it, they can then be placed in a situation where they must choose to either adopt or reject the new technology (Mohammad et al., 2019).

Members of a target group only sometimes adopt healthcare innovations and new technology, such as telemedicine, all at once. However, new innovations and products are adopted over time through a process called diffusion (Scott & Lewis, 2017). Some people are reluctant to embrace new ideas or technologies, whereas other individuals welcome the change. The adoption rate of innovation in the difussion process is governed by ideas in the field of technology as mechanisms that can minimize uncertainty in the development of knowledge (Fuah & Ganggi, 2022).

Rival Theories of the Conceptual Framework

According to Venkatesh et al. (2013), there are seven rival theories to the diffusion theory that can be used in the field of individual acceptance. These models and theories are the theory of reasoned action (TRA), social cognitive theory (SCT), technology acceptance model (TAM), theory of planned behavior (TPB), model of personal computer utilization (MPCU), motivational model (MM), and combined technology acceptance model and theory of planned behavior (C-TAM-TPB). For this study, TAM and C-TAM-TPB are the two rival technology acceptance theories that are discussed and compared with the diffusion theory theory.

TAM

The choice of a person to voluntarily accept and adopt new technology is called technology acceptance (Kamal et al., 2019). TAM was introduced by Fred Davis in 1985 specifically for modeling users' acceptance of information systems or technologies (Davis, 1985). This theoretical framework is used to assess how people make decisions about adopting new technology (Koul & Eydgahi, 2017). Researchers use TAM to forecast user acceptance and emphasize potential design problems before users of the new technology interact with the procedure (Koul & Eydgahi, 2017). The TAM also suggests that perceptions of usefulness and ease of use are mediated by external variables, including differences, system characteristics, social influences, and facilitating conditions (Portz et al., 2019). The TAM framework is grounded on behavioral intention to use new technology as the dependent factor, whereas perceived ease of use and perceived usefulness are the independent constructs (Davis, 1985). However, the use of

TAM in a study is limited by little explanatory power for a specific purpose (Jansen-Kosterink et al., 2019).

C-TAM-TPB

The C-TAM-TPB model was created by Taylor and Todd (1995). Researchers use this model to frame behavior motivation by the intention that is influenced by attitude, subjective norm, perceived behavioral control, and perceived usefulness (Yang & Su, 2017). The C-TAM-TPB combines the perceived usefulness of TAM with the predictors of the TPB to create a hybrid model (Yang & Su, 2017). The combination of both theories is essential because more than a single theory or model may be required to describe complex research topics (Yang & Su, 2017). C-TAM-TPB can be used to explain the intention from volitional and nonvolitional perspectives behaviorally while observing measures of perceived ease of use and perceived usefulness (Yang & Su, 2017). TAM and TPB are both commonly used together as a tool to understand different factors that influence behavioral intentions in complex technology-related topics.

Taylor and Todd (1995) speculated that the relationship between the two theories that make up the combined TAM-TPB framework is influenced by the user's experience. The results from their empirical study supported their assumption when they revealed that the impact of perceived usefulness, attitude, and perceived behavioral control on behavioral intentions was stronger for users with relatively more experience. In contrast, the effect of the subjective norm was diminished with higher levels of experience (Yang & Su, 2017). According to Yang and Su (2017), attitude and subjective norms influence behavioral intention. Their research findings also determined that learners' behavioral

intentions are influenced by attitude and subjective norms. However, in order for this type of intention to develop into actual behavior, learners must ensure that they are not disrupted by external factors (Yang & Su, 2017).

Leadership and the Telemedicine Adoption Process

Leadership is one of the most commonly studied subjects in behavioral science (Yang et al., 2021). An important issue for any organization is the extent to which it is properly led and managed (Williams, 2019). Leadership is consistently viewed as an important factor that influences nurses' and other healthcare professionals' adoption of eHealth and telemedicine technologies. However, the subject of leadership still needs to be developed (Ronquillo et al., 2018). According to Williams (2019), leadership is influencing others to achieve group or organizational goals.

Conceptualizing leadership in telemedicine healthcare is needed to deliver a higher quality service to patients in rural areas (Laukka et al., 2022). Leaders focus on vision, mission, goals, and objectives, while managers focus on the productivity and efficiency of their organization (Williams, 2019). Managers see themselves as preservers of the status quo, whereas leaders view themselves as change agents and challengers of the status quo because they promote creativity and risk-taking (Williams, 2019). However, may times leaders cannot fully act in expected roles because their understanding of new technologies and its implementation may not be any better than their surpordinates' understanding of it (Laukka et al., 2022). This may be because of a lack of understanding about the new telemedicine technology.

Effective leadership is a complex and important part of the healthcare industry (Van Diggele et al., 2020). Healthcare organizations must attempt to improve their effectiveness in order to improve patient care and user satisfaction. Leadership, management, and change management styles are currently the three strategic priorities of healthcare centers. However, this section focused on leadership as a process of social influence in a healthcare environment. The leadership theory was first developed by Burns (1978). Strong leadership has been shown to promote change, including loyalty, improved performance, and decreased error rates (Waring et al., 2018). The two most common types of leadership styles are transformational and transactional leaders (Williams, 2019).

Transformational leaders generate awareness and acceptance of the group's purpose and mission and encourage their subordinates to see beyond their own needs and self-interests for the good of the group (Williams, 2019). In contrast, a transactional leader motivates followers with rewards for their self-interests in exchange for their effort and services (Williams, 2019). Alloubani et al. (2014) indicated that international interest in leadership is present in both private and public healthcare organizational productivity, capacity, and meeting new challenges. Transformational leadership is a process of influence where leaders change how employees think about what is important and help them to see themselves and the opportunities and challenges of their environment from a different perspective (Avolio & Bass, 2004).

Transactional leadership, also developed by Burns (1978), is viewed as the most common type of leadership in organizations. However, meta-analytic work has yet to

fully determine the relationship between transactional leadership and one of the most focal leadership outcomes, follower performance (Young et al., 2020). Transactional leadership is based on an exchange process where followers are rewarded when they perform well and punished when they perform poorly (Williams, 2019). Transactional leaders are leaders that guide or motivate their followers in the direction of established goals by clarifying the roles and task requirements. These types of leaders typically work within their organizational cultures and follow existing rules, procedures, and norms (Samson & Ilesanmi, 2019).

Although both transactional and transformational leadership styles are directed toward reaching organizational objectives, the primary difference is that transactional leadership behavior is viewed as being intended to create employee self-interest in achieving the goals, while transformational leadership is theoretically based on an intention to inspire employees to surpass their own self-interest (Jensen et al., 2019). A transactional culture focuses on leader/subordinate interactions in terms of clear and implied contractual relationships, whereas a transformational leader seeks to achieve performance from their subordinates through four leadership factors: charisma, inspiration, individualized consideration, and intellectual stimulation (Williams, 2019). I used the transformational leadership principles during the participants' selection process for this study.

Healthcare leaders who understand and are competent in applying transformational leadership principles (charisma is a component of transformational leadership) are in a good position to create positive change in their organization (Ledlow

& Stephens, 2018). leaders who are able to master transformational leadership principles and applications are typically better suited to serve as positive change agents (Ledlow & Stephens, 2018). To accomplish this objective, a transformational leader must be an effective communicator (Ledlow & Stephens, 2018). According to Avolio and Bass (2004), transformational leadership typically yield performance results that exceed expectation. These are just a few of the qualities that were used to identify healthcare leaders during the participant selection process of this study.

Advantages of Telemedicine

The COVID-19 pandemic revealed that the healthcare system in America failed to provide equitable care for many patients. This crisis also revealed the importance of patients maintaining access to routine health care to help limit the spread of the virus (Eberly et al., 2020). The use of telemedicine technology for the maintenance of patient care can help reduce inequalities for vulnerable patients, including poorer patients, older patients, and non-English speaking patients (Eberly et al., 2020). The COVID-19 pandemic revealed the strength of telemedicine in supporting in-person visits between medical professionals and their patients and expanding access to care (Julien et al., 2020). Telemedicine can be used to increase patient access to quality health care by allowing medical professionals a greater opportunity to remotely monitor, diagnose, and treat their patients. Primary healthcare practices are turning to telemedicine as a means to become more efficient, competitive, and cost-effective. These benefits have not only been observed in primary care, but they have also been seen across a wide variety of specialty

areas in the healthcare industry. This section identified a few of the specialty areas in the medical field that benefited from the use of telemedicine.

Cardiovascular Medicine

The COVID-19 pandemic has resulted in a considerable rate of morbidity and mortality worldwide (Tersalvi et al., 2020). Epidemiological information from China reveals that patients with cardiovascular diseases are more likely to develop life-threatening complications from severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection (Tersalvi et al., 2020). The risk of complications may be even higher in patients with heart failure because they are typically older (Zhang et al., 2020). The SAR-CPV-2 pandemic has had an unprecedented effect on the healthcare systems in the United Kingdom. A number of treatments and surgeries were canceled or postponed to reduce the spread of the COVID-19 virus. The use of telemedicine has served as an alternative way to provide outpatient consultations to cardiac and vascular surgery patients in the COVID-19 era (Ajibade et al., 2020).

There are numerous advantages of telemedicine in cardiology. One advantage, are the high number of patients who can be telemonitored and assisted without being physically present at a hospital or other healthcare facilities they avoid the exposure of both high-risk patients and healthcare professionals (Pegoraro et al., 2023). A second advantage is telemedicine use in telemonitoring and limiting the relevant risk factors for cardiovascular diseases like diabetes (Pegoraro et al., 2023). The European Society of Cardiology (ESC) is involved with telemedicine in many different ways. Its members deal with the rapidly changing practices that ICTs bring, including electronic medical

records, e-referrals, teleconsultations, and telemonitoring (Pegoraro et al., 2023). The ESC's rapid developments in the area of mobile computing have allowed physicians an opportunity to use extended reality technologies to achieve performance levels that remove longstanding barriers to medical adoption in the area of cardiovascular medicine (Silva et al., 2018). Head-mounted displays are an example of a technology that some cardiologists are currently using to treat patients remotely. This see-through device is worn for extended periods of time by patients, allowing them to remain in their environment while interacting with digital content and processing power to keep up with human perception to prevent motion sickness (Silva et al., 2018).

Telepsychiatry

Telepsychiatry is defined as the application of telemedicine in the area of psychiatry, which refers to the administration of psychological treatment or therapy via technological means (O'Brien & McNicholas, 2020). Telepsychiatry is an application of telemedicine within the specialty of psychiatry, which pertain to psychological treatment or therapy via technological means (O'Brien & McNicholas, 2020). Telepsychiatry typically involves an interaction between a psychiatrist and their patient using either a telephone or videoconference (O'Brien & McNicholas, 2020). Telepsychiatry is a subset of telemedicine that can provide services in the areas of psychiatric evaluations, therapy (individual, group, and family), patient education, and medication management. Telepsychiatry is effective and has created hope and promise for improved access and enhanced quality of care at a reasonable cost (Cowan et al., 2019). The availability of telepsychiatry services in mental health care facilities in the United States has increased

rapidly, with nearly double the number of facilities offering telepsychiatry services in 2017 than in 2010 (Spivak et al., 2020). Recent trends show an increased use of telepsychiatry in populations with greater barriers to access, like those living in rural and underserved communities (Spivak et al., 2020). Research has revealed that telepsychiatry is equivalent to the face-to-face service patients receive in terms of the reliability of their clinical assessments and treatment results (Seitan et al., 2019).

Some researchers believe that telepsychiatry may be preferable to in-person interactions with their patients, including those with serious anxiety conditions (American Psychiatric Association, 2020). Telepsychiatry can also be used to facilitate group therapy. A review of the evidence for telemedicine group-based treatment sessions showed that video teleconference groups are equivalent to the treatment outcomes of in-person groups (Gentry et al., 2018). Telepsychiatry has served as an effective solution to the problems presented by physical distancing measures during the COVID-19 pandemic crisis. Its scope and benefit for patients have existed before the present pandemic crisis and will likely exist long after it has ended. However, the adoption of telepsychiatry has increased dramatically as a result of its recent unparalleled demand (O'Brien & McNicholas, 2020). However, concerns that have limited the growth of telepsychiatry are not unfounded. Obstacles to the use of telepsychiatry include considerations about rapport, privacy, safety, and technological limitations (Cowan et al., 2019).

Tele pharmacy

The Model State Pharmacy Act and Model Rules of the National Association of Boards of Pharmacy (Model Act) define the practice of telepharmacy as health care

service provided by a registered pharmacy or pharmacist located within U.S. jurisdictions through the use of telecommunications or other forms of technology to patients or their agents at distances located within the United States and their territories (American Society of Health-System Pharmacists, Inc., 2017). Telepharmacy is a rapidly growing area of communication within pharmaceutical care delivery, especially in rural areas (Le et al., 2020). Telepharmacy has been successfully integrated within community pharmacy settings through the creation of remote dispensing sites (Le et al., 2020). Telepharmacy services are expected to have a vital role in increasing access of patients to pharmaceutical care and lowering errors in community pharmacies (Ibrahim et al., 2021).

The increasing focus of state regulations on telepharmacy services and practices demonstrates the growth and acceptance of this modality of pharmacy practice (Le et al., 2020). There is a growing trend in the use of telemedicine that indicates telepharmaceutical care is likely to continue to expand as it allows for better allocation of resources and access to more patients. However, additional research needs to be performed to specifically analyze the value and place of this type of healthcare service (Le et al., 2020). Telepharmacy operations and services may include but are not limited to drug review and monitoring, dispensing, sterile and nonsterile compounding verification, medication therapy management, patient evaluation, patient counseling, clinical consultation, outcomes assessment, decision support, and drug information (American Society of Health-System Pharmacists, Inc., 2017).

Barriers to Telemedicine Adoption in Healthcare Facilities

Telemedicine can be used to change the way that health care is delivered. Despite the probable benefits, telemedicine adoption has been slower than expected (Bullock et al., 2017). Acceptability is not universal (Bullock et al., 2017). The success of implementing a new telemedicine program is influenced by a number of factors related to the initiative itself and the organizational culture where it is supposed to be implemented (Ly et al., 2017). The success of telemedicine initiatives is determined by a number of factors that pertain to the initiative itself and where it is supposed to be implemented, which can impede the development as barriers if not considered adequately (Ly et al., 2017). A "Barrier" is defined as a circumstance or obstacle that separates people or prevents progress (Oxford Dictionaries, n.d.). Learning about potential barriers and possible support strategies to address them is important. Throughout this study, I focused on identifying and eliminating any barrier that I believed could negatively impact the credibility and reliability of my findings.

Home online health consultation (HOHC) is an area of telemedicine where patients share, transfer, and communicate data or information in real-time from their homes with healthcare professionals using an advanced ICT system (Almathami et al., 2020). The barriers to HOHC telemedicine systems are the information and data gathered from examining negative feedback, comments, factors, and indicators that hinder the users' uptake of the system (Almathami et al., 2020). These barriers are divided into two subcategories: internal and external (Almathami et al., 2020). The internal barriers consist of negative feedback, comments, factors, and indicators that have an effect on the user's

behavior and motivation while using the system (Almathami et al., 2020). The external barriers refer to the negative feedback, comments, factors, and indicators about the environment surrounding the system's usage and the system itself (Almathami et al., 2020).

Batsis et al., (2017) identified five primary barriers to the adoption of telemedicine in rural areas: (a) the organization's willingness to implement telehealth to improve access to its patients; (b) availability of the necessary infrastructure for implementing telehealth; (c) implementation of models for reimburstments for telehealth use; (d) availability of required training, knowledge, and education for providers; and (e) implementation of quality assurance models to implement continuous and feedback process. The reliability of the internet connection in rural areas is equally as important than its ability. The ability of the patient and healthcare professional in the field to use the new technology can also play a role in its acceptance. Hospitals and other healthcare facilities will be more likely to invest in the infrastructure if the potential patients in a particular rural community have a higher efficacy with using the new technology.

Although the use of telemedicine has been increasing steadily, the COVID-19 pandemic led to unprecedented interest and urgency between patients, healthcare professionals, and policymakers to facilitate healthcare that is devoid of the need for in-person contact (Batsis et al., 2019). The COVID-19 pandemic led to a tremendous motivator for individuals to begin using the Internet. As a result, more older adults began using the Internet more frequently and in new ways, including making errands and scheduling their medical appointments (Nimrod, 2020). The major barriers that were

identified in pre-pandemic studies of telemedicine in older adults were technology-related factors such as slow connection speed or poor video quality, clinician factors such as provider dissatisfaction leading to poor sustainability, and poor design interfaces, interacting with physical and cognitive impairments commonly present in older individuals that make using telemedicine difficult (Batsis et al., 2019). For some patients, telemedicine also requires learning new skills, and a lack of support could lead to frustration and a reduced desire to engage in learning a new technology (Batsis et al., 2019).

Beyond technology challenges, the United States faces a serious issue with regard to the shortage of physicians and other healthcare professionals that is likely to worsen in the coming decades (Kirch & Petelle, 2017). The 2017 update of annual physician workforce projections revealed that in the United States, there will be a shortage of between 40,800 and 104,900 physicians by 2030 (Kirch & Petelle, 2017). The shortage of surgical specialties is a major area of concern, with a projected deficit of between 19,800 and 29,000 surgical specialists by 2030. The shortage of healthcare workers in rural communities requires attention from businesses, government, philanthropy, universities, community colleges, and local community leaders, who must work collectively to recruit medical professionals to care for their communities (Nielsen et al., 2017). With fewer doctors and other health care professionals available, individuals in rural and other underserved communities will likely have increasingly longer wait times for their health care needs.

Innovation and Technology

Innovation can be used by organizations to introduce new production/services or new product processes (Puchigar et al., 2019). Scarborough and Cornwall (2019) described innovation as the ability to apply creative solutions to business-related problems. Innovations are often revolutionary, creating market-changing, transformational, disruptive breakthroughs that are the result of generating something from nothing. Innovation is evolutionary and consists of market-sustaining ideas that elaborate on existing products, services, and processes derived from older technologies and processes in new ways (Scarborough & Cornwall, 2019). Innovation can also derive from the process of taking something away to create something simpler or better (Scarborough & Cornwall, 2019). Innovation begins with creativity and comes from great ideas. Therefore, a starting point for managing innovation is to organize the sources of innovation or where new ideas come from (Williams, 2019).

Innovations are the underlying forces that drive the growth of a society and its economy (Iacopini et al., 2018). Innovations are always linked to the insertion, implementation, or expansion of an idea or service for the purpose of utility in a society (Iacopini et al., 2018). Factors such as globalization, technological changes, the rise of the Internet, and the development of information technology (I.T.) have each had a major impact on how organizations conduct business (Turulja & Bajgoric, 2018). An innovation such as telemedicine can provide patients with greater access to medical services by helping to overcome problems such as geographical barriers and the shortage of healthcare professionals in an area (Maia et al., 2019).

The hardware element consists of the tool that contains the technology as a material or tangible object, while the software component is composed of the information or knowledge base for the tool (Rogers, 2003). The use of technology has significantly increased since the start of the 21st century and has continued to increase as new interfaces are created and improved (Sitren & Rohter, 2019). The percentage of internet users also increased globally 7-fold from 6.5% to 43% between 2000 and 2015 (Parasuraman et al., 2017). Diffusion is the manner in which innovation is gradually conveyed via certain means between the constituents of a social system (Rogers, 2003). Diffusion research professionals recognize relative benefit is one of the strongest stimulators on the Degree of acceptance (Rogers, 2003).

Innovation diffusion is a process where innovations are communicated through different modes of transmission over time (Mannan et al., 2017). The first element of the diffusion theory includes attributes of innovation that help to reduce the level of uncertainty about the innovation and increase the rate of adoption (Mannan et al., 2017). These attributes of innovation consist of the following five characteristics of innovation that influence their rate of adoption: relative advantage, compatibility, complexity, trialability, and observability (Mannan et al., 2017).

Relative Advantage

Rogers (2003) defined relative advantage as the extent a change agent prefer an innovation a better option than the idea it replaced. The concept of relative advantage suggests a comparison of two phenomena, whereas the diffusion of a new idea occur when the potential adopter prefer the new idea over the existing idea or phenomenon

(Boamah, 2018). Chen and Zhang (2016) described relative advantage as the Degree to which the mobile health service is perceived as being better than the idea that it supersedes. For organizations, a relative advantage is associated with competitiveness. The improvement of relative advantage includes improving efficiency and profitability and reducing the operational cost of an organization (Chen & Zhang, 2016). According to Rogers (2003), the relative advantage of an innovation is positively related to adoption. The aim of this study was to associate relative advantage with the implementation of telemedicine systems in a rural environment.

Compatibility

Compatibility is the degree an innovation is perceived to be consistent with existing values or previous experience and needs of the potential adopter (Mairura et al., 2016). Rogers (2003) indicated that compatibility is the measure in which an innovation is viewed as being consistent with the existing values, past experiences, and needs of potential adopters. The user's previous experience of adopting new tools, whether they were positive or negative, will influence the adoption of technology (Mairura et al., 2016). According to Mairura et al. (2016), a negative previous experience can result in innovation negativism, which occurs when a negative previous experience with one innovation can negatively influence the adoption of another. Mairura et al. (2016) also indicated that compatibility is related to benefit costs in the innovation for the adopters.

Individuals or organizations are more willing to adopt an innovation if it does not significantly disrupt the pattern of their current lifestyle (Sahin, 2006). If innovation is compatible with a person's needs, then the level of uncertainty will decrease, and the rate

of adoption of the innovation will increase (Sahin, 2006). According to Zolkepli and Kamarulzaman (2015), the compatibility of innovation depends largely on the users' lifestyles, situations, beliefs, and values. The name of the new technology should be important to the potential adopter, and the meaning of the innovation should also be clear when considering compatibility (Sahin, 2006).

Complexity

Innovation complexity arise when the desired practice change involves multiple steps, multiple stakeholders, and the need for actions across group and teams in an organization complexity arises when the desired process change consists of multiple steps, multiple stakeholders, and the need for actions across groups and teams in an organization (Dryden-Palmer et al., 2020). Implementation complexity reflects the processes and interventions that are used to convert the new knowledge into practice (Dryden-Palmer et al., 2020). Some innovations are easy to use and understand, making them easier to understand and use (Rogers, 2003). Complications that arise in a healthcare environment where the implementation process occur is referred to as 'context complexity'(Dryden-Palmer et al., 2020). Complexity science is not a quick-fix solution for the tensions and enigmas that currently exist during the implementation of a telemedicine program. However, during this study it allowed us to focus on and begin researching uncomfortable knowledge to negotiate good compromises and to accept creative, reflective, and collaborative ways of thinking and performing.

Trialability

Trialability is the Degree to which an innovation can be used in an experiment on a limited basis (Rogers, 2003). Rogers (2003) also stated that the rate of adoption is typically higher when individuals can deal with the uncertainty of the innovation by using it on a trial basis. Before full adoption, potential users must be able to analyze an innovation to determine if it fits their own criteria (Zolkepli & Kamarulzaman, 2015). Rogers' perceived characteristics of innovation (i.e., relative advantage, compatability, complexity, observability, and trialability) was used in this study to explore the strategies that healthcare leaders used to implement the use of telemedicine programs in healthcare facilities that service patients in rural communities. During this study, a deductive reasoning approach and collection of cross sectional data were used to determine if the trialability of the knowledge, experience, motivation, attitude of healthcare leaders, could be used to influence the behavior of doctors and other medical professionals at their organization.

Observability

The final characteristic of innovation, observability, is a modeling property that describes the possibility of inferring the internal state of a system from observations of its outputs (Villaverde, 2019). Montanari and Aguirre (2020) defined observability as, a property of a dynamical system that determines whether or not it is possible to recreate the trajectory temporal evolution of the internal states of a system from a given set of outputs. A model is observable if it is theoretically possible to understand its internal state by observing its output (Villaverde, 2019). People are prone to adopt an innovation

if the positive results of its usage are visible (Zolkepli & Kamarulzaman, 2015). Observability is similar to relative advantage, compatibility, and trialability because it is also positively correlated with the rate of adoption of an innovation (Sahin, 2006). If other participants can see the results of an innovation easily, then they are more prone to adopt an innovation (Rogers, 2003).

The following four elements are used to influence the spread of new ideas: innovation, communication channels, social systems, and change agents (Rogers, 2003). Innovation is the first element of the innovation process that consists of an idea, practice, or object that is viewed as being new by an individual, group, or other unit of adoption (Rogers, 2003). Many of today's executives agree that innovation is the most important pathway for companies to accelerate their pace of change in the global environment (Kuratko, 2024). Some small organizations initiate innovations proactively, identifying opportunities on which to benefit from (Scarborough & Cornwall, 2019). In addition to technology development, other activities will contribute to innovations in telemedicine in the areas of training, education, and research. Key innovations will be needed during the implementation of a telemedicine program to turn this vision into a reality.

Communication channels are the second element of the diffusion process, which involves the means by which messages get from one individual to another (Rogers, 2003). Rogers also described communication channels as a process by which participants develop and share information with each other in order to reach a mutual understanding. This communication takes place via channels between sources (Roger, 2003). A channel is a conduit by which a message travels from the source to the receiver (Rogers, 2003).

Rogers indicated that diffusion is a specific kind of communication that requires innovation, two individuals or other units of adoption, and a communication channel (Rogers, 2003). Diffusion is a very social process that is characterized by interpersonal communication relationships. As a result, interpersonal channels are more powerful when it comes to creating or changing strong attitudes that are held by individuals (Rogers, 2003). In interpersonal channels, communication may possess the traits of homophily, which is the Degree to which two or more people who interact have similar attributes, such as beliefs, education, socioeconomic status, and the like. However, the diffusion theory requires at least some elements of heterophily, which is the extent that two or more individuals who interact are different in certain characteristics (Rogers, 2003).

The innovation-decision period is the length of time that is needed to pass through the innovation-decision process, where the rate of adoption is the relative speed with which an innovation is adopted by members of a particular social system Rogers (2003). According to Rogers (2003), the time aspect is ignored in most behavior research studies. Rogers states that including the time dimension in diffusion research highlights one of its strengths. The innovative-diffusion process, adopter categorization, and rate of adoption all incorporate a time element. The *social system* is the fourth and final element in the diffusion process. Rogers (2003) described the social system as a set of interrelated units that are connected in joint problem-solving processes to accomplish a common objective. Because the diffusion theory takes place in the social system, it is influenced by the social structure of the social system. Rogers (2003) described the structure as the patterned

arrangements of the unit in a system. The nature of the social system affects individuals and is the primary criterion for categorizing adopters Rogers (2003).

Transition

In Section 1, I used a qualitative multiple case study designs to provide an up-close, in-depth, and detailed investigation of my subject of study, with the goal of enhancing the comprehension of the lived experiences of users within the diffusion theory framework following telemedicine program implementation. The introduction of the topic and problem established the foundation for this study, which consisted of indicating why the business problem chosen deserves new research. This section also addressed common problems associated with traditional healthcare delivery services, along with the advantages of using telemedicine. The problem statement in Section 1 also contained an explanation of key operational definitions, assumptions, limitations, and delimitations to help frame the study. The significance of this study included the contribution of this study to business practice and this study's implication for social change. Section 2 consists of a detailed explanation of the chosen study configuration and data collection strategy that included the topics: my role of as the researcher, participants, research method, research design, and population and sampling.

Section 2: The Project

Section 2 consists of a purpose statement review, a description of my role as the researcher, strategies used for the participant recruitment process, the research method, and the design rationale. The material addressed in this section consists of the target population and selection process, research ethics, data collection method, instrument used for the study, organization, analysis, and technique. I end Section 2 using a qualitative method to discuss the validity and reliability of the research instrument that was established using a qualitative method.

Purpose Statement

The purpose of this multiple qualitative study was to explore what strategies healthcare leaders used to successfully implement telemedicine programs in a rural environment. The targeted population consisted of 12 leaders from 12 separate healthcare facilities that serve patients located in rural areas who have implemented at least one successful telemedicine system. Individuals who read the findings from this study may effect social change by increasing the use of telemedicine programs to provide greater access to quality, low-cost medical care for patients who live in rural areas.

Role of Researcher

My role as the researcher in this study was to access the thoughts and feelings of the participants of this study, which may provide the foundation for a research study. In a qualitative research study, the researcher is the instrument in the data collection process (Wa-Mbaleka & Costa, 2020). For this study, I formulated the research question, collecting, and analyzing the data using a multiple case study to explore the subjects that

would be poorly studied using a quantitative methodology. In my role as the primary researcher, I solicited the cooperation of healthcare leaders to dedicate their time to serve as participants in this study.

My responsibility, as the researcher, consisted of reducing or eliminating barriers to capture the professional experience of the 12 participants by following the ethics of research as covered in *The Belmont Report.* The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (NCPHSBBR, 1979) addressed three ethical principles for conducting research concerning humans: respect for the autonomy of participants, fairness in the areas of conception and implementation, and the maximization of potential benefits while reducing the risk of possible harm. Based on these three ethical principles, I provided each participant with an informed consent form to confirm his or her willingness to serve in this study as an interviewee. The informed consent for was written in a language that was easily understood by the subjects to minimize the risk of coercion or unnecessary influence. However, according to Manti and Licari (2018), an informed consent is not merely a form that is signed, but a process that provides the participant with an understanding of the research study and its risks.

The notion of consent comes from the ethical issue of respect for the participant's well-being, integrity, and self-determination (Manandhar & Joshi, 2020). According to Manandhar and Joshi (2020), every individual should be free to determine what they will allow during the study. In medical research, actions performed by surgeons or other healthcare professionals without taking the patient's consent are guilty of committing an assault on the patient (Manandhar & Joshi, 2020). Therefore, my role as the researcher

for this study, as it relates to ethics and *The Belmont Report* (NCPHSBBR, 1979) protocol, included protecting the privacy of the participants, anonymity, confidentiality, and obtaining signed informed consent forms.

Throughout this study, I complied with *The Belmont Report* in a way that met academic, professional guidelines, and ethical guidelines. I did not have any prior experience in telemedicine adoption and rural health care delivery prior to beginning this study, and I did not have a prior relationship with any of the participants for this study. The information I obtained while conducting my literature review for this study, along with my experience as an analytical chemist, provided me with the information I needed to help me understand the technical aspects of this study.

As the primary researcher and data collection instrument, I was aware that I could introduce my personal biases to this study. Researchers and participants can intentionally or unintentionally introduce their personal biases or worldview in social research (Schoeler et al., 2023). Any biases that I did not identify and address during this study could have affected the quality of my data and subsequent research results. Therefore, I planned to identify and address any potential biases and ethical considerations during this study. Reflexivity is the idea that a researcher's preconceptions and biases can alter decisions and actions during qualitative research activities, which is a crucial element of rigor even during the earliest stages of a study (Johnson et al., 2020).

My background, beliefs, and experiences could have influenced aspects of rigor at the initial stages of this study. It is impossible to eliminate all biases. However, I endeavored to reduce or eliminate any biases that may have occurred during this study by

adhering to professional and ethical principles. I integrated interview protocols (see Appendix A) during the interview process to help mitigate any personal bias during the interview process. Researchers use interview protocols to obtain rich qualitative data to understand better the participants' experience and identity elements crucial to the subject matter (Yeong et al., 2018).

Reflexive writing includes forms of documentation such as researcher memos, field notes, and other written or recorded reflections that occur at any point in the research process (Olmos-Vega et al., 2023). A reflective journal was maintained and recorded throughout the study to document the reasoning behind each procedural decision, the mechanics of the study, and reflections on my beliefs and interests. I used a reflective journal to help avoid making premature conclusions about this study. I recorded audio and video files during each interview, denoted source materials from their thoughts, reviewed and extended their notes immediately after each interview, and cataloged them for later retrieval.

Participants

The recruitment of participants by researchers for a study is one of the most challenging and critical aspects of a study (Far, 2018). Participants for this study satisfied the eligibility standards within the scope of the population. Researchers who develop interview recruitment processes quickly or in an unorganized manner can result in a delayed or terminated study (Laaksonen et al., 2022). Recruitment that establishes inclusion and exclusion criteria for a study's participants is a standard, mandatory exercise when creating high-quality research protocols (Patino & Ferreira, 2018). An

inclusion criterion is a key element of the target population that researchers can use to answer their research question (Patino & Ferreira, 2018). Typical inclusion criteria include demographic, clinical, and geographic characteristics (Patino & Ferreira, 2018). In contrast, exclusion criteria are features of the potential study participants who meet the inclusion criteria but encounter additional characteristics that could interfere with the success of the study or increase their risk for an unfavorable outcome (Patino & Ferreira, 2018).

For this study, I required the participants to be healthcare leaders (i.e., physicians, head nurses, or healthcare administrators). I targeted leaders from 12 separate healthcare organizations in Alabama, Georgia, and Illinois who had successfully implemented a telemedicine system in a rural environment. For this multiple case study, the participants were selected from a pool of medical professionals who served as either an administrator, physicians, or nurse practitioner at a healthcare organization with knowledge and experience in the adoption and implementation of a telemedicine program. Participants also had to have a minimum of 3 years of experience as a medical professional.

I identified organizations for this study by contacting healthcare professionals with experience using telemedicine to treat patients living in rural communities. As the primary data collector for this study, I performed internet searches to identify primary care outpatient clinics, hospitals, and other medical facilities. I examined online portals such as corporate websites, social media platforms (i.e., LinkedIn), and other healthcare indexes to acquire information on telemedicine providers in Alabama, Georgia, and Illinois. To help identify potential participants for this study, I also used the American

Telemedicine Association (ATA) and the American Hospital Association (AHA) to identify and gain access to rural hospitals and other healthcare facilities. Researchers must develop and implement strategies that will allow them to uphold their promise to respect their participants' confidentiality while effectively disseminating sometimes sensitive results (Turcotte-Tremblay & Mc Sween-Cadieux, 2018). After these criteria were established, I identified and contacted each administrator who served as the gatekeeper for their organization. According to Andoh-Arthur (2019), a gatekeeper is an individual or group of individuals who may be invaluable for gaining access because of their knowledge or connections with members in a research population. Gatekeepers may also consist of individuals in charge of formal institutions whose permissions are required to attain access to important documents or individuals under their formal care (Andoh-Arthur, 2019).

The process that I used to gain access to healthcare organizations to recruit participants for this study consisted of introducing my study to a gatekeeper to gain their approval to collaborate with members of their staff. I emailed a letter of cooperation document to each gatekeeper. After I received permission from the gatekeeper (if applicable) via a signed letter of cooperation, I sent a Participant Letter of Invitation to each prospect who met the criteria for this study. The Walden University Institutional Review Board (IRB) required that each participant sign a consent form before starting a study. IRBs are responsible for reviewing and monitoring biomedical research involving human subjects and they possess the power to approve, require changes in, or disapprove

clinical studies. The primary role of the IRB is to safeguard the rights and welfare of human subjects (Cowan et al., 2019).

Each prospective interviewee who agreed to join this study received a participant consent form to sign that states the voluntary nature of the study, confidentiality information, and risks and benefits of participating. I shared the purpose of the study, my background, and my experience and provided them with a copy of the informed consent form. For those who responded, I moved forward and scheduled interviews at a time and location that was convenient for each participant.

I conducted face-to-face and virtual interviews via the online meeting platform Zoom (https://zoom.us) to collect information from healthcare leaders who had successfully implemented a telemedicine system in a rural environment. Each interview was performed in a private and secure environment. Each participant in this study received a consent form to review via email prior to their interview. I informed the participants that their responses would not be associated with their identity and connected with their organization. I used this strategy to help build trust with my participants and establish credibility.

Participation in this research study was completely voluntary, and I used the consent form to indicate how the participants could withdraw from this study at any time without penalty. I also informed the participants that all electronic and printed documents would remain secure. According to Cowan et al. (2019), participants must be conscious of (a) their right to decline to participate, (b) how the researcher will maintain confidentiality, (c) the possible uses of their responses, and (d) their right to withdraw

consent. In accordance with Walden University's guidelines, the data I collected from the participants during the interview sessions are stored on an encrypted, password-protected storage device and placed in a locked and secured cabinet, where the materials will remain for the next 5 years.

Research Method and Design

Researchers must choose the research method and design that best align with the purpose of the study and the problem statement to answer the research question. Quantitative, qualitative, and mixed methods were the three possible research methods for this study. I used a qualitative multiple case study to examine the strategies used by some healthcare leaders to implement telemedicine systems in healthcare organizations. In this subsection, I describe and justify the methodology for this study.

Research Method

Researchers use the research problem to determine which method should be used to conduct their study (Yin, 2018). For this study, it was important that a suitable methodology was selected to ensure that the research question was adequate to produce the desired outcome. The qualitative research method was selected because this study was not concerned with numerical representation but with obtaining a deeper understanding of a given problem. In qualitative research, the participants' experiences, perceptions, and behaviors are gathered to answer the hows and whys instead of how many and how (Lian & Zheng, 2023). The qualitative methodology was appropriate for this study because it allowed me to gather data through open-ended interview questions

that related to the individual and personal experiences of the participants in a manner that could not be measured numerically.

While qualitative research is common in other fields, it is still relatively underutilized in healthcare research due primarily to the evidence-based nature of the medical field (Busetto et al., 2020). Research problems can be approached relatively easily using qualitative methods, which includes assessing complex multicomponent interventions or systems (of change) that focus on intervention improvement rather than accreditation (Busetto et al., 2020). Qualitative methods can be used to help shed light on the "softer" aspect of the healthcare field. The quantitative method involves the use of hypothesis and statistical inference to collect numerical data (Lian & Zheng, 2023). The qualitative method was relevant for this study since this study focused on understanding the meaning of the phenomenon and interviewing participants in their environment to collect textual data.

I had the option of choosing either qualitative, quantitative, or mixed methods to explore the phenomenon for this study. The qualitative method allowed me an opportunity to select participants who could answer the research questions for this study in a more in-depth way. This is in contrast to the quantitative research method that adhered to guidelines and procedures, random participants, along with the use of a hypothesis and statistical inference to produce data (Lian & Zheng, 2023). While qualitative research is known for its depth, there are also a number of quantitive types that researchers can use to get quick answers by obtaining and analyzing numbers and figures to better understand the research questions. However, the quantitative approach

was not suitable for this study because my objective would have needed to include generating a hypothesis or relying on statistical findings.

Mixed-method research involves combining qualitative and quantitative methods to generate numerical and descriptive results to produce study findings (Tashakkori et al., 2020). Researchers combine the features of the qualitative and quantitative methods to recover and analyze data to obtain a richer knowledge of the research phenomenon (Yin, 2018). I did not combine and analyze the participants' experiences with numerical data for this study. Therefore, the mixed method was not an appropriate methodology for this study. The qualitative method was the most suitable method for this study because I explored the strategies used by some healthcare leaders to implement telemedicine systems in healthcare organizations.

Research Design

Researchers should choose a suitable research design for their study. Qualitative research designs can include case studies, ethnography, and phenomenology (Castleberry & Nolen, 2018). Qualitative research offers an opportunity for researchers to identify the origin of a phenomenon, explore reasons for its existence, codify what the experience of the phenomenon meant to those involved, and determine whether the experience created a theoretical frame or conceptual understanding associated with the phenomenon (Williams & Moser, 2019). Phenomenological research is defined as the study of lived experience—the world as we presently experience it pre-reflectively instead of how we come to conceptualize, categorize, or reflect on it (Wertz, 2023). This design is used to explore the lived experiences, beliefs, and attitudes of individuals specific to a

phenomenon (Wertz, 2023). Phenomenology differs from almost every other inquiry in that it attempts to gain an insightful description of the way we experience the world pre-reflectively without harmonizing, classifying, explaining, conceptualizing, or even assigning meaning to it (Wertz, 2023). The phenomenological design was not suitable for this study because its aim was not to identify the exclusive lived experience, attitudes, or beliefs of individuals or a phenomenon.

According to Tenny et al. (2022), a qualitative research method in which a researcher studies a specific social/cultural group with the goal of better understanding it. Ethnography is both a product and a process, where the ethnographer actively participates in the group that is being studied in order to obtain an insider's perspective of the group and have an experience that is comparable to the group member or participants (Allen, 2017). Ethnography was not a suitable design for this study because I did not seek to explore the participants' culture or affiliates of a social group.

I selected the multiple case study as the research design because it would provide the best answer to the research questions for this study. According to Yin (2018), researchers can use the multiple case study design as an empirical inquiry to explore a phenomenon to either foretell contrasting results for expected reasons or predict similar results in the stud in its real-world condition and environment. The case study design uses multiple sources of evidence that converge together in what is called triangulation to determine the consistency of the findings (Yin, 2018). The case study design provides a researcher with the tools they can use to identify operational connections among particular events in a study (Yin, 2018).

Case studies are the preferred strategy used by researchers when asking how or what questions (Yin, 2018). A case study can be an intensive study about a person, a group of people, or a unit, which is aimed to generalize over several units that give researchers the ability to examine in-depth data relating to several variables (Yin, 2018). Yin (2018) indicated that a case study design could be used to explore a program, occurrence, action, or procedure using a wide range of data-collection measures over a continuous period. If a researcher wants to study a specific phenomenon from a specific entity, then a single-case study can provide an in-depth understanding of the single phenomenon that includes collecting diverse types of data (Yin, 2018). A researcher might choose a single-case study with a single unit of analysis over a multi-method due to its convenience. The theoretical propositions in a multiple case study lay the foundation for making an analytical rather than statistical generalization of the results of research (Yin, 2018).

I selected the multiple-case study over the single-case study because it provided stronger and more reliable data than the single-case research. This type of case study provided a more comprehensive exploration of the research questions and theory development. I did not select the single case study for this study because it was not my to examine strategies used by some healthcare leaders to implement telemedicine systems in a single healthcare organization but multiple organizations. The multiple-case study design provided a more in-depth understanding of the cases as a unit by comparing the similarities and differences in the individual cases embedded within them (Yin, 2018). As

noted by Yin (2018), selecting multiple cases represent replication logic. This allowed me to compare the data obtained from each case.

Data saturation enhances the reliability and validity of the data collected. Researchers can achieve data saturation when no further data is obtainable (Saunders et al., 2018). For this multiple case study, I used a sample size of 12 participants from 12 healthcare organizations to achieve data saturation. Saunders et al. (2018) concluded that saturation should be operationalized in a way that is consistent with the research question(s) and the theoretical position and analytical framework selected. To reach data saturation, I used a purposeful sample of the healthcare leaders in 12 identified organizations and continued to collect data until I obtained data saturation. Once this occurred, I ended the data-collecting process for this study.

Population and Sampling

Research is almost always conducted on purposive samples (Chittaranjan, 2021). A purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study (Luciani et al., 2019). A purposeful sampling method was used as the collection method for this study. The population for this study consisted of 12 participants, health care leaders (i.e., administrators, directors, managers, physicians, and head nurses) from 12 organizations with a minimum of 3 years of experience in a leadership position, who successfully implemented at least one telemedicine program in a health care organization. The purposeful sampling method explore and select specific cases that help determine who will be included in the study

(Luciani et al., 2019). The participants for this study were selected based on their professional backgrounds, experience, and education.

In this multiple qualitative case study, I selected participants using purposeful sampling from 12 healthcare organizations in Alabama, Georgia, and Illinois. These organizations had an established history of using telemedicine technologies to deliver health care services to patients in rural areas. Researchers use purposeful sampling qualitative studies to identify and define the characteristics of the population sampled (Kalu, 2019). I used this sampling method to collect the information from the participants in this study.

The sample size for a study must be estimated once the study is proposed; too large a sample is unnecessary and unethical, and too small a sample is also unethical and unscientific (Andrade, 2020). The appropriate sample size can be determined using a statistical software program, based on certain assumptions. If no assumptions can be determined, then a subjective sample size can be set for a pilot study (Andrade, 2020). Vasileiou et al. (2018) indicated that the richness and quality of the results collected in a qualitative study are more important than the sample size.

Twelve leaders from 12 separate healthcare organizations were selected to participate in the interview process of this study. Identical interview questions were used to gather information from the research participants until data saturation was achieved. Data saturation was achieved when no additional information could be obtained during the collection process. Data saturation indicates the point when the sampling of the data

should end in the data collection phase (Yin, 2018). Data saturation was used to increase the credibility, transferability, dependability, and confirmability of this study.

Ethical Research

When research involves people, ethics is crucial. Researchers must conform to ethical principles in conducting a research study. In the health care field, when qualitative methodologies are used, in addition to making sure that the ethics review board approves an ethical process, it is also essential to guarantee an ethical protocol that can respond effectively to the detailed questions and problems which may occur during a study (Morina, 2021). Respect for individuals involved in research means appreciating their autonomy, independence, and freedom to decide without external influences (Kaye, 2020). Scholars have recognized the fundamental need to develop ethical guidelines. I adhere to the Belmont ethical standards in this study.

Yin (2018) recommended that case study researchers follow ethical principles in conducting research to mitigate comprising human subjects. During each interview session, I treated each participant with respect and shared the possible benefits and risks associated with their contributions to this study. I initiated each interview by either soliciting healthcare professionals directly or reaching out to the human resources department of prospective companies to identify participants for my study. After the qualified and willing pool of candidates were identified, the names and contact email addresses for each of the potential participants were obtained. Next, I introduced myself and provided each prospect with the background and purpose, procedures, risks, and

benefits of participating in this study. During this time, I was also able to address any questions or concerns that arose prior to the signing of the participant consent form.

Researchers must comply with ethical guidelines for conducting human research. The informed consent form outlined and supported the purpose of this study, including knowledge, truth, and the prevention of inaccurate results. Researchers use rules that support collaboration between researchers and participants, such as trust, mutual respect, and accountability (Chesser et al., 2019). Ethical considerations help researchers create research within the research community (Chesser et al., 2019). Researchers are expected to adhere to specific guidelines when conducting research that involves humans, some researchers intentionally or intentionally ignore these guidelines. I adhered to the ethical guidelines while conducting this study. This included storing the data securely for five years to protect the confidentiality of the participants.

Disclosing the details of this study to the participants is important for ethical reasons. The *Belmont Report* of 1979 addressed the principles of respect for persons, also referred to as human dignity, which govern the design and conduct of health-related research (NCPHSBBR, 1979). Information was shared about the possible benefits and risks of this study with each participant. All research involving human participants should be in accordance with four fundamental ethical principles: respect for persons, beneficence, justice, and respect for communities (NCPHSBBR, 1979). Researchers can protect participants in a study by maintaining their confidentiality (Surmiak, 2018). To ensure confidentiality and to protect the participants and company names, I used pseudonyms (i.e., P1, P2, P3, etc.). Before starting the data collection process, I applied

for and obtained approval from the Walden University IRB. The final part of this process resulted in the issuance of an IRB approval number (10-20-22-0592008). This approval from the IRB provided me with the permission I needed to begin collecting my data.

Compensation is payment or non-monetary rewards given to participants of a study as remuneration for time and inconvenience of participation as well as an incentive to participate (Nyangulu et al., 2019). According to Nyangulu et al., (2019), the practice of offering payment to individuals in exchange for their participation in research studies is common. Offering incentives to participants to participate in a study has been shown to improve participation in clinical trials. However, ethical concerns suggest that incentives may be coercive, obscure trial risks, and encourage individuals to join trials for the wrong reason (Vellinga et al., 2020). After the member-checking process, I provided a $25 gift card to each participant.

Data Collection Instruments

According to Yin (2018), researchers use research questions to guide their study and pinpoint what they want to find out and find out to provide them with a clear focus and purpose. The study data was collected using a semistructured interview form developed by the researcher. As the primary data instrument, I worked to minimize bias and perform self-reflexivity. During the collection phase, semistructured interviews were used to gather information on healthcare leaders' strategies to implement telemedicine systems in healthcare organizations. The semistructured interviews were multileveled with open-ended questions. A semistructured interview is a type of meeting that allows the interviewer an opportunity to ask predetermined questions while the remaining

questions are predetermined that can be used to unravel detailed information from study participants to obtain data saturation (Yin, 2018).

The semistructured questions were presented to 12 subject matter experts in telemedicine implementation. Prior to each interview, the participants were provided with an informed consent form that they were required to read and sign. I presented the research questions to each one of the contributors during their interview session. Researchers should use multiple sources of data in a case study (Yin, 2018). The opinions obtained from the participants were recorded, arranged, and analyzed by the researcher.

I used an interview protocol to collect the data and ensure the reliability of my interview protocols for this study (see Appendix A). I used an interview participant recruitment process to solicit telemedicine healthcare leaders who had successfully implemented telemedicine in healthcare organizations that serviced rural communities. I assigned an identification code to each participant to protect their privacy throughout the collection and analysis phase. I followed the interview protocol and asked each participant eight open-ended interview questions using a digital audio recorder or Zoom conferencing platform to capture the data from each participant.

I used the information collected from the participants to perform data triangulation to ensure construct validity. Triangulation is a qualitative research strategy used to validate a study through the convergence of information from various sources to help overcome biases from using a single method or observer (Noble & Heale, 2019). I increased the credibility of this study by using different data sources. I used a diverse

source of data to provide a wider range of perspectives. The reliability of this data served as an essential element of data integrity for this study.

I used an integrative strategy to help ensure the validity and reliability of the information collected. By using member checking, I validated the interview data. I allowed the participants an opportunity to review my summary of each interview to verify its accuracy. Member checking is a procedure to validate the data collected during the interview (McKim, 2023). The member checking strategy I used consisted of informally summarizing and confirming the interpretation of what each participant said during their interview session. Then I allowed the participants an opportunity to affirm or correct my summary of their statement. My standard lead into this member checking process was, “So what I’m you say is….”

Data Collection Techniques

Interviews provide the most direct and straightforward way to obtain detailed and rich data regarding a particular phenomenon (Barrett & Twycross, 2018). The study data was collected using a semistructured interview form developed by the researcher. Each semistructured interview included eight open-ended interview questions for the study participants. During each interview, the participants were allowed to explain, in their own words, how they understood and interpreted the experience in telemedicine implementation. This data collection technique represented a familiar social encounter between the researcher and participants via asking and answering questions to help achieve a specific end.

I began the data collection process for this study after I obtained approval from the Walden University IRB. After receiving this approval, I consulted with each prospective participant or gatekeeper for each of the healthcare organizations I targeted to secure subjects for this study. After selecting the potential participants for this study, I contacted everyone who agreed to participate in this study, to determine the most convenient date and time for their interview. I provided each participant with the instructions they needed for the interview. As demonstrated in this study, implementing telemedicine technologies may help healthcare leaders improve their organization's performance and the quality of medical services they provide. Healthcare providers and leaders might learn from this study the strategies that healthcare leaders and providers can use to implement telemedicine technology in medical facilities that serve rural communities.

I collected the information collected from each interview and stored this data in a confidential location, where it will remain for five years. I provided each prospective participant with a consent form. Face-to-face and virtual (Zoom) interview sessions were the two primary methods used to collect data for this study. I originally scheduled each interview session to last 25–35 minutes, during a date and time that was convenient for the participants and me. However, the actual time for the 12 interviews ranged from 16 to 65 minutes.

Data Organization Technique

Data organization is the practice of sorting data by category to make raw data clearer and comprehensible (Hartson & Pyla, 2019). At the end of the data collection

stage, I organized the information I collected during each interview session. This consisted of using a process called transcription to convert the audio recording files created during each interview into text files. Next, I coded all the answers collected during the interview, which consisted of labeling and organizing the qualitative data in this study to identify the different themes and the relationship between them. I recorded each task on a spreadsheet to document each interview session. After I created a log to document each participant's interview session, I made sure that each research question was well-defined and recorded so I could follow the flow of my chosen qualitative data collection method as much as possible. I also used research logs, reflective journals, and cataloging/label systems to track the collected data.

I used a logical and consistent method to name and organize the information that I obtained from my participants, making it easier for me to locate and use the data after I converted it to computer data files. To organize my files, I assigned labels the following labels to my 12 participants: P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, and P12. I did not include the participant names, company names, or other personally identifiable information in the final study. I stored all the electronic data files collected during this study on a USB drive, and all paper records, such as any company documents, consent forms, and journal notes were placed in a locked file cabinet and stored in my home office that only I could access.

I transcribed each audio-recorded interview and saved the data to a Microsoft Word file. This information was subsequently transferred to a USB drive. I used a secured data encryption process to protect the information collected during the study on a

laptop computer or USB flash drive. Secured storage media protect data when it is not in use. I adhered to practices designed to keep the information safe. I ensured that the data I collected stored appropriately. I placed all electronic data, such as consent forms, printouts, and case tracking sheets containing personal identifying information securely in a locked cabinet. This included the confidential encrypted data from this study that I added to a flash memory drive. An encrypted password was created to protect and gain access to the confidential data obtained during this study. The transfer of confidential data files between institutions is often the weakest part of any study's plan to protect the privacy of the participants. The method that I used to transfer files reflected the sensitivity level of the data. I compressed the collected data to reduce the likelihood of the file transfer failing because it was too big. Encryption helped guarantee that no one could access my compressed file, except individuals who possessed the password.

This study required an IRB review. Therefore, I created a plan for the storage and ultimate destruction of the research data. This study produced reports or papers for publication, as well as a de-identified data file for use by other researchers or the public. Therefore, my research plan required that all documents and electronic data was stored in a locked container for five years. At the end of this period, I will ensure that all paper documents, or CDs with personal identifying information be shredded and any electronic files on memory drives, PRs, laptops, and file servers will be permanently deleted. This plan also required my collection, organization, and storage of the data for this study to be done in accordance with all IRB guidelines.

Data Analysis Technique

Qualitative data analysis is one of the promising trends in the methods for qualitative research. Yin (2018) reasoned that data analysis occurs when a researcher gathers, examines, organizes, categorizes, and analyzes the collected data. According to Lester et al. (2020), qualitative research support a researcher in generating a deep and nuanced understanding of a given phenomenon. Qualitative data analysis is important because it explores variables in a study that are not predetermined in social studies. (Khoa et al., 2023). Similarly, Bucher (2021) described a qualitative data analysis approach that applied the principles of inductive reasoning while also employing predetermined code types to guide data analysis and interpretation.

Using the multiple case study method, I explored the strategies that some healthcare leaders use to successfully implement telemedicine systems in rural areas. I used open-ended questions to encourage the participants in this study to share their professional experiences and viewpoints on a phenomenon. The data analysis process for this study began with gathering, examining, organizing, and analyzing the collected data from each semistructured interview. I followed this process during the data analysis stage, which resulted in the creation of detailed data interpretation. I used Yin's (2018) four logical and sequential steps during the data analysis process, which consisted of scanning through the entire data to identify meaningful patterns, reading the transcribed notes to obtain a clear view of the data, coding, and arranging the data into controllable themes, and understanding the meaning.

Triangulation is an important element in qualitative research. Triangulation is used by researchers to validate instruments when the research phenomenon being investigated has little theoretical underpinning and confirm if an instrument was appropriate for studying a phenomenon (Donkoh & Mensah, 2023). Triangulations can also help researchers overcome biases that may be associated with the use of single-observer, single-method, and single theory (Farquhar et al., 2020). Triangulation was achieved in this study by applying multiple strategies to analyze primary, secondary, and tertiary data to triangulate and validate the data collected to develop a comprehensive understanding of the phenomena.

I used data analysis software to help collate, consolidate, and analyze the data that was collected from the interviews into codes and themes. However, the data analysis did not end with the coding of the data; instead, I used coding to organize the data to identify the underlying message of the data. I used the NVivo 12 Pro software to store, organize, code, analyze data, visualization of the data, and identify meaningful themes. The NVivo 12 Pro software was used to assist in organizing and evaluating data in simple and logical ways to understand each participant's experience.

Dalkin et al. (2021) indicated that the use of NVivo 12 software in realist approaches could help structure the reiterative and, by nature, 'messy' process of generating, refining, and testing complex theories when drawing on multiple data sources simultaneously. This effectively established a structured record of the interview experience to link themes within and across interviews, which increases its rigor and transparency. The NVivo 12.0 program was used to aid in the process of storage,

management, coding, analysis, theme recognition, and linking themes within and across the interviews. Consequently, I employed the principles of inductive reasoning and predetermined coding to explore data, focus on key themes, and link focal themes with the literature and conceptual framework, which, along with using NVivo 12.0, establish a cohesive method of data analysis.

Reliability and Validity

Reliability and validity are two of the most important components in the evaluation of any measurement instrument or tool for a successful and thorough research study (Ahmed & Ishtiaq, 2021). In this section, I discussed important aspects of validity and reliability. Validity is concerned with what an instrument measures and how well it accomplishes this task. Reliability involves the faith that a researcher has in the data attained from the use of an instrument or the extent to which any measuring tool controls for random error. In this study, I demonstrated rigor by member-checking data to verify the validity and reliability of the research findings. I sought to demonstrate reliability and validity by triangulating the collected data with my conceptual framework, literature review, my reflective journal, and secondary data that should enable to be able to replicate my findings.

Reliability

In qualitative research, reliability assesses the consistency of results over time (Hayashi et al., 2019). Qualitative research includes internal and external elements that may offer reasonable interpretative options (Yin, 2018). Reliability refers to how a researcher focuses on dependability, the consistency of the data, and trustworthiness in

qualitative research (Yin, 2018). Reliability depicts the number of times a procedure or form of data, like a questionnaire, will produce consistent results in different settings if no changes will occur (Yin, 2018). For this study, I incorporated the use of methodological triangulation, member checking, semistructured interview questions, and additional interview protocols to help enhance the dependability of this research study. Reliability demonstrate and communicate the rigor and trustworthiness of this qualitative case, and it was a consistent account of the truth that the investigator was presenting.

Validity

The validity of a research study is how well the results among the study participants represent true findings among similar individuals outside the study (Patino & Ferreira, 2018). Validity was used in this study to determine how well the research measured what it was intended to measure, and how accurately it reflected the reality of the phenomenon that was studied. The following measures were used to establish trustworthiness in qualitative research: (a) dependability, (b) credibility, (c) transferability, (d) confirmability, and (e) data saturation. Validity was also used to help ensure rigor during this qualitative study and to develop trustworthiness,

Credibility

In conducting qualitative study, researchers should ensure that their work has credibility. Credibility refers to the amount of confidence the reader has that the results presented are truthful and accurate (Patino & Ferreira, 2018). This refers to the quality of the research paper and not the quantity of the data collected and focuses on determining if the findings that are presented are really what I found (Tenny et al., 2022). Observations,

engagement, and audit trails were used to help support the credibility of the data during this study Tenny et al., (2022) suggested that collecting data from multiple sources to validate explanations (triangulation) also improves quality research credibility. I used member checking and triangulations during data collection to help ensure the credibility of my research findings.

Confirmability

Confirmability refers to my ability to validate that the data collected represents the participant's responses and not my viewpoints, biases, and perspectives (Tenny et al., 2022). During this study the confirmability was determined by observing how the interpretations, findings, and conclusions were established and they originated from the collected data. Venkatesh et al. (2013) described confirmability as the degree to which research outcomes are confirmed or verified by other researchers. To help ensure confirmability in this qualitative case study, I made sure that safeguards were established to prevent bias and not include my own interpretations in the data. The data that was collected originated from the participants and not my experience or personal experience, or personal opinions.

An audit trail was maintained throughout the duration of this study to demonstrate the development of each decision. According to Korstjens and Moser (2018), qualitative researchers must be able to acknowledge the importance of being self-aware and reflexive about their own role in the process of collecting, analyzing and interpreting the data, and in the pre-conceived assumptions that they bring to their study. Korstjens and Moser (2018) also added that the researcher's interviews, observations, focus group

discussions, and all additional analytical data should be supplemented with their reflective notes.

Transferability

According to Korstjens and Moser (2018), transferability is the degree to which the results of quality research can be transferred to other contents or settings with other participants. In qualitative descriptive research studies, some of the ways to promote transferability are purposeful sampling and detailed descriptions of the phenomenon (Bradshaw et al., 2017). Transferability in a quality study refers to results and findings that can be applied to other groups or settings (Tenny et al., 2022). Venkatesh et al. (2013) labeled transferability as the degree to which the research is able to be transferred to other contents. During this study a detail-rich explanation of each participant's unique experience was provided that described not just their behaviour, but their context as well, so that the behaviour and experiences could be meaningful to an outsider.

Data Saturation

Reaching data saturation for this study helped to assure the credibility, transferability, and confirmability of my findings. Saturation is used as an indicator to determine when data collection should end. Data saturation is reached when no additional information materializes with additional data collection (Fofana et al., 2020). The determination of an adequate sample size was used to address my research question. This was a fundamental aspect of the data collection process of my study. In qualitative research, the idea of saturation, or 'data situation,' has been recommended as the solution to determine an adequate sample size (Fofana et al., 2020). Saturation is considered to be

reached when the data that is collected and analyzed with NVivo 12.0 software is adequate enough to cover the themes of interest and when collecting further information will not add new relevant information (Fofana et al., 2020). Using multiple data sources helped to fill the gaps that may appear in the participant interviews.

Transition and Summary

The purpose of this qualitative multiple-case study was to explore what strategies healthcare leaders use to successfully implement telemedicine programs in a rural environment. I began Section 2 discussing my role as the primary researcher in this study, followed by a description of the study participants along with strategies that were used to gain access to them. I selected the qualitative method as the research method for this study and the multiple case study inquiry for the research design. My research population consisted of a purposeful sampling of 12 healthcare leaders in Alabama, Georgia, and Illinois working in related job responsibilities based on established eligibility criteria. The diffusion theory model formed the conceptual framework.

In section 3, I provide a summary of the findings and present the data from the study findings, including data from interviews, analysis of the interviews, and non-confidential healthcare facility documents. My data collection method included the use of semistructured interviews, casual observations, and document analysis, which ensured rigor through method triangulation. I maintained an audit trail in my research journal to provide validity for each decision. Incorporating the use of multiple tools to maintain an audit trail helped to ensure the study's rigor. I discuss the application of the findings from this study to professional practice and the implication for social change. Finally, I

provided recommendations for any potential future research and actions, reflected, and provided a summary and study conclusion.

Section 3: Application to Professional Practice and Implications for Change

This multiple qualitative study explored healthcare leaders' strategies to successfully implement telemedicine programs in a rural environment. In this section, I provide the research outcomes, professional practice applications, social change implications, recommendations for action, and additional research. Additionally, this section contains endorsements of strategies that healthcare leaders use to implement telemedicine programs in a rural environment successfully.

Presentation of the Findings

The overarching research question for this study was: What strategies do some healthcare managers use to implement a telemedicine system in rural areas successfully? In most countries, regardless of income levels, there is a need for more doctors in rural regions, especially in areas where primary care could be more substantial (Saito et al., 2020). Telemedicine solutions are emerging quickly in health care and can reduce costs to insurers, providers, and patients in various settings (Sasangohar et al., 2018). The conceptual framework I employed was the diffusion theory developed by Rogers (2003).

An inductive qualitative approach was used to identify related quotes and themes associated with facilitating or inhibiting the implementation of a telemedicine system in a rural area. As part of the qualitative design, I used three data-gathering methods to facilitate triangulation to confirm the data obtained through interviews and to help validate the findings and ensure accuracy of my findings. Triangulation reduces the potential of confirmation bias, which occurs when participants unconsciously generate evidence for the belief they already have (Donkoh & Mensah, 2020). The three data

sources used to achieve triangulation were interviews, nonsensitive internal and external organizational documents, and a three-member focus group.

The first data source was obtained from interviews with 12 healthcare leaders that consisted of seven medical doctors, two clinical psychologists, one case manager nurse, one laboratory manager, and one healthcare administrator. Seven participants were male, and five were female. The eligibility criteria for the participants in this study were as follows: (a) be employed as a physician, head nurse, or health care administrator practicing in Alabama, Georgia, or Illinois; (b) have successfully implemented at least one telemedicine system in a rural environment; and (c) have a minimum of 3 years' experience as a medical professional.

I gained access to the participants for this study by inviting healthcare professionals I knew personally, recommendations from friends, and soliciting medical specialists via phone calls and face-to-face visits. I used a technique called snowballing (using participants who previously agreed to participate in this study to recruit other participants). I emailed a letter of invitation to each potential participant that included the participant consent form for each respondent to review and agree to participate in this study.

The second data source consisted of nonsensitive internal and external organizational documents collected from some of the participants in this study, including telemedicine policies and procedure manuals, websites, and company information obtained from social media sites. Documents can serve an assortment of purposes in qualitative health research (Luciani et al., 2019). The documents in this study were used

to provide a rich source of qualitative data to provide additional background and context to this study by verifying the findings from other sources, and offering a rich portrayal of the experiences, values, and beliefs of each participant.

Table 1 presents the participant demographic data that define the research population. Table 2 summarizes the link between the interview questions and themes.

Table 1

Participant Demographics

Group	Item	% of total	No. of participants (N = 12)
Gender	Male	58.3	7
	Female	41.7	5
Healthcare role	Executive	8.3	1
	Doctor	58.3	7
	Clinical psychologist	16.7	2
	Head nurse	8.3	1
	Lab manager	8.3	1
Location	Alabama	50.0	6
	Georgia	33.3	4
	Illinois	16.7	2

Table 2

Interview Questions and Primary Themes (N = 12)

Interview questions	Primary themes(s)
What strategies did you use to implement telemedicine systems in rural areas successfully?	Implementation Training
How did you introduce telemedicine to your physicians and other healthcare professionals?	Training Implementation Benefits
What types of training did you provide your staff with when you implemented your new telemedicine system(s)?	Training Implementation
How did you evaluate the success of your telemedicine system?	Benefits Barriers Training
What key barriers, if any, did you encounter when implementing your telemedicine system?	Barriers
What strategies did you implement to overcome key barriers?	Benefits Barriers Training Implementation
How did the implementation of a telemedicine program affect the culture of your organization?	Benefits Implementation

The interviews were conducted during scheduled times at the convenience of each participant. I then transcribed the data obtained from the interviews and double checked the transcriptions by comparing them with the audio and/or Zoom recordings to verify the quality of the data. This cross checking helped to ensure that the data were appropriately cleaned. The manual coding of the transcribed data using NVivo 12 helped to identify the themes and patterns in the data. A manual process of data entry, manual coding and assigning of categories were done on the raw files prior to analyzing and drawing conclusions from it.

The second data source included company documents (i.e., telemedicine policies and procedure manuals, standard operating procedures, and the American Medical Association Telehealth Implementation Playbook), which I received directly from the research participants or indirectly through the subjects' organizational websites and social media sites. Each source was analyzed and used to support the data that were obtained during the interview process. This additional information was used to help eliminate any potential bias that may have occurred from using a single source of data. The information taken from these documents helped to enrich this study by offering a wider variety of datasets that were used to identify and explain any new perspectives that may have been significant to this phenomenon.

P5 said, "My company used the AMATIP to develop and operate our telemedicine medical delivery program." P5 also stated,

> We used the AMATIP's, *Idea Intake & Prioritization worksheet* as a template to help identify the barriers that we encountered during the implementation of our telemedicine program. It was also used to review and prioritize the areas of our telemedicine program that needed to be improved.

P6 and P10 also indicated that their organization used the AMATIP to either implement or run their telemedicine program. P6 stated that "My clinic used the *Value Propositions* document in the AMATIP to help determine if implementing a telemedicine would be a worthwhile investment." According to P6, this document was also used by the decision makers at his organization to identify the potential benefits of implementing a telemedicine program. Meanwhile, P10 revealed that he used the AMATIP's *Telehealth*

Kickoff Meeting Agenda to guide the initial telemedicine implementation discussion with the primary stakeholders for his core, leadership, advisory, and implementation teams. P7 incorporated the use of a *Standard Operating Procedure and Protocols for Telehealth* for her staff of psychiatrists to follow when using telemedicine. According to P7, the information in this form was used in the training and implementation process at my organization.

A qualitative, exploratory focus group was used as the third data source for this study to gather an in-depth understanding of healthcare leaders' acceptance of telemedicine programs in facilities that could be used to service rural patients. A focus group is a research data collection method created by Robert Merton and his associates to help stakeholders clarify program theories (Manzano, 2022). Individual interviews and focus groups are both useful data collection tools that can be used to explore proposals that will be tested and compared against other data (Manzano, 2022). Realist evaluators use focus groups to identify the key theory-driven feature that makes them unique, in terms of group intelligence or group reasoning. In realist studies, theme and theoretical saturation are often not useful tools to identify causality, even though they can be useful during the early stages of identifying a study's theory (Manzano, 2022).

A focus group was created for this study. This group was comprised of three additional healthcare leaders, who successfully implemented at least one telemedicine program in any organization that service rural patients. The goal of this group was to discuss the interview questions that were used in this study to support or refute the information obtained from two other sources to achieve data triangulation. The three

participants were given the same eight interview questions that were shared with the healthcare leaders who participated in the interview process. The goal of this focus group was to elicit data from each participant by examining their responses in a group environment to help reduce bias by either supporting or contradicting the results that were obtained from other data sources. Focus group participant 1 (FGP1), focus group participant 2 (FGP2), and focus group participant 3 (FGP3) met in a private face-to-face environment. This provided each member of this group an opportunity to hear each other's response and provide additional comments that they may not have made during a private interview session.

The focus group revealed that participant interactions, which stimulated the identification and sharing of various ideas and perspectives regarding this phenomenon, was essential to the success of this data collection method. Unlike interviews, focus groups incorporate the use dynamic and interactive exchange between the participants, which multiple stories and diverse experiences (Poliandri et al., 2023). The results from this focus group revealed a wide range of factors that drove or hindered the acceptance of telemedicine by the three members of this discussion group. The primary barriers that emerged from this focus group included a lack of motivation, the ability to adapt the new technology, the lack of infrastructure and insufficient technical capability at the healthcare facility, internet connectivity, and the disrupted workflow and work content experienced by healthcare professionals, due to overbearing telemedicine practices that arose during the COVID-19 pandemic. The findings from the focus group meeting,

interviews, and the company documents were used in the triangulation process and helped to achieve data saturation.

After the rise of the COVID-19 pandemic in 2020, many medical professionals (i.e., doctors, nurses, and healthcare administrators) quickly adopted the use of telemedicine instead of the traditional in-office visits in response to social distancing requirements (Merrill et al., 2022). According to Merrill et al., (2022), the rapid adoption of telemedicine is primarily due to the desire of healthcare leaders to reduce the interruption of essential medical services. P8 said, "After the Pandemic started, I realized the role of a healthcare professional was twofold. It was not only to address the pandemic but also identify ways to continue providing quality medical care to patients cost-efficiently." P12 stated,

> Our clinical psychology practice decided to implement alternative healthcare delivery to our patients once the COVID-19 pandemic occurred in 2020. However, first, we had to check with our professional organization, the American Psychological Association, to ensure we could use telemedicine to treat our patients.

I used a reflective research journal as a tool to reflect on any issue that occurred during the data collection phase of this study. This journal was used to emphasize the awareness of my own presence in the research process and document any emotions I experienced during the data collection procedure that could have affected the validity of this study. I used a journal to expand the scope of the reflection beyond any problematic situations. In addition to being used as a case record, it also used to provide a critical

analysis of the context in which events during this study occurred, my emotions, knowledge, skills, expertise, and values, and assumptions. The research journal was used as a tool during this study for observing, questioning, critiquing, synthesizing, and acting. This journal was also used to identify any crucial compliance and ethical issues that could have negatively impacted the study protocol.

The diffusion theory framework was appropriate for this study because the components helped frame the understanding of telemedicine implementation. Key constructs underlying the theory are (a) Innovation, (b) Communication Channels, (c) Time, and (d) Social System (Rogers, 2003). I collected and analyzed the data I obtained during this study using NVivo 12.0. I maintained a research journal throughout the study that outlined the steps taken to support this study's findings and serve as a memory aid. After this process, conceptual and literature alignment was demonstrated by illustrating tangible paradigms offered by interviewees linked to the diffusion theory constructors and moderators. I used Yin's (2018) five-step process during the data analysis element of this study, which led to the emergence of the following four themes: (a) Training, (b) implementation, (c) benefits of implementing telemedicine, and (d) barriers to the implementation of telemedicine.

Theme 1: Training

The first theme from the 13 interview sessions was the importance of training and education in implementing telemedicine technology for improved profitability and efficiency for healthcare organizations. Training emerged as an essential strategy employed to lead to telemedicine implementation effectively. The theme "training" arose

from Interview Questions 1, 2, 3, and 6. Rogers (2003) used diffusion theory as a conceptual model to understand how teachers implement the innovations they have learned. According to Noe and Hollenbeck (2019), within a diffusion theory framework, training consists of an organization's planned efforts to help employees obtain job-related knowledge, skills, abilities, and behaviors, with the primary objective of applying them to their job. Camhi et al. (2020) expressed the importance of healthcare leaders incorporating training in telemedicine technologies to provide the best quality of care for their patients.

Training is fundamental to human resources management (Yimam, 2022). It is the systematic application of formal processes to help people obtain the knowledge and skills necessary to perform their jobs effectively (Armstrong, 2020). Organizations can benefit from using a systematic training approach to obtain the best results from their training program (Yimam, 2022). Van Houtven et al. (2023) used the diffusion theory to examine the correlation between training and organizational readiness regarding the local implementation of the Caregivers First program by Veterans Administration Medical Centers. Van Houtven et al. (2023) concluded that early adoption was associated with training and higher organizational readiness for implementing change. These findings supported the testimonies of the participants in this study who all revealed that they used training as a primary strategy to implement telemedicine and improve the efficiency of their organization.

In response to Question 3, P4 recognized the importance of designing and implementing an effective training program focused on the operational side, where their

healthcare professionals were instructed on how to integrate each visit into an electronic medical record system. In response to Question 3, P5 stated, "The educational training system we currently use was taken from our telemedicine playbook, where most of the education we provide is centered around practice operations." According to Yimam (2022), training is a continuous process to improve employees' capabilities and skill sets. In response to Interview Question 2, P5 stated, "Part of our training program consists of using our company's intranet site to communicate with our employees, where we provide them with telemedicine training sessions via 'lunch and learn' webinars."

P5 said, "Many times, we will create videos that we offer for the health care agencies that our company supports." Some healthcare providers enlist outside companies' help to train their medical staff and patients in telemedicine delivery. P1 stated, "Whatever telemedicine system we use to train our medical team, the company providing the service sends a person to train." In response to Q4, P1 further explained, "It is important that our medical staff is not only trained in using our telehealth system, but also know how to interpret, implement, and record the results." All the participants in this study stated that they used training to enhance the performance of their employees.

P6 said,

> My management team did not have a strategy when the COVID-19 Pandemic first occurred in 2020. However, it was a sink-or-swim type of situation. Our team, which consisted of a core team of us health care professionals, learned how to use telemedicine technology fast to treat our patients.

P6 developed his organization's telemedicine playbook by using some of the key implementation strategies that he obtained from existing telemedicine training manuals combined with the information he attained from his own extensive online research on the topic. This new telemedicine implementation and application playbook are currently being used to transform the organization's daily medical delivery tasks into a telemedicine technology-based process. P5 and P6 indicated that their organizations created and implemented a telemedicine best practice booklet or playbook (respectively) to train their staff. P1 stated that "whatever telemedicine system we use, we had them send a person to train them on that particular system."

P1's and P2's responses to Interview Question 3 attest that they understand the importance of training in telemedicine implementation. P5 incorporated an intuitive training methodology and conducted every Thursday, where their team of telemedicine healthcare professionals participated in conference calls to engage in a lessoned-learned training session, where each participant discussed what went well and what did not. The interviewer recorded, transcribed, and documented each interview. I used this information to create training materials that demonstrate how to transform what their staff does daily into an effective telemedicine program. All the participants in this study agreed that healthcare professionals trained in telemedicine must also learn how to report and implement the information they obtain.

Training physicians to deliver high-quality, safe, and cost-efficient health care through telemedicine can help promote the implementation of telemedicine (Waseh &

Dicker, 2019). P2 indicated that his organization's training process includes teaching their patients and their health care professionals. According to P2,

> When it came to selecting the suitable training protocols for our telemedicine program, we chose one that was familiar to us and one that was flexible enough to allow us to teach an 85-year-old patient, as well as a 20-year-old. This protocol incorporated techniques that make learning a new technology easier for elderly patients to communicate back and forth.

A focus group panel, which consisted of three healthcare professionals (taken from the initial 12 participants) was established to provide a richer and stronger source of data. Prior to the focus meeting, each participant submitted non-sensitive telemedicine implementation-related documents to everyone on the panel. Each document was thoroughly reviewed and discussed by focus group members, in relation to the same research questions that were presented during the interviews. FGP1 introduced his company's training material, standard operating procedures manual, and website information to the other members of the focus group. FGP1 shared additional documents from his company that reinforced the importance of training when implementing a telemedicine program in a healthcare organization. FGP2 provided each member of the focus group panel with excerpts from his organization's telemedicine playbook manual.

As telemedicine becomes universal in the United States healthcare delivery system, physicians and other professionals must be trained to leverage such technology effectively and efficiently (Waseh & Dicker, 2019). The participants' responses to the interview questions demonstrated that training is integral to implementing telemedicine

programs for healthcare organizations that serve patients in rural communities. Each of the healthcare leaders who participated in this study confirmed that their organization integrated some form of the training program into their telemedicine delivery service. The findings from this study revealed that the Covid-19 Pandemic encouraged decision-makers in the medical field to either implement or upgrade the existing telemedicine training programs at healthcare organizations. The study findings also demonstrated that healthcare leaders use training to implement telemedicine technology for improved productivity and profitability. As applied in this research study, 100% of the participants who contributed to this study indicated that training is a necessary aspect of the telemedicine adoption process. Future research in telemedicine may include comparing the effectiveness of existing telemedicine training modules and studying more practical ways to implement telemedicine in healthcare organizations.

Theme 2: Implementation

The second theme to emerge from all the interview questions was implementation. Telemedicine implementation in health care can be a manageable task. Hospitals, clinics, rehab centers, and other healthcare organizations can deliver advanced telemedicine services with the correct implementation strategies (Beatriz, 2018). The theme implementation emerged from Interview Questions 1, 3, 5, 6, and 7. This theme explored the experiences and perspectives of healthcare professionals who had experience using telemedicine technologies to serve the medical needs of patients who reside in rural communities. Implementation identifies and addresses care gaps, supports

practice change, and enhances quality and equity in healthcare management (Klaic et al., 2022).

Klaic et al. (2022) also indicated that implementation might be essential in reducing research waste by identifying strategies that support translating evidence into practice. In response to the global increase in healthcare demand since the COVID-19 pandemic, this study aimed to identify strategies used by participants to implement telemedicine programs successfully. The diffusion theory framework can be used as a change model for guiding technological creativity, where the innovation is modified and presented in ways that will increase the potential of its implementation (Fuah & Ganggi, 2022).

P4 stated, “Even before the COVID-10 Pandemic, our organization had begun implementing a telemedicine system for our patients.” P4 said, “We began offering a telemedicine program as a pilot to accommodate our large patient load and provide services to our patients who live in distant and remote locations.” Each participant in this study indicated that their organization’s implementation process had to include both the health care practitioners and patients to succeed. P2 stated:

> My management team took the approach to ensure that our professional medical staff has been thoroughly trained to use the new medical delivery technologies. We also have many elderly patients who may not be technology savvy and require some assistance from our medical team to operate their telemedicine equipment. So, education comes into play with both sides.

P2 also stated, “Teaching both parties to be educated enough to use the new system is often challenging. However, this education played a significant role in increasing the likelihood of a successful implementation process.

After the interviews were performed and analyzed, I discovered that healthcare leaders from some medical fields are more open to implementing a new telemedicine program than decision-makers from other medical specialties. The quality of a telemedicine program is dependent on several clinical conditions that are likely to vary by medical specialty, including patient condition and needs, the nature of necessary activities during an appointment (hands-on orientated medical visits), patient and provider preferences, and the reimbursement policy that includes the condition and needs of the patient, the nature of essential activities during a medical visit, patient and provider preferences, and reimbursement (Drake et al., 2022).

P2 mentioned that it was easy for his physical therapy company to implement its telemedicine program due to the pandemic, which resulted in patients and healthcare professionals’ reluctance to engage in face-to-face examinations. According to P3, “The biggest implementation strategy we used was getting our staff comfortable with the Doxy Health Platform that our company used to monitor our patients virtually.” P3 also explained how he used numerous trial runs with cameras and other pertinent equipment installed at his office and in each patient’s home (via mobile phone, laptop, iPad) to conduct virtual examinations and physical therapy treatment exercises for many of his patients that needed physical therapy treatment to rehab from surgeries or chronic pain but were unable to meet physically due to the Covid-19 Pandemic. P3 revealed that the

implementation of the company's telemedicine program was successful because it informed each patient that using this technology-based form of therapy treatment would allow them to continue receiving treatment during the pandemic. P3 also mentioned that many patients were satisfied with their new form of physical therapy treatments after noticing an improvement in their condition.

P5, P11, and P12 indicated that their organizations were actively using a telemedicine healthcare delivery service when the Covid-19 Pandemic first appeared in the United States in 2020. The remaining participants in this study revealed that they started using some telemedicine programs in response to the pandemic. P4, who operates a pediatric pulmonary practice, said, "Even before the pandemic started, our organization had started to make attempts to set up a telemedicine program." P3, in contrast, stated, "My company implemented our telemedicine program because of the pandemic. We were not forced into it, but we started using telemedicine because of the COVID-19 pandemic and the fear of meeting in person with patients." P6 stated,

> In the remaining 40% of our clinics, we placed two to six therapists in the clinics with their own little zones, where we did tele-physical therapy with our patients for approximately two and a half months. By the end of this period, all our clinics were reopened, using a hybrid model, where the first half of the week was dedicated to treating patients in person at the office. In contrast, the second half of the week was devoted to treating patients virtually using our Doxy platform.

P3 said, "The biggest strategy we used consisted of getting comfortable using Doxy. Me, which is a telemedicine software that allows health care professionals to connect with their patients via live video and effectively diagnose and treat patients remotely." P6 also concluded,

> As a result of the Covid-19 pandemic, our company was forced to close approximately 60% of our clinics nationally. To salvage our remaining clinics, we decided to use the Doxy software to aid in the physical therapy treatment of our patients.

During the focus group discussion meeting, FGP2 indicated that his healthcare organization used the *American Medical Association's (AMAs) Telehealth Implementation Playbook* to create their telemedicine implementation plan. Due to the sensitive nature of his organization, FGP2 was not able to share his organization's telemedicine playbook. However, he did provide copies of the *AMA's Telehealth Implementation Playbook* to each member of the focus group. Everyone on the focus group committee agreed that this document would serve as a valuable source of information to healthcare leaders who are interested in implementing a new telemedicine program.

Theme 3: Benefits of Implementing Telemedicine Technology in Rural Healthcare

The third theme that emerged during this study addressed the benefits of using telemedicine to service patients in rural communities. With the increasing rate of rural hospital closures due to financial instability, many rural hospital leaders have yet to find solutions to the problem (Brandon, 2019). Telemedicine comprises healthcare services

using audio and video technology (Gajarawala & Pelkowski, 2021). Telemedicine was initially developed to offer healthcare services to patients who live in rural and underserved communities (Gajarawala & Pelkowski, 2021). The demand for telemedicine delivery programs is now a standard routine since the COVID-19 pandemic (Gajarawala & Pelkowski, 2021). The increasing focus on patient satisfaction, efficient and quality health care, and lower costs have also increased telemedicine implementation (Gajarawala & Pelkowski, 2021).

Telemedicine has multiplied in the United States during the past few decades (Waseh & Dicker, 2019). The goal of implementing telemedicine programs to provide quality and affordable health care to underserved areas is made possible using sophisticated audio-visual telecommunication technologies (Robb et al., 2019). Questions 1-3 were prepared to allow each participant to express some of the benefits they presented to their staff, which resulted in implementing at least one telemedicine program. Greater acceptance and implementation of telemedicine can be attributed to several reasons. According to P11, "An increasing amount of telemedicine technologies are being embraced and implemented as an efficient and profitable method for delivering and obtaining quality health care services." Another benefit, according to P11, is that "A physician can be at home, in their office, or practically any remote area and still be able to service their patient's medical needs effectively."

By implementing telemedicine technology, healthcare leaders may resolve many financial issues affecting hospitals and other healthcare facilities (RHIhub, 2019). Telemedicine technology can be a cost-effective strategy for collaborating with other

healthcare organizations (American Hospital Association, 2019). All the participants in this study stated that their organization experienced some level of financial benefit after implementing a telemedicine system. Eskerod and Larsen (2018) argued that business managers should recognize and meet their stakeholder's requirements to increase the economic success rate and performance.

FGP3 shared a sample of his organization's *Clinic Telemedicine Policies and Procedures* (CTPP) manual with the other members of the focus group. FGP3 indicated that his organization used this document to provide their healthcare provider workers with the tools they need to treat patients in rural areas with timely access to physicians, nurses, or other healthcare specialist care using a variety of telemedicine technologies. The three members of this focus group all agreed that the CCPP document can be used to develop an effective telemedicine security and emergency protocol

Theme 4: Barriers to the Implementation of New Telemedicine Systems

The growth and development of telemedicine programs are creating new opportunities for effective and cost-efficient medical service delivery to patients in the United States (Olson et al., 2018). The participants' responses to interview questions 3, 4, 5, and 6 revealed that they all experienced connectivity issues, resulting in a barrier to telemedicine implementation. P10 stated, "During my experience with using telemedicine in the field of pediatrics, connectivity issues, which derived from poor workflows, friction to connect, and problems with the bandwidth, has been my greatest technology-related barrier." All the participants in this study have attributed connectivity issues as a

significant reason why some healthcare leaders have been resistant to the implementation of telemedicine programs in the past and even today.

Driessen et al. (2018) performed a research study that explored the barriers that affected the implementation of telemedicine. During this study, a group of healthcare leaders attending a telemedicine summit at the University of Pittsburgh was surveyed to identify three barriers that they believed negatively affected the adoption of telemedicine. The three barriers identified included high initial investments needed to implement telemedicine, cost-effectiveness, and the difficulty level required to learn the new technology. P1 said, "One of the primary barriers for my practice is having the technology and accessibility of that system for the patients—especially individuals who are poor and underprivileged who live in rural communities. P1 added, "I have personally experienced situations while servicing patients in rural areas where I could not obtain a good internet connection on my cell phone, or the telemedicine app did not work properly. This negatively affected my ability to provide the optimum medical service to my patients."

P1 was presented with Question 6 (In response to their conductivity issues), who responded by saying, "We equip our health care workers with their hot spot connections during their in-home visits, which often reduces the likelihood of poor connectivity issues during their off-site medical examinations, treatment, and training sessions with their patients." P2 addressed Question 6 by stating, "If possible, our office will try to schedule our remote examinations at locations with access to free and public internet connectivity. We also try to implement additional training and set up times for our trainers to come out

and provide additional guidance and troubleshooting services to our health care professionals and patients." P4 added:

> Our practice shares the same barriers that many other healthcare organizations experience: connectivity issues. Integrating telemedicine technology in the field of physical therapy is already challenging enough because this is a method of medical care that typically benefits from a hands-on or manual approach. Imagine how difficult it is for us to treat our patients if there are any technical issues that may result in poor or no audio or video transmissions.

The use of telemedicine has increased the healthcare industry's ability to improve the efficiency, convenience, and quality of patient care. However, as the use of telemedicine become more prevalent during routine clinical care, the practical and ethical consequences that could negatively impact the quality of patient care should be considered (Hull et al., 2022). According to P10, "Having a solid understanding of the current condition of pediatric telemedicine can aid in overcoming many of these barriers, and programs are starting to collaborate through new pediatric telemedicine research platforms called Supporting Pediatric Research on Outcomes and use of Telehealth (SPROUT)." P1 said, "A new technology learning curve was a barrier for many of our patients, especially older, less educated, and mentally impaired patients. The members of the focus group for this study agreed that the *AMA Telehealth Implementation Playbook* could be useful to healthcare leaders seeking to implement a new telemedicine program.

The diffusion theory framework was appropriate for this study because it helped frame my understanding of telemedicine adoption. Knowledge and persuasion are vital constructs underlying the theory (Beatriz, 2018). The diffusion theory's wide range of applications that cover a wide range of research disciplines shows the versatility of the theory (Fry et al., 2018). The data obtained were analyzed using NVivo 12.0. I exhibited conceptual and literature by illustrating ideas offered by interviewees directly related to the diffusion theory constructs and moderators. The newly obtained knowledge and understanding derived from this study have positively reinforced my beliefs, preconceived ideas, and values about the importance of healthcare organizations using

telemedicine technologies to provide quality and cost-efficient healthcare to patients who reside in rural areas.

Applications to Professional Practice

This study is important because I explore strategies for successful telemedicine implementation. The findings from this study can provide useful information that healthcare leaders may use to cultivate an atmosphere in their organization to encourage and enable physicians, nurse practitioners, dentists, clinical psychologists, and other medical professionals to adopt new telemedicine technologies. Healthcare providers' use of telemedicine for patient care can result in several advantages, including workforce sustainability, reduced provider burnout, limitation of medical staff exposure, and reduction of personal protective equipment waste (Doshi et al., 2020). Findings from this research may influence the elimination of barriers to telemedicine implementation by healthcare providers and their patients in rural areas.

Healthcare leaders must strategically and consistently promote the new technology to users to show its benefits and effectiveness. They must also be careful to only promote the telemedicine technologies that are compatible with their organization to help ensure their optimal use. Healthcare leaders must ensure that the new telemedicine technology they want to implement is carefully integrated into their current work environment, which includes keeping the users in mind. Physicians and other healthcare professionals can provide valuable information and understanding of the implementation and barriers related to telemedicine acceptance. Also, by creating a supportive culture in encouraging the use of new telemedicine technologies, healthcare leaders can influence

technological advancements to improve healthcare delivery to their rural patients in a cost-effective manner.

Implications For Social Change

The COVID-19 pandemic led to the restructuring of the healthcare delivery system (Garg et al., 2021). The implication for social change from this study can help healthcare leaders address this issue, by providing insights that can be used to promote the adoption of new telemedicine technologies that may help reduce mortality rates of patients in rural areas by providing them with increased access to medical care. The study findings may contribute to positive social change by assisting healthcare leaders in understanding the strategies that healthcare leaders use to successfully implement telemedicine programs in a rural environment. A potential social change outcome is that healthcare leaders might acquire leadership skills to encourage their staff and patients to adopt the use of new telemedicine technologies. As illustrated in this study, implementing telemedicine technology may improve the profitability of healthcare organizations and provide quality medical treatment to patients who live in rural communities.

Telemedicine was originally developed as a medical delivery service to provide basic healthcare to rural and undersized patients (Gajarawala & Pelkowski, 2021). Using data collected from 12 healthcare leaders, I identified themes and provided valuable insight regarding recommended approaches to telemedicine implementation in healthcare facilities that service rural communities. An increased emphasis on patient satisfaction, providing efficient and quality healthcare and satisfaction, and lower healthcare costs have resulted in a higher rate of telemedicine implementation (Gajarawala & Pelkowski,

2021). This supports P12's belief that the use of telemedicine resulted in a higher patient satisfaction rate for their organization. Future adopters can ponder key components from this study to achieve favorable results from their telemedicine implementation efforts.

Recommendations for Action

The purpose of this qualitative multiple-case study was to explore what strategies healthcare leaders used to successfully implement telemedicine programs in a rural environment. The interviews with participants produced the following four themes: (a) Training, (b) implementation, (c) benefits of implementing telemedicine, and (d) barriers to the implementation of telemedicine. Based on the emerging themes, I propose four recommendations for healthcare leaders.

The first recommendation for healthcare leaders seeking to implement a new telemedicine program for the first time is to establish a strategy and set goals to achieve this objective. A change agent can begin this process by clearly defining their reasons for establishing a telemedicine program and setting measurable goals. Healthcare leaders can then identify the key metrics that they can use to evaluate the success of their new telemedicine program. The change agent should also identify a diverse group of qualified healthcare professionals at their organization who can serve on an implementation team that can help to ensure the desired progress. The leader assigned to implementing the new telemedicine technology should develop or adopt an existing telemedicine training protocol and standard operating procedures for their professional staff.

The second recommendation for healthcare leaders is to use Kurt Lewin's 3-Stage Model of Change Theory to help encourage an atmosphere of change. Kurt Lewin's

model of change consists of the following three elements: unfreezing, change process, and refreezing (Williams, 2019). Lewin's model of change is the early fundamental planned change model that explains the conflicting forces between maintaining the status quo and initiating a change (Williams, 2019). The first stage of change is called unfreezing, which consists of preparing the organization to recognize the need for change and that it is necessary. This involves breaking down the existing status quo before the change agent can establish a new way of operating (Williams, 2019). This is easiest to accomplish when you can show tangible reasons why it benefits the targets of the new change. However, this stage can be the most difficult to execute if the subjects of this change do not recognize, agree with, or have been motivated to change.

The change process is the second step in Lewin's model of change model. According to Williams (2019), the change stage is where people begin to resolve their hesitation and look for new ways to do something. People begin to accept and act in a manner that supports the new behavior (Williams, 2019). The third and final stage of Lewin's change model is called refreezing. The purpose of refreezing is to reinforce the change that was implemented during the change process (Williams, 2019). The purpose of this step is to get people involved to accept the newly implemented state as the new status quo.

The third recommendation is for healthcare leaders to involve members of their medical staff in relevant parts of the design that affect their work. Healthcare leaders could encourage their physicians, nurses, and other healthcare professionals to play an active role in the implementation to ensure that the new telemedicine system has been set

up properly. After the implementation phase, the healthcare professionals using this new telemedicine technology should be actively involved in any technological updates that may be necessary to mitigate operational issues that may arise. For this to be successful, the healthcare professionals who will be affected by the implementation of the new telemedicine program must feel comfortable using the new technology. On-site and virtual training sessions can be used to provide medical professionals and support staff members with the knowledge they need to properly use the new telemedicine technology.

The fourth and final recommendation is for healthcare leaders to encourage feedback from staff and patients as a source of feedback about the program's success. These responses from these individuals can help change agents identify any potential bottlenecks that need to be addressed when implementing a new telemedicine program. Goals should be evaluated occasionally to ensure that the change agent is achieving the desired results. If they are lagging, adjustments should be made promptly. For larger organizations, a task force can be created that is comprised of a variety of medical specialists and healthcare leaders within their organization. The goal of this task force would be to meet periodically to review the progress of the new telemedicine system and propose any necessary changes to optimize its effectiveness.

Recommendations for Further Study

Implementing the use of telemedicine may promote the growth of rural healthcare programs that will allow healthcare providers to provide specific and specialty medical services (Kohler et al., 2019). Implementing the use of telemedicine may increase access to quality and cost-efficient healthcare for patients who live in rural areas (Robb et al.,

2019). I recommend that healthcare providers should provide their leaders with strategies from other leaders who have successfully implemented at least one telemedicine program that serviced patients residing in a rural community. The study findings provide rich and robust information that further researchers could explore regarding the strategies that healthcare leaders use to implement telemedicine in rural communities.

The first significant limitation of this study was that the technology used in telemedicine is steadily evolving at a rapid rate, and as a result, it is possible that certain aspects of the collected data may need to be updated and validated prior to the completion of this study. The second limitation of this study was the restriction of participants to healthcare managers of rural healthcare organizations in Alabama, Georgia, and Illinois. The third limitation was the short duration of the study. The final limitation was the small sample size of 12 healthcare leaders. Researchers who use smaller or larger sizes from a single company or multiple healthcare organizations may obtain different themes. Therefore, I recommend that future researchers consider using a larger size of participants for healthcare leaders who specialize in additional areas of the medical field.

This study was limited to multiple case studies involving healthcare leaders in 12 healthcare organizations in three states (Alabama, Georgia, and Illinois). I recommend that further studies that involve qualitative single case studies, quantitative or mixed methods on a participant pool that can be expanded to include non-management level employees who were involved at the initial stages of a telemedicine implementation process. This study was also limited by my limited professional experience in the

healthcare industry. Future researchers should consist of researchers who are experts in healthcare management who are actively involved in telemedicine implementation to address some additional information regarding this topic that I may have omitted in this doctoral study.

Reflections

In this qualitative multiple-case study, I explored the strategies that healthcare leaders use to implement telemedicine systems in rural areas. To comply with the research ethics during this study, I successfully completed the CITI Program and received my IRB approval before I engaged with the participants, which enhanced my collaboration, networking, analytical, communication, and negotiation skills. I used telephone calls, emails, and social media sites to contact each of the participants, which improved my interpersonal communication and networking skills.

While conducting this research, I used a purposive sampling technique to select 12 healthcare leaders from medical organizations in Alabama, Georgia, and Illinois, who had successfully implemented a telemedicine system in a rural environment. Using the purposive sampling technique, I selected participants who possessed relevant job experience, education, skills, and knowledge to answer the research questions. During the purposive sampling process, I interacted with healthcare leaders who agreed to serve as participants in this study. This experience improved my listening, networking, emotional, listening, analytical, and scholarly writing skills.

The qualitative research methodology allowed me to perform semistructured interviews and interact with the t participants in this study, which improved my oral,

listening research, and scholarly writing skills. The interviews were conducted at times and locations that were convenient for the participants. Each interview was conducted in an atmosphere that allowed the respondents to speak openly, which allowed me to obtain a rich quality of information. I used these data to identify the four primary themes and patterns which were used to support the study findings. As I reflect on my experience during my doctoral journey, I obtained a better understanding of the doctoral study research process while also improving my scholarly research skills. From the results of this study, I obtained in-depth knowledge of the research problem from 12 healthcare leaders from medical facilities in three states (Alabama, Georgia, and Illinois) regarding the strategies they used to implement a telemedicine system in a rural community.

The information and knowledge that I gained during this study have provided me with a more in-depth understanding of the strategies that healthcare leaders use to implement telemedicine systems in rural areas. My new understanding of this topic has positively reinforced my preconceived beliefs and values while contradicting others. During this study, my personal biases regarding this subject were revealed. After I coded the transcript and reviewed the data, I discovered that my preconceived biases were incorrect. After a brief self-analysis, I dismissed my biases and accepted the findings, which helped me obtain a richer understanding of the strategies that some healthcare leaders use to implement telemedicine systems in a rural environment.

Summary and Study Conclusions

Healthcare leaders must address the unprecedented challenge of providing remote medical services to patients living in rural areas. I used the diffusion of integration

framework for this study to explore healthcare managers' strategies to implement telemedicine systems in rural areas successfully. I administered 8 open-ended questions through semistructured interviews with 12 healthcare leaders from healthcare organizations in Alabama, Georgia, and Illinois that provide telemedicine services to patients living in rural communities. The sources of secondary data included company documents. The four themes that emerged from the thematic analysis of data were (a) training, (b) implementation, (c) advantages of telemedicine, and (d) barriers to the implementation of telemedicine.

Telemedicine could be a valuable tool to provide quality and cost-efficient medical services to patients who live in rural areas. However, barriers such as connectivity issues, patient technology learning curve, lack of quality training, federal, state, and local laws and regulations, and unfavorable health insurance reimbursement policies are only a few of the challenges that can limit or prevent healthcare leaders from being able to implement a telemedicine program successfully. Adapting implementation strategies may help healthcare leaders successfully implement telemedicine technology in their organization, providing quality and cost-efficient health care to their rural patients. Also, implementing telemedicine programs might help healthcare leaders to sustain their healthcare services and continue to provide and sustain job opportunities for healthcare professionals and quality healthcare services to rural patients. The use of diffusion theory as a lens for this study involving healthcare leaders may fill the gap in the literature on the implementation of telemedicine programs in organizations that serve rural communities. The study findings contribute to the existing knowledge regarding

telemedicine implementation and align with previous scholars' conclusions regarding the importance of implementing telemedicine systems in organizations that deliver healthcare services to rural patients.

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Appendix A: Interview Protocol

1. I will begin the face-to-face interview by welcoming the participants and thanking them for participating in my study.
2. I will discuss the objective of the study and talk about the consent form.
3. I will inform the participants that I am about to begin recording the interview and reassure them that the interview will be confidential.
4. I will start the recording device and specify the participant's assigned code and state the date and time of the interview.
5. The interview will last 30-45 minutes, as previously mentioned in the consent form.
6. I will ask eight open-ended semistructured interview questions.
7. As the interviewer, I will pay close attention to the tone of my voice and body language during each interview to avoid expressing my personal biases.
8. I am necessary; I will repeat or paraphrase the statements for the participants for clarity.

At the conclusion of the interview, I will inform the participants that they will be allowed to re-examine the transcripts from the interview for accuracy and approval.

9. I will also reiterate to the participants that they have the right to change or remove any or all the answers they provided during the interview.
10. I will schedule a follow-up call with each participant after the member-checking process to provide them with my contact information to address any questions they may have regarding this study.
11. I will end the interview by thanking the participant.