2021

Leadership Strategies for Implementing Telemedicine Technology in Rural Hospitals to Improve Profitability

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This is to certify that the doctoral study by

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Walden University
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Abstract

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MS, University of St. Thomas, St. Paul, MN, 2002

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Doctoral Study Submitted in Partial Fulfillment

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Doctor of Business Administration

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Abstract

Ineffective leadership strategies can negatively impact telemedicine technology implementation in rural hospitals, which may hinder profitability. Rural hospital administrators who struggle to implement telemedicine technology for improved profitability are at high risk of experiencing patient health outcomes failure. Grounded in the technology acceptance model, the purpose of this qualitative single case study was to explore leadership strategies rural hospital leaders use to implement telemedicine technology to improve profitability. The participants were five health care administrators of a rural hospital in a Midwest U.S. state who successfully implemented telemedicine technology to improve profitability. Sources for data collection were semistructured interviews and company documents. Data analysis involved the use of the thematic process where four themes emerged: training and education; identification of stakeholders and collaboration; physician leader role and coordination; and transparency, information sharing, and communication. A key recommendation is for rural hospital leaders to organize regular conferences and workshops on strategies to improve the leadership skills of managers responsible for implementing telemedicine technology. The implications for positive social change include the potential for health care leaders to create job opportunities and generating income for employees to benefit their families, thereby boosting the local economy.

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Dedication

I dedicate this study to the God Almighty, who in His abundant mercy and love sustained me to complete this doctoral study. I also dedicate this study to my wife Lilian Waturuocha and our three adorable children, Justin, Victor, and Jason, for their love, understanding, prayers, and continuing support to complete this doctoral study. I also dedicate this study to my parents, Desmond and Bridget Waturuocha, for their unconditional love, prayers, caring, and sacrifices to educate and prepare me for my future.

Acknowledgments

First and foremost, I praise and thank God, the Almighty, for His infinite love, protection, and showers of blessings throughout this journey to complete my doctoral studies. I want to acknowledge and express my sincere gratitude to my chair and mentor, Dr. Gregory Uche, for providing invaluable guidance throughout this research. His dynamism, vision, sincerity, and motivation have deeply inspired me. Thank you for instilling hope in me and making me see the light at the end of the tunnel. I want to acknowledge the tremendous assistance of Dr. Warren Lesser, 2nd Committee member, and Dr. Judy Blando, URR, who thoroughly reviewed my work for compliance with Walden University's standards. Your exceptional critiques, comments, and feedback added immensely to my knowledge and the value of this study - I am very grateful. To Dr. Susan Davis, the program director, thank you for the opportunity to complete this study. I cannot forget to thank my Walden colleague, Dr. Joseph Amaglo, for his invaluable support.

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Section 1: Foundation of the Study

The United States spends more on health care than any other nation (Organization for Economic Cooperation and Development, 2018). The Centers for Medicare and Medicaid Services (2015) projected the total U.S. health expenditures to grow by 5.6% annually between 2016 and 2025 and to overtake gross domestic product (GDP) growth by 1.2% annually during the same period. Health care in the rural United States is becoming inaccessible, resulting in disastrous health care outcomes for rural residents and the massive closure of rural hospitals and providers (Holmes et al., 2019). The U.S. government requires immediate urgency to improve the provision of quality health care in rural communities to achieve its health objectives.

Policymakers, hospital leaders, and health care providers require unique strategies and sustainable, innovative solutions to mitigate the financial challenges and heightened closures of rural hospitals. The health care providers proposed the Save Rural Hospital Act/HR 2947 to U.S. Congress to solve the economic challenges facing rural hospitals (Bannow, 2018). Implementing telemedicine technology may solve the financial crisis in rural hospitals (Rural Health Information hub (RHIhub), 2019; Schadelbauer, 2017), help rural hospitals increase revenues, and improve the quality of care in rural communities (Dinesen et al., 2016). However, limited studies exist on the role of telemedicine on the economic viability of rural health care providers. The purpose of this study was to explore the leadership strategies health care administrators use for implementing telemedicine technology to improve profitability.

Background of the Problem

Rural hospitals are the economic anchors of rural communities across the United States (American Hospital Association, 2019b); however, hospital leaders face enormous financial challenges to provide quality care to rural communities. About 20% of Americans live in rural communities, while more than 4,000 rural communities across the U.S. have limited access to medical care (Paul & McDaniel, 2016). Researchers have attributed the problem to an increase in health care costs, provider shortage, and increased rate of rural hospital closures (Paul & McDaniel, 2016). The shortage of primary care physicians in the U.S. is estimated to multiply from 39,000 in 2015 to 124,000 by 2025 (Paul & McDaniel, 2016). The lack of primary care physicians could result in limited health services accessible to rural patients, decreased revenue, and the eventual closure of rural hospitals (Balasubramanian & Jones, 2016).

Health care leaders should seek sustainable solutions to improve profitability and provide affordable, accessible, and quality care to rural residents (Kaufman et al., 2015; McLean et al., 2013). Implementing telemedicine technology in rural hospitals may improve the quality of care, improve profitability, and reduce health care costs (Dinesen et al., 2016; Mehrotra et al., 2016). According to Kvedar et al. (2014), telemedicine technology is a cost-effective alternative to traditional health care delivery. Leadership strategies that hospital leaders could use to improve profitability remain under-investigated. This study's findings could contribute to business practice by providing rural hospital leaders with strategies for implementing telemedicine technology to improve their business profitability.

Problem Statement

Rural health care leaders lack the awareness to implement telemedicine for financial stability and profitability (Frakt, 2019; Murphy et al., 2018). Since 2013, over 64 of 2,150 rural hospitals in the U.S. closed due to financial challenges (Miller et al., 2020; Smith, 2020). Establishing telemedicine practice in rural hospitals has the potential to reduce health care costs and solve the growing problem of rural hospital closures and shortage of health care providers (Jong et al., 2019; Radfar et al., 2017). The general business problem was that many rural hospital leaders face severe financial challenges and decreased profits. The specific business problem was that some rural hospital leaders lack leadership strategies to implement telemedicine technology to improve profitability.

Purpose Statement

The purpose of this qualitative single case study was to explore the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability. The target population consisted of five health care administrators of a rural hospital in a Midwestern U.S. state, who have successfully implemented telemedicine technology to improve profitability. The implications for social change might include health care leaders acquiring leadership strategies to provide patients' access to specialty care, improved health care outcomes, and enhanced access to health care services by rural communities. This study's findings could contribute to positive social change by offering employment opportunities and generating income to employees to benefit their families, thereby boosting the local economy.

Nature of the Study

The three research methods are qualitative, quantitative, and mixed methods. I used a qualitative method to explore the leadership strategies rural hospital leaders use to implement telemedicine technology to improve profitability. Researchers use a qualitative method to understand participants' experiences of the phenomena, and interview participants in their environment (Thirsk & Clark, 2017). Using the qualitative method, researchers could understand the various study phenomena through rich and thick data descriptions (Deasy, 2018; Gustafsson, 2017;). Qualitative researchers might gain significant insights and understanding of the study problem using the qualitative method. The qualitative method was appropriate for this study because I focused on understanding the human experiences and interviewed participants in their natural settings to collect textual data.

The quantitative method involves using a hypothesis and statistical inferences to generate data (Fossaluza et al., 2017; Thirsk & Clark, 2017). A quantitative approach was not appropriate for this study because I did not intend to generate a hypothesis or rely on statistical results. Mixed method research involves utilizing qualitative and quantitative methods to generate numerical and descriptive data (Halcomb & Hickman, 2015). The mixed method was not appropriate for this study because a combination of participants' experience and statistical data generation was not necessary. The qualitative method was the most suitable method for this study because I explored the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability.

Qualitative research designs include case study, phenomenology, and ethnography (Castleberry & Nolen, 2018). I used a single case study design for this study. The multiple case study was not appropriate for this study because I did not intend to study multiple hospitals to explore similarities and differences in telemedicine implementation. Researchers use a case study design to explore and analyze the phenomenon in a specific setting using multiple sources of evidence and data sources (Yin, 2017). The case study design was appropriate for this study because I explored and analyzed phenomena using multiple data sources.

Researchers use phenomenological design to understand and interpret phenomena through participants' lived experiences in their contexts (Padilla-Díaz, 2015). Because I did not intend to explore the phenomena through the participant's lived experiences, the phenomenological design was not appropriate for this study. Researchers use an ethnographic design to immerse in the participants' culture to understand the context of the phenomenon (Lewis, 2015). The ethnography design was not appropriate for this study because the purpose of the study was not to understand the participants' culture and background. The single case study was the most suitable design for this study because I explored the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability.

Research Question

The primary research question for this study was: What leadership strategies do rural hospital leaders use to implement telemedicine technology to improve profitability?

Interview Questions

1. What leadership strategies have you used to implement telemedicine technology in the rural community to improve profitability?
2. What leadership strategies did you use that worked best in implementing telemedicine technology in the rural community?
3. How were the strategies successful?
4. What challenges did you face during implementation?
5. How did you overcome the challenges?
6. How have your leadership strategies to implement telemedicine contributed to the organization's profitability?
7. How did you assess the effectiveness of the strategies to determine your organization's profitability?
8. What other information can you provide to help rural health care leaders implement telemedicine technology to increase profitability?

Conceptual Framework

The conceptual framework l used in this study was the technology acceptance model (TAM). Davis developed the TAM in 1989. TAM is derived from the theory of reasoned action (TRA) and is the initial framework that researchers use to explain users' behavior and intention to use technology (Charness & Boot, 2016; Marangunic & Granic, 2015). Davis proposed two primary factors that determine the user's attitude and intention to embrace new technology, including perceived usefulness and perceived ease of use (Wu & Chen, 2017). Perceived usefulness (PU) is the extent to which an

individual believes using a specific system will improve their job performance (Tarhini et al., 2016; Wu & Chen, 2017). Perceived ease of use (PEOU) refers to the degree to which an individual believes that using a particular system will be effortless (Eze, Obichukwu, & Kesharwani, 2021).

TAM could serve as a reliable framework for predicting technology acceptance in the health care ecosystem (Rho et al., 2014). Researchers have used TAM to understand the acceptance and implementation of telemedicine technology by health care professionals (Saigi-Rubió et al., 2016). The PEOU and PU constructs are associated with users' intention to accept telemedicine (Wade et al., 2016). In this study's data analysis and study findings, the TAM concept was an influential driver in telemedicine implementation in the rural hospital to improve profitability. As contained in the Theme 1: Training and Education, the PEOU and PU constructs were influential determinants in rural patients' acceptance of telemedicine. With training and education, rural patients perceived telemedicine as easy to use and were motivated and ready to use the technology. Health care leaders may apply TAM concepts to learn and execute strategies that may influence telemedicine acceptance and adoption (Canfield & Galvin, 2018). Researchers should understand the significance of the PEOU and PU constructs to implement telemedicine technology to improve profitability. TAM was appropriate to explore the leadership strategies that rural hospital leaders use for implementing telemedicine technology to improve profitability.

Definition of Terms

The following terms used in this study are defined below:

Asynchronous: A store and forward type of telemedicine in which the patient's medical information—history, images, and pathology reports—are collected and sent to specialists for diagnosis (Mechanic & Kimball, 2019).

Synchronous: A type of telemedicine using information and telecommunication technologies to deliver health information in real-time, enabling live interaction between patient and health care provider (Mechanic & Kimball, 2019).

Telehealth: The delivery of clinical health care, from a distance, using information and telecommunications technologies to exchange medical information, diagnose, treat, and prevent diseases by delivering continuing health care to providers and communities (Paul & McDaniel, 2016).

Telemedicine: The use of information and telecommunication technologies to deliver and support medical care by health care providers to patients from a distance (Chen, 2017)

Telemonitoring or remote patient monitoring: Uninterrupted monitoring and evaluation of a patient's clinical data and status using direct video monitoring (Mechanic & Kimball, 2019).

Teleradiology: Using electronic devices to transmit radiological images to remote radiologists for consultations and interpretations (Fatehi et al., 2015).

Teleconsultation: Consultation between multiple geographically separated health care providers to deliver quality care (Paul & McDaniel, 2016).

Assumptions, Limitations, and Delimitations

Assumptions

Researchers make assumptions during the research process. Assumptions are specific facts believed to be accurate, but are not verifiable (Corbin & Strauss, 2015). Assumptions are a set of beliefs that guide researchers in their specified research approach (Haegele & Hodge, 2015), which could impose restrictions beyond the scholar's control. In this study, I made four assumptions. My first assumption was rooted in the belief that telemedicine technology could improve profitability in rural hospitals. My second assumption was that participants would answer the interview questions thoroughly and honestly. Next, I assumed that participants played direct roles in implementing telemedicine technology in the organization. My final assumption was that the data collection techniques would enhance the credibility, transferability, dependability, and confirmability of the study.

Limitations

Researchers encounter some limitations in conducting a research study. Limitations are potential weaknesses in the study, not within the researcher's control (Corbin & Strauss, 2015). According to Berg et al. (2017), limitations constrain researchers from following their wishes during the research study. Researchers should understand the study's limitation to make meaning of the data collected from participants who represent lived experiences (Carleton & Porter, 2018). The first limitation of this study was the restriction of participants to health care administrators of a rural hospital in a Midwestern U.S. state. The second limitation was that the study findings might not be

generalizable beyond the context of the study. The third limitation was the cross-sectional and short time limit of the study. The final limitation was the small sample size of five health care administrators.

Delimitations

Researchers should establish delimitations for their research study. Delimitations refer to boundaries, constraints, or the scope of a study (Bailey, 2018; Marshall & Rossman, 2016). Delimitations are factors in a study that define the research boundaries (Holloway & Galvin, 2017). Researchers create delimitations to minimize the time used on irrelevant aspects of research. In this study, there were five delimitations. The first delimitation was the scope of the study. The study was limited to exploring the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability. The second delimitation was the restriction of the study to a rural hospital in a Midwestern U.S. state, which sets the geographical boundary for the study. The third delimitation was the context of the study, which restricts the research to a rural setting in a Midwestern U.S. state. Another delimitation was the purposeful selection of research participants and restricting the participants to rural health care administrators. The final delimitation was the generalization of the study findings to other health care institutions in differing geographical locations.

Significance of the Study

Contribution to Business Practice

Implementing telemedicine could help rural hospitals improve profitability and reduce operational costs. Rural hospitals lack the financial resources to provide

specialized services in rural communities (Murphy et al., 2018). With decreased patient admissions and patient visits, and the elimination of time and distance barriers to care, telemedicine service utilization may increase, generating incremental revenue for rural hospitals (Cichosz et al., 2016; O'Connor et al., 2016). Using telemedicine in rural hospitals may allow rural health care providers to engage remotely with other hospitals and collaborate to provide specialty care, thereby eliminating the high cost of hiring specialized clinical staff. This study's results could provide a practical model for rural hospital leaders to develop leadership strategies to implement telemedicine technology to improve profitability, thereby enhancing health care performance.

Telemedicine technology may result in positive clinical outcomes and increased patient satisfaction (Glynn et al., 2020; Williams et al., 2018). Researchers have demonstrated that patient satisfaction increased the revenues for rural health care providers (Edoh et al., 2016). This study's findings might contribute to effective business practice by providing rural hospital leaders with evidence-based leadership strategies and incentives to invest in telemedicine technology to improve profitability in rural hospitals. This study's findings might add value to health care business community by disseminating information regarding leadership strategies for implementing telemedicine technology to improve profitability; thereby providing a competitive edge to rural hospitals.

Implications for Social Change

The findings of this study might enable rural hospital leaders to implement telemedicine technology to improve access to quality health in rural areas and society in

general, acting as a stimulant to positive social change. People in rural communities have high mortality rates due to limited or no access to quality care (Caldwell et al., 2017). Using telemedicine to monitor rural patients could improve decision making in delivering care and improving patients' experiences (Kasckow et al., 2016). Rural hospital leaders may use telemedicine technology to provide quality care to people living in rural areas. Cooper (2015) suggested that with the growing shortage of health care providers in rural areas, establishing telemedicine practices may increase patients' access to the same quality of care and specialty services available in the urban and traditional health care locales. A potential social change outcome is that health care leaders might acquire leadership strategies to provide patients' access to specialty care and improved health care outcomes. By implementing telemedicine, rural hospital leaders could provide critical health care services to people in rural areas, create employment opportunities, generate income for employees to the benefits of their families, thereby boosting the local economy.

A Review of the Professional and Academic Literature

The objective of this qualitative case study was to explore the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability. A lack of leadership strategies to increase revenue and improve profitability is a threat to rural hospitals' continued existence. With the increasing rate of rural hospital closure due to financial instability, many rural hospital leaders have not found solutions to the problem (Brandon, 2019). Some researchers have proposed implementing telemedicine technology to improve rural hospital profitability (Mehrotra et al., 2016).

This study's findings might provide rural hospital leaders with rich knowledge of leadership strategies to implement telemedicine to increase revenue and improve profit.

This literature review involved an unbiased, extensive exploration and discussion of the research topic. The topics for discussion in this literature review include TAM, technology acceptance of telemedicine, the current state of rural care, need for telemedicine in rural communities, benefits of telemedicine implementation, barriers to implementing telemedicine, and telemedicine impact on rural hospitals' profitability. For this literature review, I reviewed scholarly articles, textbooks, and peer-reviewed journal articles related to telemedicine acceptance and implementation strategies. I searched for journal articles using the following sources: Google Scholar, Business Source Premier, ProQuest, EBSCOhost, Science Direct, Academic Source Complete, Medline, JIMR, and the Walden dissertation electronic database. I used Ulrich's Periodicals Directory website for verification of peer-reviewed journals. The keywords and phrases used for literature search included: T*elemedicine, telehealth, mHealth, telemedicine and profitability, telemedicine implementation barriers, telemedicine implementation benefits, technology acceptance model, telemedicine acceptance and health information technology,* and *leadership strategies.* Table 1 contains a summary of the sources of resources for the literature review.

Table 1

Literature Review Sources of Resources

Reference Type	<5 Years	>5 Years	Total
Peer-reviewed Journals	249	24	273
Dissertations	0	3	3
Non-peer reviewed Journals	2	9	11
Books	1	5	6
Government or Corporate Sites	12	0	12
Total	264	41	305

The resources include 305 references, consisting of 273 peer-reviewed journals, three dissertations, 11 non-peer-reviewed journals, six books, and twelve government or corporate websites. Of the 305 resources, 273 or 90% were peer-reviewed journals, and 249 or 85% were publications between 2015 and 2021. I organized and presented the literature review by themes.

Technology Acceptance Model (TAM)

The conceptual framework I used in this study was TAM. Davis (1989) developed the TAM in 1989. The TAM is used to explain users' behavior and intention to use technology (Marangunic & Granic, 2015). Davis proposed TAM on the premise that when users experience new technology, multiple factors determine their motive to use the technology. Davis identified two constructs or beliefs in the TAM framework to include PU and PEOU (Dos Reis & Freitas, 2014). PEOU refers to the degree an individual

believes using a particular system will be effortless while PU is the extent to a person believes using a specific system will enhance job performance (Tarhini et al., 2016; Wu & Chen, 2017). PU and PEOU have become the primary predictors of technology acceptance and use (Rho et al., 2014). Davis posited that a user's intent to use and actual use of a technology establishes the user's embrace or rejection of that technology.

Researchers have developed numerous conceptual theories to understand what drives technology acceptance and use in different contexts (Maillet et al., 2015; Dwivedi et al., 2017). TAM has become the leading model for describing and predicting technology acceptance (Rho et al., 2014). Rho et al. defined technology acceptance as users' psychological conditions and how it influences the predetermined use of technology. Chen et al. (2017) explained that TAM is the most applied conceptual model for predicting usage intention and the actual use of technology. TAM is a practical framework for predicting rural hospital leaders' intentions to implement telemedicine technology in their rural communities.

Many researchers have applied TAM in their studies. Martins et al. (2014) noted that researchers had applied TAM in various settings. According to Dajani and Yaseen (2016), one of TAM's usefulness is researchers' ability to apply it in various technology ecosystems. Cilliers and Flowerday (2014) stated that researchers use TAM to predict and justify factors that influence technology acceptance and use. Because of the extensive use of TAM in research, researchers have the authority to implement the framework in diverse environments (Ashraf et al., 2014). Martins et al. (2014) observed that researchers

had applied TAM in diverse domains. Rural hospital leaders should use TAM constructs to implement telemedicine technology to improve profitability.

Advancement of TAM

TAMs evolved from multidisciplinary fields of knowledge that form the platform for research in technology acceptance (Martins et al., 2014). Researchers support TAM in theory and empirical evidence to predict technology acceptance among potential users (Wu & Lu, 2013). Subsequently, Davis (1989) refined TAM by including the attitude construct where a user's attitude towards a system indicates whether the user will accept or reject the system. PU and PEOU variables influence users' attitudes to technology acceptance. Davis confirmed that attitude does not fully mediate PU and PEOU.

Successive Modifications of TAM

PU is considered a significant determinant of users' intention to use technology (Lai, 2017). In TAM2, Venkatesh and Davis (2000) established the five variables that directly impact PU: subjective norm, image, job relevance, output quality, and result demonstrability. Venkatesh and Davis integrated the three related social forms - subjective norm, voluntariness, and image. PU focuses on usage intentions.

Further development of TAM includes the addition of behavioral intention (BI) as a new variable. Davis (1989) noted that the PU of the system directly influences BI. What gave rise to the modified version of TAM is when a person may have a high behavioral intention to use technology without attitudinal influence.

Alternative Theories to TAM

Many other conceptual frameworks that relate to TAM may be applicable in technology acceptance improvement studies. Practitioners and scholars use technology acceptance improvement framework in understanding telemedicine technology to improve profitability and provide affordable, accessible, and quality care to rural residents (Kaufman et al., 2015). In this study, I considered other conceptual frameworks that rural health care leaders could use to implement telemedicine technology to improve profitability. In this section, I discuss three alternative conceptual frameworks that may apply to this study, including the unified theory of acceptance and use of technology, diffusion of innovation theory, and the theory of planned behavior.

Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh and Davis (2000) proposed the UTAUT model from a synthesis of several theoretical models. Researchers have used UTAUT broadly to explain user acceptance of information technology (Dwivedi et al., 2017). The four constructs of UTAUT include performance expectancy, effects expectancy, social influence, and facilitating conditions (Hoque & Sorwar, 2017). Studies based on UTAUT have been successful despite researchers' assertion that the model has reached its threshold of explaining user acceptance of technology in organizations (Venkatesh & Davis, 2000; Venkatesh et al., 2016). Unlike the TAM, the UTAUT involves using social influence to explain users' behavioral intention to use technology. The UTAUT was not appropriate for this study because using social influence is not adequate in explaining the rural health care leaders' intentions to implement telemedicine technology to improve profitability.

Diffusion of Innovation (DOI) Theory.

Rogers (2003) defined innovation as an idea, practice, or object that an individual perceives as new. Technology is not considered an innovation until the end-user regards it as new (Franceschinis et al., 2017). Rogers proposed four principal measures of diffusion for new technology: perception of the characteristics of the innovation, communication channels, the timing of adoption, and the social system (Wells & Nieuwenhuis, 2018). Rogers further categorized the four principle measures into four constructs: complexity, compatibility, trialability, and relative advantage (Kapoor et al., 2014; Rogers, 2003). Complexity refers to the degree to which users perceive innovation as challenging to use or comprehend while compatibility refers to the degree to which end users see innovation to be consistent with existing conventions, habits, and routines. Trialability is the degree to which end-users may experiment with innovation before adoption, while the relative advantage is the degree to which end users perceive innovation as superior to existing practices. The DOI theory was not ideal for this study.

Theory of Planned Behavior (TPB).

Ajzen proposed TPB in 1985 (Ajzen, 2011). TPB is a theoretical model that researchers use to explain individuals' behavior. In TPB, Ajzen proposed that intention determines behavior (Kim et al., 2016). Ajzen identified three distinct components: attitude, subjective norm, and perceived behavioral control. Attitude refers to how an individual positively or negatively valuates accomplishing a targeted behavior. Subjective norm is when an individual believes that people may or may not support their

engagement in the target behavior. Perceived behavioral control refers to when an individual believes a person can control the accomplishment of the action in question.

In addition to factoring in attitude and subjective norm, the TPB accounts for an individual's perception of using willpower to control their behavior (Kim et al., 2016). Kim et al. noted that researchers have broadly implemented the TPB in diverse contexts to predict behavioral intention in technology acceptance and use. Ajzen (2011) added additional considerations which encompass background factors and past behaviors, to strengthen the predictive powers of the TPB. The TPB was not appropriate for this research. Therefore, I did not use TBP as a conceptual framework for this study.

Technology Acceptance of Telemedicine

Despite the growth and expansion of telemedicine technology in the United States, telemedicine acceptance in U.S. health care organizations is slow (Kahn et al., 2016; Rho et al., 2015). The TAM is a primary framework for understanding telemedicine acceptance and other health information technologies (Segrelles-Calvo et al., 2015). TAM is a theoretical behavioral model for predicting and explaining user acceptance and use of information technology. Researchers in several studies have confirmed the positive influence of TAM in predicting information technology acceptance. Despite TAM's preference by many researchers in predicting users' behavioral intention to accept information technology and extension of practice, there is lack of motivation to use the TAM to understand user acceptance of telemedicine technology (Tsai, 2014).

Telemedicine is the provision of health care services using information technologies from a distance (Tsai, 2014). Using telemedicine technology enables health care providers to extend medical services to rural areas and underserved populations. Although the original TAM is limited, Davis (1989) proposed the modification of TAM to include more factors depending on the study's context. Consequently, there is a need for research to expand TAM to incorporate relevant variables and how they influence telemedicine acceptance.

Researchers have used TAM to explore the adoption and implementation of telemedicine and confirmed it to be an appropriate theoretical model. Rho et al. (2014) developed the telemedicine service acceptance model based on the TAM by utilizing the survey method and structural equation modelling to analyze the validity of the model and associated causal relationship. Rho et al. (2014) confirmed that the PU of telemedicine directly influence users' behavioral intention to use the technology while the PEOU of telemedicine directly affects the PU and behavioral intention to use it. The study results by Rho et al. (2014) affirmed Davis's (1989) original composition of TAM.

Researchers have used TAM extensively to study technology acceptance in health care to identify the consequences of poor telemedicine implementation (Cilliers & Flowerday, 2014). Despite health care leaders' accelerated technology acceptance level, the implementation level of telemedicine technology elicits concern (Rho et al., 2014; Segrelles-Calvo et al., 2015). The evidence supports the validity of the external motivational factors which Davis (1989) identified in his initial TAM construct. Researchers have conducted studies on telemedicine acceptance using the TAM

framework, which resulted in TAM2 and TAM3 models ensuing from these studies. Ahlan and Ahmad (2014) observed that while TAM2 focused on determining the efficacy of PU in influencing users' intention to use technology, TAM3 concentrated on unfolding interrupting factors that may affect IT acceptance in organizations.

Physicians are heavy adopters of information technology and influential in determining technology acceptance. Health care leaders' acceptance of telemedicine services may determine a successful telemedicine implementation. There is substantial evidence on physicians' role in many successful telemedicine implementations (Segrelles-Calvo et al., 2017). Hu et al. (1999) applied TAM in their study to examine physicians' acceptance of telemedicine in Hong Kong. In analyzing the data collected from 421 respondents, Ahlan and Ahmad (2014) found that PU significantly influences attitude and intention to use telemedicine while PEOU did not. Health care leaders can sustain the perception of usefulness by understanding the importance of change and support through embracing health information technology (Canfield & Galvin, 2018). The success of telemedicine acceptance and implementation depends on physicians' attitude to the technology. Therefore, it is critical to understand the determining variables that show physicians' perceptions of telemedicine technology.

Researchers have used TAM to study patients' perceptions of telemedicine acceptance. Gurupur et al. (2016) conducted a study to explore patients' perceptions of telemedicine acceptance by combining TAM attributes and the fit between individuals, task, and technology (FITT) framework to determine patients' readiness. The sample data contained only the patients' perception of usage rather than actual use. Gurupur et al.

showed that patients were ready to use telemedicine but require more education and opportunity to use it. Rural health care leaders should understand that patients are ready to use telemedicine and be prepared to implement telemedicine technology to improve profitability.

Saigi-Rubió et al. (2016) conducted a study to understand influential factors that drive telemedicine acceptance. Saigi-Rubió et al. used TAM2 to conduct binary logic analysis on 93 physicians and demonstrated that physicians have favorable views of telemedicine and its potential to reduce costs and bring value to the health care ecosystem. Rural health care leaders should have a favorable view of telemedicine technology to improve profitability.

Beldad and Hegner (2017) conducted a study to explore factors that drove German users to download and use a specific software application. Using the extended version of TAM, Beldad and Hegner tested 476 Germans users of the fitness application. By applying the structural equation modeling, Beldad and Hegner identified the three factors influencing the fitness application's popularity: PEOU, PU, and injunctive social norm. The study findings also showed that fitness application developers and descriptive social norms have no substantial influence on repeat usage intention. TAM was the ideal conceptual framework for this study.

From the available literature, a wide range of empirical evidence supports the use of TAM as the appropriate framework to study telemedicine technology. Therefore, future research is needed to determine additional TAM variables that may enhance the understanding of telemedicine acceptance. The TAM was the most appropriate

conceptual framework for this study involving rural health care leaders' implementation of telemedicine technology to improve profitability.

Current State of Rural Health Care

Health care providers across the US face challenges in providing adequate, accessible, and quality care to rural and underserved communities (American Hospital Association, 2019a; Paul & McDaniel, 2016). Health care delivery in the US is undergoing a rapid and dramatic evolution from a provider-centered to a patient-centered model (Vogenberg & Santilli, 2018). Residents in some US rural communities face access barriers to adequate health care services (Bolin et al., 2015; Mahar et al., 2018; Vogenberg & Santilli, 2018). The inability of the US Senate to repeal and replace the Affordable Care Act (ACA) has made ACA exchanges difficult. About 60 million people live in rural communities in the US (Paul & McDaniel, 2016). Rural health care leaders should implement telemedicine technology to improve profitability and the state of rural health care.

Rural communities require adequate health care services. The significant effects of hospital closure are the shortage of health care providers and inaccessibility to quality care by rural residents. Rural communities have become more diverse due to population increase (Centers for Medicare & Medicaid Services, 2019). Although many health care systems are in the urban and suburban metropolitan cities, many patients receive care from rural hospitals (Bolin et al., 2015; Schuller et al., 2019). Rural hospitals provide needed health care services to approximately 59 million people in the US (American Telemedicine Association, 2015). Despite providing health care services to 57 million

people across the US, rural hospitals face severe challenges of becoming financially secure and profitable (Murphy et al., 2018). Rural hospital leaders should establish action plans to implement telemedicine technology to improve profitability.

Rural hospital administrators are facing economic challenges in meeting the increasing demands of the patient population. The government's ongoing financial spending cuts have worsened the quality of rural health care, with some rural hospitals currently in an abysmal state (Vogenberg & Santilli, 2018). One in three rural hospitals have financial challenges, and researchers estimate that 25% of these hospitals will close within 10 years (National Rural Hospital Association). Researchers should explore ways to improve profitability in rural hospitals.

The U.S. government's insistence on a one-size-fits-all approach to delivering health care has created transportation challenges, provider shortage, and limited financial resources in rural areas (Giraldi et al., 2018; Speyer et al., 2018). The inability of health providers to deal with increased patients' admissions and readmission rates has worsened health care outcomes in rural communities (American Hospital Association, 2019a). Shortage of providers in rural facilities has severe implications for patients access to quality care. Rural communities account for about 25% of provider shortages, but only 9% of physicians and 16% of nurses serve rural communities (American Hospital Association, 2019a). Implementing telemedicine technology will improve health care in rural communities.

Rural health care leaders are leveraging technology to provide regular and specialty services (Lum et al., 2020). Some rural health care leaders are implementing

telemedicine to stem the closure of rural hospitals. Implementing telemedicine may drive the evolution of rural-based health care systems to provide regular and specialty care service (Kohler et al., 2019). Using telemedicine technology can transform the future of health care in rural areas by making care more affordable.

Researchers have confirmed the cost-saving benefits of telemedicine technology (Diaz & Player, 2020; Zholudev et al., 2018). Mahar et al. (2018) identified some cost-benefits of telemedicine to include improving the distribution of hospital workers and resources within and across health care systems and locations, reducing hospital and emergency room visits, reducing hospital admission rates, and improving patients' commitment and health care outcomes. The need for telemedicine in rural communities underscores the urgency for implementation.

Need for Telemedicine Technology in Rural America

The rapid evolution of telemedicine technology enables better patient access to health care and reduces health care costs (Delgoshaei et al., 2017). Health care organizations are leveraging on the values and benefits of this innovative telemedicine technology. The goal of instituting telemedicine services to provide expert care to underserved areas is made possible through advanced audio-visual telecommunications technologies (Robb et al., 2019). Many factors contribute to the rapid and widespread adoption of telemedicine technology.

Telemedicine is the delivery of health care services using electronic audiovisual technology (Manocchia, 2020). Kleindienst et al. (2020) referred to telemedicine as the use of electronic technology to exchange medical information to improve patients' health

outcomes. According to Centers for Medicare and Medicaid Services, telemedicine uses telecommunications and information technology to enable access to health care from a distance (Portnoy et al., 2020). As cited in (Suzuki et al., 2020), the American Telemedicine Association defines telemedicine as the use and exchange of medical information among multiple locations via electronic communication to improve patients care outcomes.

The three telemedicine modalities include real-time clinical live video, store and forward, and remote patient monitoring modalities (Suzuki et al., 2020). The real-time clinical live video involves synchronous real-time communication between patients and clinicians via secure audiovisual communication channels. Store and forward involves asynchronous encounters where clinicians and health care providers send digital images, sounds, and pre-recorded videos via secure communication channels to experts in distant locations for evaluation. Remote patient monitoring involves using telemedicine technologies to monitor patients' health data remotely from patients' homes (Lum et al., 2019; Ting et al., 2019). Teleradiology involves asynchronous electronic transmission of images to a radiologist for review and interpretation (Colglazier & Brown, 2021).

Many rural hospital leaders have recognized the need to implement telemedicine technology. Before the COVID-19 pandemic, telemedicine use was low in rural communities between 2012 -2019 but increased significantly during the pandemic at the rate of 147 visits per 100 patients (Chu et al., 2021). The upsurge in the ageing and the chronically ill population influences telemedicine acceptance (Dorsey & Topol, 2016). In 2013, one in seven Americans was over the age of 65, and by 2030, the number of seniors

will multiply, constituting more than 20% of the population (Bujnowska-Fedak & Grata-Borkowska, 2015). Demographic changes have increased chronic diseases that require ongoing medical attention. A significant driver for implementing telemedicine services is to reduce costs for patients and health care providers (Diaz & Player, 2020). Saigi-Rubió et al. (2016) explored why health care providers are adopting telemedicine at a rapid pace. After surveying 398 doctors, Saigi-Rubió et al. concluded that the cost-saving benefits of using telemedicine in a physician practice are a vital driver of telemedicine technology implementation. Kessler et al. (2016) studied the cost of inpatient pediatric rheumatology visits by families in Kansas City. Forty-two percent of the respondents who live outside the city agree that using the telemedicine option reduced the high cost of traveling to hospitals in the city.

Acute shortage of physicians in rural communities is another driver of telemedicine growth. The U.S. is experiencing a present shortage of nearly 46,900 physicians, and the number may increase to 121,900 by 2032 (American Hospital Association, 2019c). Petterson et al. (2015) noted that the number of primary care doctors could no longer meet patients' demands due to acute shortage and predicted that rural health care would require over 44,000 primary physicians by 2045. Most physicians practice in the major metropolitan areas where patients and hospitals are in large numbers, making it difficult for doctors to cater to many U.S. populations living outside metropolitan areas. The situation drives health care leaders to initiate strategies for implementing telemedicine programs and technology in rural community hospitals and clinics (Kessler et al., 2016).

The widespread availability of the Internet, high-quality video devices, and health information technologies are driving the need for telemedicine implementation. Telemedicine use is drawing attention in patient-centered care delivery due to the rapid development of telecommunications technologies and improved and efficient health care delivery models. With the current development in technologies, physicians and hospital leaders can provide quality care to patients at a distance. Teleconsultation, a subtype of telemedicine, is driving telemedicine adoption (Swar et al., 2019). Teleconsultation involves consultation between multiple geographically separated health care providers to deliver quality care (Paul & McDaniel, 2016). Paul and McDaniel conducted a study to understand the driving forces influencing health care providers' implementation of teleconsultation. According to Paul and McDaniel, the primary driver of teleconsultation is the time constraints physicians face from excessive demands and limited health care resources in rural areas.

With decreased reimbursements, health care providers are giving considerations to telemedicine (Vogenberg & Santilli, 2018). Many researchers have identified reimbursement issues as one of the primary barriers to telemedicine implementation. However, telemedicine is evolving because the federal and state governments are promoting it through reimbursements and the evidence-based role of telemedicine to reduce cost and improve patient satisfaction (Adler-Milstein et al., 2014; Glynn et al., 2020; Weinhold & Gurtner, 2018). Adler-Milstein et al. conducted a study to understand hospital leaders' intentions for adopting or not adopting telemedicine and demonstrated a positive correlation between private payer reimbursements and increased telemedicine

adoption by health care providers. Federal and state policymakers may consider implementing policies to promote reimbursements.

Barriers to Telemedicine Implementation

Health information technology (HIT) can address many of the challenges health care leaders experience across the U.S. With HIT and telemedicine technology, hospital leaders could provide quality and cost-effective care to underserved and rural communities (Saigi-Rubió et al., 2016; Ward et al., 2014). Health care providers and institutions should employ telemedicine solutions to improve access to cost-effective and quality care services to rural communities with limited access to health care. Researchers have affirmed the effectiveness and efficiency of using telemedicine to bridge the geographical gap and barriers to accessing quality care (Kruse et al., 2016). Notwithstanding that scholars have proffered telemedicine technology as a solution to reduce disparity in health care, there exist barriers that impede implementation.

Despite telemedicine's potential to improve health care access and reduce the cost of care, several studies have shown that health care leaders' rate of adoption and implementation are slow (LeRouge & Garfield, 2013). In 2010, only about 10% of hospitals had adopted telemedicine (Adler-Milstein et al., 2014). Although there is growing evidence regarding the increased adoption of telemedicine in the US, telemedicine adoption in rural hospitals remains limited, with insufficient data to inform implementation efforts (Ray et al., 2017). Health care leaders face challenges in implementing telemedicine services to make health care accessible and cost-effective to rural patients due to low adoption by rural and community hospitals (Douglas et al.,

2017). Researchers have attributed the discouraging rate of telemedicine adoption by rural health care leaders to various factors and barriers.

Several factors are responsible for the poor implementation of telemedicine. Weinstein et al. (2014) recognized three significant barriers that require government and regulatory involvement. The barriers are decreased reimbursement of telemedicine services, nationwide telemedicine licensing, and accreditation of hospitals to provide telemedicine services. In an analytical study to determine the challenges in telemedicine adoption, Dantu and Mahapatra (2013) identified four categories of barriers that affect the successful implementations of telemedicine. The barriers include individual factors, institutional, regulatory, and technological barriers (Dantu & Mahapatra, 2013). Individual elements are when the perceptions of physicians, nurses, and other clinical staff may influence telemedicine adoption, while regulatory barriers involve government policies and standards that affect telemedicine adoption (Dantu & Mahapatra, 2013). Institutional factors such as lack of funds, training, lack of reimbursement, and management support negatively impact telemedicine adoption. Technological barriers involve inadequate communication equipment, lack of data standards, integration, and interoperability of health care systems (Dantu & Mahapatra, 2013).

Driessen et al. (2018) conducted a study to explore the barriers impacting telemedicine. Driessen at al. surveyed a group of attendees at a telemedicine summit at the University of Pittsburgh and identified three barriers that negatively affect telemedicine adoption. The barriers include high initial investments needed to implement telemedicine, measurable return on investments, and the arduous task of learning

telemedicine usage. Wickramasinghe et al. (2016) conducted an extensive literature review and interviewed participants to identify the challenges affecting telemedicine services delivery to diabetic patients in an indigenous rural population. Wickramasinghe et al. identified the barriers to implementing telemedicine services in the rural communities to include the potential high failure of telemedicine, lack of technical expertise in using telemedicine equipment, and lack of local staff to manage telemedicine programs.

Jang-Jaccard et al. (2014) conducted a literature review to identify telemedicine adoption barriers in rural Australia. According to Jang-Jaccard et al., regulatory, financial, technological, and workforce obstacles affected telemedicine implementation in rural communities. Jang-Jaccard et al. opined that the barriers, as mentioned earlier, provide insight into the complexity of adopting telemedicine in rural populations. The rural health care leaders should understand the barriers to adopting telemedicine technology to ensure its successful implementation for improved profitability.

Globally, several countries experience challenges and barriers to telemedicine adoption and implementation. In many studies, researchers have confirmed that several countries experience barriers to implement telemedicine. Kruse et al. (2016b) conducted an in-depth literature review to learn barriers affecting the use of telemedicine in many countries. Kruse et al. analyzed 30 journal articles and identified 33 barriers. The significant barriers include non-savvy technology staff (11%), staff resistance to change (8%), implementation costs (8%), reimbursement (5%), patients' age (5%), and patients' level of education (5%). Other barriers fell below 4%. Kruse et al. concluded that health

care administrators could eliminate significant barriers through training, change management strategies, and policy changes.

Some health care leaders are reluctant to implement telemedicine. Brooks et al. (2013) interviewed health care providers to learn their intention to adopt telemedicine technologies in their organizations. Brooks et al. opined that health care providers are reluctant to implement telemedicine solutions due to barriers associated with clinical workflows, licensure, credentialing, and reimbursement. On the contrary, the health care providers acknowledged overcoming several of the obstacles because of technological advances. In recent studies, researchers have noted the gradual elimination of impediments to telemedicine acceptance and implementation. By eliminating telemedicine adoption challenges, rural hospital leaders could benefit from using telemedicine technology to bring quality and accessible care to underserved communities and rural areas.

Benefits of Telemedicine Implementation

Health care leaders are increasingly implementing telemedicine solutions to improve patients care outcomes (Carter, 2014; Maia et al., 2019). Health care professionals utilize telemedicine solutions efficiently in critical care, rural health care, and emergency care. Much empirical evidence supports the benefits of using telemedicine spanning from health, technological, economic domains, to social and organizational spectrum. Hospitals and health care providers are implementing telemedicine because of its benefits, including virtual consultations with distant specialists, telemonitoring, synchronous and asynchronous services, and affordable and

convenient care options for patients (American Telemedicine Association, 2015; Su & Das, 2020).

Hospital leaders use telemedicine technology to advocate quality patient care by enabling increased access to quality care services and solutions (Maia et al., 2019). Telemedicine is accelerating the evolution of care made possible by advancements in computing and communications technologies. With telemedicine, health care providers can provide a continuum of quality health care to areas and communities with limited or no access to quality health care, comparable to that received in hospitals and clinical contexts. Although several researchers confirmed the benefit of using telemedicine, some researchers argue that there is no significant difference in quality care between inpatient hospital visits and services provided via telemedicine (Zhang, 2016). Rural hospital leader should implement telemedicine technology to improve profitability.

Patient Satisfaction

Telemedicine has the potential to improve patient satisfaction. In many studies, researchers have affirmed the use of telemedicine technologies to provide health care providers with opportunities to extend care and improve patient satisfaction (Watson, 2016). Using telemedicine services to connect patients to a multidisciplinary set of clinical teams remotely via secure virtual video telecommunications systems may maximize patient satisfaction. Patient satisfaction is a direct result of telemedicine services that meet user expectation. Kruse et al. (2017) conducted a study to explore the relationship between telemedicine and patient satisfaction and showed that services via telemedicine solutions met patient expectations. Rural hospital leaders should implement

telemedicine technology to enhance patient satisfaction, thereby improving profitability.

In several studies, researchers have observed the benefits of using telemedicine in-home health agencies to increase patient satisfaction. Grant et al. (2015) conducted a study on the Evangelical Lutheran Good Samaritan Society's Living Well at Home initiative. The program's goal was to provide telemedicine services to clients in assisted living and home health care settings. Grant et al. randomly recruited and provided telemedicine services to 820 senior residents. Their findings showed that patients living in in-home care residencies with telemedicine services are more satisfied than patients in residencies lacking telemedicine services.

Patient demand for telemedicine services has increased due to benefits from telemedicine services. For over 15 years, many studies have shown patient acceptance and satisfaction with telemedicine (Jansen-Kosterink et al., 2019; Hanna et al., 2016). The availability of telemedicine services in health care settings and hospitals has significantly impacted patients, families, and communities (Bice-Urbach & Kratochwill, 2016). Researchers have reported that telemedicine technology increased patient satisfaction by reducing travel times and stress for the patient by providing them access to providers without traveling long distances to receive care (Dullet et al., 2017). Rural hospital leaders could enhance patient satisfaction by implementing telemedicine technology for improved profitability.

Cost-benefits of Telemedicine

Many research findings support the use of telemedicine technology to reduce the cost for both the patient and provider (Schumacher, 2015). According to Schumacher,

researchers have shown consistent evidence that telemedicine services reduce costs and increase efficiency through cost-effective and improved management of chronic diseases. By providing telemedicine services, patients save on costs due to decreased travel times, reduced hospital visits, and unnecessary hospital admissions. In a study on diabetic retinopathy, Newton (2014) noted that telemedicine was cost-effective in diabetes management. Screening for diabetic retinopathy in a community health center was 35% less in cost savings using telemedicine than direct patient observation.

Researchers have argued against the economic benefits of telemedicine technology. Zanaboni and Wootton (2012) noted that although certain telemedicine services may be inexpensive, there is no evidence proving that telemedicine is cost-effective. Similarly, Chandwani and Dwivedi (2015) and De la Torre-Díez et al. (2015) noted that despite several studies on the effectiveness of telemedicine, poor research design results in a flawed understanding of the economic benefits of telemedicine. Pereira (2017) confirmed a correlation between telemedicine implementation and profitability. By implementing telemedicine technology, rural hospital leaders could improve profitability and establish the economic benefits of telemedicine services.

Remote Monitoring

The use of telemedicine services improves health care access to patients living in remote locations. With the growing provider shortage in rural, urban, and underserved populations, telemedicine may increase health care access to new patients. Case study researchers confirm health care providers' use of telemedicine services to solve health care access barriers in inner cities, rural towns, villages, and underserved communities. In

the last 40 years, physicians have used telemedicine to provide health care services to patients in remote locations and provide care beyond their offices and clinics (Cooper, 2015). Telemedicine technology could improve health care services in rural communities.

Physicians use telemedicine solutions to provide care to patients who cannot face-to-face interaction with physicians due to distance limitations. Newton (2014) noted that some researchers had reported patients' attitude to virtual communication instead of face-to-face interaction with physicians. However, other researchers have shown contrary evidence to prove that patients are open to virtual electronic encounters (Newton, 2014). Rural hospital leaders should implement telemedicine technology to facilitate remote provider-patient interaction and improve care outcomes.

Improved Health Outcomes

The use of telemedicine improves the quality of care and better patient outcomes. In many studies, researchers have affirmed that the quality of telemedicine services is reasonable compared to the care and services offered in in-person consultations. Telemedicine provides better care outcomes in some specialties such as mental health, radiology, and stroke management, with better results and patient satisfaction. For example, Otero et al. (2014) reported the benefits of using telemedicine in pediatric critical care to improve patient outcomes.

Researchers have demonstrated the use of telemedicine technology in mental health. Pruitt et al. (2014) noted the benefits of telemedicine to provide mental health services directly to patients in their homes. Between 2005 and 2017, the majority of telemedicine visits were for mental and behavioral health. Pruitt et al. (2014) and Otero et

al. (2014) noted that home-based telemedicine health care services offer benefits resulting in patient satisfaction and improved treatment outcomes. Many providers offer telemedicine services to improve mental and behavioral conditions (Bashshur et al., 2016). Rural hospital leaders should implement telemedicine technology to improve mental health gap in rural communities.

Telemedicine Impact on Rural Hospital Profitability

Rural hospital leaders experience constant financial distress which could have an impact on business profitability. The percentage of rural hospitals at elevated risk of financial hardship has grown from 7.1% in 2015 to 9.2% in 2019 (Thomas et al., 2019). Thomas et al. observed that some of the contributing factors to rural hospitals' financial predicaments include labor costs, payor mix, and state and federal policies. Although rural hospitals make up 40% of hospitals in the U.S., starting in 2010, rural hospital closures increased by 34% due to financial distress (American Hospital Association, 2018). Between 2010 and 2015, over 100 rural hospitals have closed to patients needing inpatient care (Holmes et al., 2019).

Some rural hospitals are closing due to ongoing financial problems, demographic changes, and decreased demand for inpatient services (American Hospital Association, 2019a). The closures have left millions of rural residents without access to health care services (Holmes et al., 2019). Regardless of rural hospitals' financial predicaments, rural hospitals must ensure that patients have access to quality care (Lagrou et al., 2018). Rural hospital close due to several factors from the hospital’s financial health to when revenue is not consistent with set expenses (Kaufman et al., 2015). Researchers have attached the

financial and reduced workforce factors to the recent epidemic regarding the rapid closure of rural hospitals because of financial instability and decreased revenue (Germack et al., 2019).

Health care expenses are a significant factor in impacting rural hospitals' financial performance. Rural hospitals spend more on operating and non-operating expenses than urban hospitals. Sixty percent of rural hospital revenue comes from Medicare, Medicaid, and government payers (American Hospital Association, 2019a). Rural hospitals are overburdened with financial responsibilities hindering their ability to increase revenue and improve profitability (Noles et al., 2015). Factors preventing profitability include economics of scale, decreased revenue due to payer mix, and decreased wasteful utilization of resources (McWilliams & Schwartz, 2017).

Rural hospital leaders are seeking solutions and strategies to improve rural hospital profitability. Rural hospital leaders are concerned with financial challenges and interested in finding lasting solutions to stem rural hospital closures (Hall & Owings, 2014; Holmes et al., 2019). Slowing the trend of rural hospital closures would involve a multifaceted approach, encompassing technology, and sustainable solutions. One possible technology solution is the adoption and use of telemedicine technologies (Schadelbauer, 2017).

Telemedicine technology in rural hospitals may improve rural hospital profitability. Many health care institutions have used telemedicine technology to improve their financial performance. Rural hospital leaders can leverage telemedicine technology to increase revenue and improve profitability. Implementing telemedicine technology

may increase access to quality medical care for rural populations (Robb et al., 2019). Researchers have explored rural hospitals' readiness to embrace telemedicine (Kahn, 2015). Researchers have taken a fascinating look at the impact of telemedicine on rural hospital profitability. Growing evidence indicates that telemedicine use reduces health care costs for both patients and health care providers (American Hospital Association, 2016; Radfar et al., 2017). Telemedicine can be a cost-effective strategy for collaborating with other health care facilities (American Hospital Association, 2019b; Schadelbauer, 2017).

Researchers view telemedicine as a cost-effective method of delivering patient care by improving health care access (American Hospital Association, 2019a; Taylor et al., 2015). For example, the Veteran Health Administration (VHA) saved on costs and improved profitability using telemedicine. Between 2000 and 2003, the VHA conducted a pilot program in multiple states which encompassed seven hospitals, ten outpatient clinics, 28 community based/rural clinics, and 900 patients (American Hospital Association, 2016). The results include 40% reduction in emergency room visits, 63% reduction in hospital admissions, 83% decreased nursing home bed care, and 94% increased patient satisfaction (American Hospital Association, 2016). The estimated cost per patient in the Veteran Affairs (VA) telehealth program is $1,600 per year compared to VHA home-based primary care and nursing home care at $13,121 per patient-year and $77,745 per year respectively (American Hospital Association, 2016).

Thomas et al. (2018) conducted a study to evaluate the cost benefits of a telepsychiatry emergency consultation program in a pediatric hospital. In their study, the

researchers compared telepsychiatry consultations program outcomes with regular care involving ambulance transportation for in-person psychiatric emergency consultation. Findings revealed that telepsychiatry consultations for pediatric emergencies were more cost-effective than in-person psychiatry consultation at the children's hospital (Thomas et al., 2018). This study also found that telepsychiatry improved hospital operational efficiency and increased patient satisfaction (Thomas et al., 2018).

Telemedicine use may increase patient satisfaction leading to rural hospital profitability. Researchers suggest the telemedicine use may increase provider and patient satisfaction (Johnson, 2019). The role of telemedicine in postoperative care has led to enhanced patient satisfaction and increased cost savings for health care providers (Williams et al., 2018). By enabling rural patients to receive care in a local rural health care setting, telemedicine may improve the relationship between rural hospital leaders and citizens (Potter et al., 2016).

Implementing telemedicine may solve workforce shortages prevalent in rural hospitals. Rural hospitals face challenges and expenses in recruiting and retaining physicians, nurses, and specialists (American Hospital Association, 2019b; Marcin et al., 2015). Rural hospitals have fewer health care professionals due to limited financial resources. Patients in rural communities lack access to quality care due to a shortage of physicians and health care staff. Sixty percent of the US population lives in rural areas, and only 10% of physicians practice in rural communities (National Rural Health Association, 2016). About 60% of professional medical staff shortage areas in the US occur in rural areas (Kippenbrock et al., 2015; Marcin et al., 2015).

The workforce shortages in professional medical staff create challenges for rural hospitals to provide quality care and lead to a significant decrease in patient satisfaction (Marcin et al., 2015). By enabling telemedicine services, rural hospitals may save on expenses associated with hiring and paying health care professionals. Rural hospitals experiencing provider shortages can use telemedicine technology with trained health care professionals at a less expensive rate.

Evidence suggests that the use of telemedicine services lead to a reduction of follow-up visits in rural hospitals. For example, Uscher-Pines and Mehrotra (2014) established that only 6% of patients using telemedicine services required a follow-up visit compared to 13% and 20% of follow-up visits to physician's office and emergency department respectively for the same health care condition. Telemedicine translates to improved outcomes and cost-savings and reduction in medical expenditure for the rural hospital (Schadelbauer, 2017).

Rural hospitals face ongoing financial distress that impacts their profitability. Many research findings show that rural hospitals may increase revenue and improve profitability using telemedicine technology. Rural hospitals may use telemedicine to reduce hospital expenditures, improve patient satisfaction, and increase revenue while providing access to quality care to rural populations. Further research is needed to explore and understand other ways telemedicine can help rural hospitals achieve financial independence, improve revenue, and eliminate reliance on government reimbursements.

Leadership Strategies

Leadership plays an essential role in any organization. Leaders are change agents vital to accomplishing organizational goals and initiatives (Blomme, Kodden, and Beasley-Suffolk (2015). Business leaders count on capable leadership as a roadmap to organizational changes. However, several studies show that many organizations fail to adapt to changes and implement strategic plans because of mediocre leadership strategies (Pasmore, 2014). According to Pasmore (2014), leadership strategies support an organization's business initiatives. Leadership is an essential driver in successful strategy execution. Researchers have found leadership a significant strategy execution barrier in many organizations (Mubarak & Yusoff, 2019). Effective leadership strategies help organizations attain growth and sustainability through vision and competency (Gupta, 2018). Ineffective leadership experience and strategies may significantly and negatively impact organizational performance, competitiveness, and sustainability (Bansal & Desjardine, 2014; Gupta, 2018).

Despite significant investments, many health information implementations have failed due to inferior leadership roles and strategies (Laukka, Huhtakangas, Heponiemi, & Kanste, 2020). According to Walsh & Rumsfeld (2017), ineffective leadership strategies are a leading factor in the failure of health information technology implementations in the United States. Leadership strategies unearth issues that an organization must confront to achieve desired outcomes.

Leaders use a collaborative leadership strategy to encourage interaction and instill employee motivation (Wang & Wang, 2014). Studies have shown leadership strategies

on team collaboration, productivity, and effectiveness in sustaining health care innovations (Aaron & Sommerfield, 2012). Leadership strategies can provide an environment that encourages positive team collaboration.

The leadership strategy of involving stakeholders significantly improves organizational performance (Eskerod & Larsen, 2018; Touzi et al., 2016). Business managers should identify and meet stakeholders' requirements to improve the business success rate and performance (Eskerod & Larsen, 2018). There is a need to for business leaders to partner with important stakeholders to achieve organizational performance and profitability.

A leadership strategy of communication is vital in any organizational initiative (Kniffin et al., 2015). Communication and rapport between leaders and employees result in organizations' success and profitability (Vardaman, Gondo, & Allen, 2014). In various settings, leadership roles influence successful implementations (Ehrhart, Aarons, & Farahnak,2014). Leaders set the tone and agenda for strategic initiatives that encompass the implementation of new technologies and services (Moulin, Ehrhart, and Aarons, 2017). Leadership behaviors and styles play essential roles in the successful strategies for implementing initiatives.

Strategic leadership is the ability to communicate an organization's vision and motivate others to implement its strategic goals. Strategic leadership involves being knowledgeable about implementation goals, proactive in problem-solving, and perseverance during the implementation process (Aarons, Ehrhart, & Farahnak, 2014). Strategic leadership practices may significantly impact organizations' financial

performance (Carter & Greer, 2013). Strategic leadership can influence a leadership team's effectiveness in an organization (Zhang, Li, Ulrich, & Dick, 2013).

Business leaders need effective leadership strategies to bring change and implement innovations in organizations. Leadership strategies need to align with an organization's mission and vision (Dillard & Layzell, 2014). Leadership strategies are essential to organizational growth and support the effective implementation of an organization's business initiatives.

Transition and Summary

This study's primary focus was to explore leadership strategies rural hospital leaders use to implement telemedicine technology to improve profitability. Many rural hospital leaders face a financial dilemma because they lack the leadership strategies to implement solutions to increase revenue and grow the organization. Section 1 contains the background of the problem, the problem statement, the purpose statement, the nature of the study, the research question, and the interview questions. Other contents in Section 1 include the conceptual framework; definition of terms; assumptions, limitations, and delimitations of the study; and significance of the study. Section 1 also covers a review of academic and professional literature, including discussions on TAM and telemedicine technology acceptance.

In section 2, I reiterate the purpose of the study and discuss my role as the researcher, the participants, the research methodology and design, and the population and sampling strategies. Section 2 also includes discussions on ethical research, data collection instruments and technique, data organization techniques, data analysis

technique, and the validity and reliability of the research. In section 3, I present an overview of the study and data from the study findings, including data from interviews and analysis of the interviews. Section 3 contain discussions on the application to professional practice, implications for social change, recommendations for action and further study, reflections, and the summary and study conclusions.

Section 2: The Project

In this qualitative case study, I explored the leadership strategies rural hospital leaders use to implement telemedicine technology to improve profitability. In Section 2, I restate the purpose statement and discuss the role of the researcher, participants, research methods and designs, population and sampling, and ethical research. Other contents of this section include discussions on data collection instruments and techniques, data organization techniques, data analysis, and reliability and validity of the study findings.

Purpose Statement

The purpose of this qualitative single case study was to explore the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability. The target population consisted of five health care administrators of a rural hospital in a Midwestern U.S. state, who have successfully implemented telemedicine technology to improve profitability. The implications for social change might include health care leaders acquiring leadership strategies to provide patients' access to specialty care, improved health care outcomes, and enhanced access to health care services by rural communities. This study's findings could contribute to positive social change by offering employment opportunities and generating income to employees to benefit their families, thereby boosting the local economy.

Role of the Researcher

In qualitative research, the researcher's role includes selecting participants, collecting, organizing, and analyzing data (Male, 2016; Nelson et al., 2015). The researcher is the primary data collection instrument in qualitative studies (Fusch et al.,

2017); Peredaryenko & Krauss, 2013). In this study, I was the primary data collection instrument. My role as a researcher was to collect and analyze data regarding successful implementation of telemedicine in a rural hospital. McKee et al. (2015) noted that the researcher's fundamental role is to a build trusting relationship. I endeavored to build trusting relationships with study participants. Sutton and Austin (2015) opined that the role of the researcher in qualitative research is to attempt to access the thoughts, intentions, and opinions of study participants. During the data collection, I focused on participants' thoughts, experiences, and intentions.

Researchers and participants can intentionally or unintentionally introduce their personal bias or worldview in social research. Participant bias has an impact on research credibility (Zapien, 2017). Therefore, a researcher must address and mitigate bias during data collection and analysis. Because I was the researcher and primary data collection instrument, I identified all known personal bias and kept a diary of my own biases on mitigating any concerns during the data collection process. Yin (2014) noted the high propensity of bias in case studies and advised researchers to take issues of bias severely. I am a technology professional in a software company and have no affiliation with the rural hospital that was studied.

My 12 years of experience in software organization and a strong passion for telemedicine solutions makes me susceptible to bias. The real test of a credible researcher is the ability to identify biases that could derail the study and mitigate them to enhance the accurate and in-depth analysis of the study results. Peredaryenko and Krauss (2013) posited that researchers bring to the research context individual biases, assumptions, and

beliefs that may be contrary to that of the study participants. Researchers experience credibility issues if they have an existing relationship with interview participants (McDermidet al., 2014). I recognized my personal view of the world and discerned the presence of a personal lens to enhance my understanding and interpretation of the participants' behaviors and reflections.

Qualitative researchers should understand the phenomenon or problem through the lens of the study participants to answer the research question. Researchers should use various techniques to mitigate bias, prevent misinterpretation, and support consistency of data collection (Postholm & Skrøvset, 2013). To mitigate my personal bias, I adopted four techniques. First, I engaged and formed a mutual relationship with participants during the data collection phase. Second, I ensured transparency by documenting my underlying assumptions and entrenched values that may influence the design, data collection, and analysis. Third, I used a reflective journal to record my reflections, insights, and note changes. Finally, I clarified all terminologies required in the data collection phase.

A researcher has an ethical responsibility to the participants. Researchers should follow ethical guidelines in researching by engaging in the research process honestly, trustworthy, and credible (Yin, 2014). I implemented professionalism during the entire research process. The basis for regulations and guidelines concerning the selection, use, and treatment of human research participants are the fundamental ethical principles of respect for persons, beneficence, and justice, elaborated in the *Belmont Protocol Report* (Miracle, 2016; US Department of Health and Human Services, 1979). The Belmont

report for research ethics provides researchers with the guidelines for selecting and treating research participants in line with ethical principles (Bromley et al., 2015). In this study, I complied with the guidelines stipulated in the *Belmont Report* for conducting ethical research at Walden University.

To collect reliable and valid data from participants, qualitative researchers use interview questions, observations, notes, and archival company documents. The data collection phase involves using an interview protocol and interview questions (Castillo-Montoya, 2016; Yin, 2017). The interview protocol is a step-by-step instruction the researcher follows during research investigation to ensure consistency of interaction with the participants. The interview questions are the foundation of the data gathering process and should align with the research question (Guest et al., 2017). Interview protocol contains a list of interview questions and acts as a strategic guide for the researcher throughout the interview process (Yeong et al., 2018). I developed and used an interview protocol form (see Appendix A) to collect and record information during the interview process.

The six stages of data collection include identifying the sampling method and selecting the sample, designing the interview questions, obtaining Walden University Institutional Review Board (IRB) approval, providing informed consent to selected participants, maintaining privacy and confidentiality of research participants, and administering the interview (Castillo-Montoya, 2016). Before starting data collection, I applied and obtained the Walden University IRB approval (12-16-20-0312472). I used pseudo alphanumeric codes to maintain the privacy and confidentiality of the research

participants. After the interview process, I will store the data collected in a secured cabinet and passworded file for 5 years before the permanent destruction of all research data. During the face-to-face semistructured interview, I collected data in a trustworthy manner and mitigated my personal bias. To ensure data saturation, I continued to collect data until no new information was available, and themes were similar before using member checking to validate the interview data.

Participants

The choice of participants in a qualitative case study is critical to the research outcome. Researchers use purposeful sampling to identify and select research participants who know the phenomenon under study (Etikan, 2016; Park & Park, 2016; Roulston, 2016). Participants' eligibility criteria for consideration in the study were that they must be senior managers or administrators of a rural hospital in a Midwestern U.S. state and must have a minimum of 5 years' experience as senior leaders. Other eligibility criteria included possession of the skills and expertise in implementing telemedicine in rural hospitals and were involved during the organization's telemedicine implementation process. A sample of five participants may be sufficient in case study research to achieve data saturation and answer the research question (Guetterman, 2015; Yin, 2014). I used the purposeful sampling technique to select five participants for this study who met the eligibility criteria and aligned with the overarching research question. I was prepared to interview five or more participants until I achieved data saturation.

Researchers must identify the most appropriate technique to access the study participants. Researchers use various techniques to gain access to research participants,

including phone, emailing, and face-to-face contact (Bowden & Galindo-Gonzalez, 2015; Cunliffe & Karunanayake, 2013; Maramwidze-Merrison, 2016; Peticca-Harris et al., 2016). To gain access to participants, I used the American Telemedicine Association (ATA) and the American Hospital Association (AHA) to identify rural hospitals that have implemented telemedicine technology. After identifying the rural hospital for the study, I obtained a list of the participants from the rural hospital's human resources department and sent letters of invitation to the prospective participants (see Appendix B). The letter of invitation included the purpose of the study, the selection criteria, and the benefits of the study. Potential participants also received the informed consent form, and only respondents who completed and returned the informed consent form participated in this study. I also gained access to participants through phone and visiting in person.

Researchers should identify strategies for establishing a working relationship with study participants. Scholars have demonstrated that establishing a working relationship with participants is essential for a qualitative researcher and critical to the success of the research (Jarvik et al., 2014; Petrova et al., 2016; Van Antwerpen & Curtis, 2016). Researchers should build trust with participants to establish credibility (Petrova et al., 2016). According to Jarvik et al. (2014), researchers must be courteous and respect the decisions of the study participants. I established a good working relationship with the participants by building trust and confidence, being courteous, and respecting their decisions. I notified the participants that any information they provided would be private and would not publish their identities in the research document. I provided $25 gift cards to participants as compensation for participating in the study.

Research Method and Design

Researchers should select the research method and design that align with the purpose of the study and the problem statement to answer the research question. The three research methods are quantitative, qualitative, and mixed methods. I used the qualitative case study to explore the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability. In this subsection, I describe and justify the methodology for this study.

Method

I used a qualitative method for this study. Researchers use the qualitative approach to seek answers to research questions through open-ended interview questions, observations, document data analysis, and recorded information (Castleberry & Nolen, 2018; Hammarberg et al., 2016; Twining et al., 2017). With qualitative studies, a researcher concentrates on collecting and analyzing data to elucidate a phenomenon (McCusker & Gunaydin, 2015). The qualitative approach is appropriate for researchers seeking to explore the meaning of a phenomenon from the participants' perspectives and collect data through interactive participant communication (Bezboruah et al., 2014; Horne et al., 2014; Thirsk & Clark, 2017). The qualitative method was most relevant for this study because I focused on understanding the meaning of the phenomenon and interviewing participants in their setting to collect textual data.

Researchers could use qualitative, quantitative, or mixed methods to explore a phenomenon. The qualitative method involves selecting participants who can answer the research question; in contrast, quantitative research suggests adhering to guidelines and

procedures, and random participant selection (Sargeant, 2012). The quantitative method involves using a hypothesis and statistical inferences to generate data (Fossaluza et al., 2017; Thirsk & Clark, 2017). The quantitative approach was not appropriate for this study because my goal was not to generate a hypothesis or rely on statistical results.

Mixed method research involves utilizing the qualitative and quantitative methods to create numerical and descriptive data to generate the study findings (Griensven et al., 2014; Halcomb & Hickman, 2015; Siddiqui et al., 2014). Researchers combine the qualitative and quantitative methods to retrieve and analyze data to gain more profound knowledge of the research phenomenon (Chilisa & Tsheko, 2014). Because I did not need a combination of participants' experience and generating statistical data, the mixed method was not appropriate for this study. The qualitative method was the most suitable method for this study because I explored the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability.

Research Design

Researchers should select the appropriate research design for their study. Some qualitative research designs include case study, phenomenology, and ethnography (Castleberry & Nolen, 2018). I used a single case study design for this study. The multiple case study was not appropriate for this study because my goal was not studying multiple hospitals to explore similarities and differences in telemedicine implementation. Researchers use a case study design to explore and analyze the phenomenon in a specific setting using multiple sources of evidence and data sources (Guetterman & Fetters, 2018; Yin, 2017). The single case study design was appropriate for this study because I

explored and analyzed the phenomena using multiple data sources. Researchers select design techniques that may potentially answer the research question (Gaya & Smith, 2016; Yin, 2014). The case study design was the most appropriate research design to answer the research question of what leadership strategies rural hospital leaders use to implement telemedicine technology to improve profitability.

Researchers use the phenomenological design to understand and interpret phenomena through the participants' lived experiences in their original contexts (DeFelice & Janesick, 2015; Padilla-Díaz, 2015). Because I did not explore the phenomena through participants' lived experiences, the phenomenological design was not appropriate for this study. Researchers use an ethnographic design to immerse themselves in the participants' culture to understand the context of the phenomenon (Lewis, 2015). In ethnography, a researcher studies an entire culture and conducts a contextual observation of participants (Crandall et al., 2016). The ethnography design was not appropriate for this study because my intent was not to explore participants' organizational cultures or backgrounds and how they affect hospital leaders' implementation of telemedicine.

Qualitative researchers must reach data saturation to enhance the reliability and validity of the study. Data saturation refers to when no new information, no new codes, no new themes, no further information emerges from the data, and where study findings can be replicated (Fusch & Ness, 2015). According to Hancock et al. (2016), achieving data saturation enhances research quality. The failure to achieve data saturation affects research validity and quality of research findings. In member checking, the researcher

allows participants to review transcripts of interviews for accurate recording (Houghton et al., 2013). I continued to interview participants until no new themes or information emerged to enhance the validity and reliability of the study findings. Additionally, I implemented member checking and the methodological triangulation technique to collect in-depth and rich data.

Population and Sampling

The target population for this study were health care leaders of one rural hospital in a Midwestern U.S. state. A population refers to a group of individuals with similar features that align with the research question (Asiamah et al., 2017). Sampling involves selecting a small set of individuals or sources that represent an entire population to collect data to solve a research problem (Fowler, 2014; Gentles et al., 2015). The sample included five health care administrators who are directors and managers with a minimum of 5 years of experience in a leadership position and have successfully used their leadership skills and expertise to implement telemedicine technology successfully in a rural hospital.

I used purposeful sampling method in this study. Purposeful sampling is a sampling technique involving the selection of information-rich cases to comprehend a phenomenon under study (Benoot et al., 2016). Researchers use information-rich cases to gain knowledge that is pivotal to the purpose of the study (Patton, 2015). Researchers use the purposeful sampling technique to ensure that the target population yields information that is relevant, valuable, and able to resolve the research questions for the study (Yin, 2017). I contacted the eligible participants who agreed to participate in the study by email

or phone calls, then set schedules for one-on-one interviews. I used the purposeful sampling technique to select hospital leaders in one rural hospital in a Midwestern U.S. state to examine leadership strategies for implementing telemedicine technology to improve profitability.

Researchers have argued that there are no explicit guidelines on sample size. Vasileiou et al. (2018) posited that in qualitative studies, the richness and quality of collected data and the quality of the sample are more relevant than the sample size. Sousa (2014) argued that the number of participants is unimportant if there is sufficient evidence to support the research. Sandelowski (1995), as cited in Vasileiou et al. (2018) argued that if each participant provides high quality and information-rich information, the small sample size is sufficient. This study's sample included five hospital administrators who have a minimum of 5 years in a leadership position and have successfully used their leadership skills and experience to implement telemedicine technology in a rural hospital.

Researchers use data saturation to boost the credibility, transferability, dependability, and confirmability of their study (Yin, 2014). Data saturation indicates the point when the sampling of data should cease in the data collection phase. I conducted follow up interviews to collect in-depth and information-rich data. I continued to reinterview participants until there was no new information to achieve data saturation. The follow-up interviews provide an opportunity for the researchers to ask probing questions to ensure that no new data exists.

To enhance study validity and verify data saturation, I used member checking and the methodological triangulation technique. In member checking, the researcher allows

participants to review transcripts of interviews for accurate recording (Houghton et al., 2013). The purpose of triangulation is to draw data from multiple sources that may expand the researcher's understanding of the underlying issues of the phenomenon under study (Campbell et al., 2020; Noble & Heale, 2019). Methodological triangulation involves using multiple methods to study a phenomenon (Abdalla et al., 2018). Researchers apply methodological triangulation by using various sources of evidence to confirm their study findings, gain an in-depth understanding of the studied phenomenon, and ensure that data saturation is achieved (Hussein, 2015; Kolb, 2012; Natow, 2019). To verify data saturation, the member checking of interviews with five rural hospital leaders and reviewing of non-confidential hospital documents provided adequate information to reach data saturation.

Ethical Research

Researchers must conform to ethical principles in conducting a research study. Ethical considerations are principles and guidelines for researching with integrity and responsibility (Cleary et al., 2014; Grossoehme, 2014). In qualitative research, the relationship between the researcher and participants can be ethically challenging to participants because both are direct actors in the different phases of the study (Sanjari et al., 2014). Scholars have recognized the fundamental need to formulate clear ethical guidelines. Ethical consideration is critical in every scholarly research that involves the human population to guide the researcher on how to protect study participants (Kaewkungwal & Adams, 2019; Moustakas, 1994). The common ethical dilemmas that qualitative researchers experience include anonymity, confidentiality, informed consent,

and researchers' bias on the participants (Sanjari et al., 2014). I adhered to the Belmont ethical standards in this study.

Researchers must comply with ethical guidelines for conducting human research. Resnick (2011) discussed two benefits to researchers for adhering to ethical guidelines in research. The guidelines support the purpose of the study, including knowledge, truth, and the prevention of erroneous results. Researchers use guidelines that promote and support collaboration between researchers and participants, such as trust, mutual respect, and accountability. Ethical considerations help researchers develop research within the research community (Chesser et al., 2019; Roberts et al., 2019). While researchers must adhere to established guidelines when conducting research involving humans, some researchers knowingly or unknowingly ignore these guidelines. I adhered to the ethical guidelines in conducting this research study.

Applying the principle of ethical consideration involves following Walden University IRB ethical requirements. In line with IRB requirements, I attended the Collaborative Institutional Training Initiative (CITI Program) online training on Human Subjects Protection. A Researcher must adhere to the guidelines, establish the necessity of the research, and safeguard the participants' well-being (Kim, 2012). Before commencing this research study, I applied to and obtained approval from Walden University IRB. The Walden University IRB approval number is 12-16-20-0312472. By obtaining the Walden University IRB approval, I attested to adhering to ethical principles and research ethics protocol that proscribes the exploitation of human participants.

According to Rowley (2012), qualitative researchers must use the informed consent form to obtain the participants' permission. A key feature of informed consent involves communicating the study's benefits and risks to the participants (Nusbaum et al., 2017). The principles of informed consent require that participants in any study voluntarily sign an agreement to participate in a study (Thomas & Pettitt, 2016). Informed consent is a voluntary agreement where the researcher informs participants that participation in the research is not mandatory. I provided informed consent forms (see Appendix C) to participants and obtained their written consent before the interview. I used the informed consent form to provide participants with relevant information for making an informed decision regarding their willingness to participate in this research study. I also offered all participants full disclosure that explains in detail the nature and scope of the study.

To further comply with ethical standards, I explained the interview protocol to the participants (see Appendix A), including recording the interview and taking notes. In qualitative research, participants are free to withdraw from the study at any time (Hadidi et al., 2013). Participation in this study was voluntary, and participants can refuse to participate or withdraw from participation without penalty. I informed the participants that they are free to withdraw their participation from the study at any time before, during, and after the interview by informing me through email, phone, or face-to-face contact. Because no participant indicated interest to withdraw from this study, I neither returned the notes retrieved from participants nor deleted applicable recordings.

Protecting participants' privacy is a top priority to comply with the ethical standards of research (Yun et al., 2013). Yun et al. listed participants' main privacy concerns: location privacy, electronic privacy, communication privacy, individual information privacy, and public privacy. I informed the participants of their right to choose the location for their interview. Researchers must assign abstract codes or numbers to mask the participants' identities (Damianakis & Woodford, 2012). As suggested by Marshall and Rossman (2016), I assigned alphanumeric codes and labels to every participant to maintain their anonymity by using generic names for each participant such as P1001, P1002, P1003, P1004 and P1005.

To comply with Walden University's guidelines regarding the destruction of data collected from participants, I protected participants' identities and safeguarded the information I received by storing the data in a secure place for 5 years. After 5 years, I will destroy all participants' data, and in adherence to ethical standards, I did not reveal the participants' identities.

Data Collection

Instruments

The data collection instruments play a critical role in the quality of qualitative research. The researcher is the primary data collection instrument in qualitative research studies (Johnston, 2017). I served as the primary data collection instrument in this study. As active participants, researchers create a collaborative, interactive context for participants to provide their opinions and life experiences (Pezalla et al., 2012). As the primary data instrument, I worked to minimize bias and perform self-reflexivity. During

the data collection phase, I designed the interview questions, provided informed consent to participants, maintained the privacy and confidentiality of research participants, and conducted semistructured interviews.

Many data collection instruments are available for case study research. For this study, I used the semistructured interview instrument to obtain the participants' responses. Researchers use the semistructured interview technique to capture various responses from participants (Chen et al., 2014). I drafted eight semistructured, open-ended interview questions (See Appendix D) to elicit responses from participants. I conducted telephone interviews with the participants using a standard interview protocol. The interview protocol is a list of interview questions and a strategic guide for the researcher during the interview phase (Jacob & Furgerson, 2012). A well-written interview protocol is crucial in obtaining high-quality information-rich data in qualitative interviews.

In current interview resources, there is lack of practical guidelines for developing and refining interview protocols. Some researchers use the Interview Protocol Refinement (IPR) framework to ensure the reliability of their interview protocols (Castillo-Montoya, 2016). According to Castillo-Montoya (2016), IPR involves ensuring that interview questions align with the research question, creating a probing-based conversation, third-party interview protocol review, and using the protocol for the pilot interview. Therefore, I implemented Castillo-Montoya's IPR to develop the interview protocol for this study. After the interview, I compared the audio recordings with my notes to ensure accuracy and consistency.

Qualitative researchers evaluate research data for credibility and validity. To enhance the credibility and validity of collected data, Lincoln and Guba (1985) introduced four benchmarks that researchers could use to maintain rigor and trustworthiness in qualitative research. The benchmarks are credibility, transferability, dependability, and confirmability (Cope, 2014; Lincoln & Guba, 1985). To ensure credibility, researchers interact directly with participants to capture their authentic perspectives (Cope, 2014). To ensure credibility, I had telephone interaction with participants to capture their accurate viewpoints regarding leadership strategies for implementing telemedicine technology in the rural hospital to improve profitability.

Member checking is a technique for validating the credibility of research findings (Birt et al., 2016). Researchers use member checking to review transcripts of interviews for accurate recording (Houghton, Casey, et al., 2013; Houghton, Murphy, et al., 2015). Employing member checking helps the researcher gather enough data and reach data saturation. After transcribing and analyzing the interview data, I implemented member checking by providing summary of interviews to individual participants to verify accuracy. Using member checking and triangulation instruments, I added rigor and rich thickness to research findings, thereby, aiding to reach data saturation.

Researchers use triangulation to improve the investigation and elucidation of research findings. In triangulation, researchers draw data from multiple sources to expand their understanding of the underlying issues of the phenomenon under study (Campbell et al., 2020). Scholars concur that triangulation is a validity technique to ensure the accuracy of study results (Houghton, Murphy, et al., 2015). Methodological triangulation

involves the use of multiple data sources to study and evaluate a phenomenon. Houghton, Casey, et al. (2013), Bekhet and Zauszniewski (2012), and Drouin et al. (2015) noted that methodological triangulation accelerates affirmation of findings, detailed data, confirmability, and in-depth understanding of the phenomenon under study. I used methodological triangulation to explore the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability.

Data Collection Technique

Data collection is a valuable task in research projects. Researchers implement data collection techniques to systematically collect information about their objects of study and the settings in which the studies occur. Using the proper data collection technique ensures that researchers collect credible and reliable qualitative data. Elo et al. (2014) affirmed that adopting the most appropriate data collection method is important to ensure the credibility of a study. The conventional data collection techniques available to researchers conducting case study include interviews, focus groups, company documents, direct observation, participant observation field notes, archival records, and tangible artifacts (Aborisade, 2013; O'Nyumba et al., 2018; Yin, 2017). Yin encouraged researchers to supplement interview data with data from secondary sources.

I began data collection after obtaining IRB approval from Walden University IRB. After obtaining IRB approval, I consulted with the rural hospital research department, who referred me to the rural hospital's Chief Executive Officer (CEO). Next, I worked with the office of the CEO to obtain the contact information of 8 potential participants. 5 out of 5 potential participants agree to participate in the study. I

commenced this study by sending a letter of invitation (see Appendix C) through email to each participant. The content of the email included a brief background of the purpose of this study. Next, I sent an email with the attached informed consent form to each participant for review and consent to indicate their willingness to participate in the study. After selecting the five participants, I consulted with the participants on the most suitable date and time to conduct a 30-45-minutes phone interview session. I had planned face-to-face interview sessions with selected participants but deferred to Zoom phone interviews because of COVID-19 restrictions. Before the interview date, I sent a reminder email to the consented participants to reaffirm the date and time of the phone interview.

Researchers prefer digital recording devices to recording apps on mobile devices (Annik, 2017; Garcia et al., 2016). Mobile recording apps could be unreliable and may contain vulnerabilities and pose security risks (Alsaleh et al., 2017). To record participants' interviews, I used Zoom Cloud-based conferencing audio recording service. The advantages of using the electronic forms of data collection include ease of use for data collection, data management and analysis (Li et al., 2015). Disadvantages may include inadequate familiarity with the devices, security issues, and updates to device software (Alsaleh et al., 2017; Li et al., 2015). Before the interviews, I tested the Zoom recording function to certify that it is in good condition and working correctly. After the interview with each participant, I used the Otter.ai web application software to transcribe all recorded interviews.

I conducted a semistructured interview using an interview protocol. Researchers use the interview protocol to increase the quality of data obtained from interviewing

participants (Castillo-Montoya, 2016). Interview protocol is a procedural guide that qualitative researchers use to direct the interview process (Akamatsu et al., 2016). Castillo-Montoya noted that using an interview protocol may help researchers extract meaningful information that describes participants' experiences. Qualitative researchers use the interview protocol as a typescript to follow during a research investigation (Cooper, 2016). I used an interview protocol (see Appendix A) to extract quality information from each participant by ensuring consistency, building trust, asking probing questions, and discussing the leadership strategies they use to implement telemedicine technology to improve profitability.

Most qualitative researchers use semistructured interviews to collect primary data from study participants. Yin (2014) noted that qualitative researchers use semistructured interviews to collect data that accentuates the participants' worldview and understanding of phenomena under study. Lin and Chen (2012) argued that semistructured interviews are the best data collection method to understand participants' thoughts, experiences, and apprehensions. Likewise, Wahyuni (2015) claimed that semistructured interviews are better-suited to address theme-based questions that may stimulate in-depth, open-ended answers. With semistructured interviews, the researcher could ask probing questions to gather rich, in-depth data (Aborisade, 2013; Cridland et al., 2015).

One disadvantage of using a semi-structured interview is that a researcher may influence the responses of the participants (Malagon-Maldonado, 2014). The researcher faces the dilemma of determining when best to probe or ask follow-up questions as an inexperienced researcher using a semistructured interview (Alshenqeeti, 2014). Another

disadvantage of a semistructured interview as a technique for data collection is that it can be very time consuming and costly (McIntosh & Morse, 2015).

Yin (2017) stated that an advantage of documentation in the data collection includes the ability of the researcher to use methodological triangulation for crosschecking data gathered to reach data saturation. A common strategy that researchers use to validate data in qualitative research and to enhance trustworthiness is known as methodological triangulation (Hadi & Closs, 2016). A researcher can obtain a deeper understanding of the phenomenon under study by conducting documentation analysis (Carter et al., 2014).

Researchers build rapport during interviews via face-to-face interaction and establish a pleasant ambiance to increase participants response (Vogl, 2013). Therefore, I conducted semistructured interviews to build rapport with participants to obtain quality responses. To mask participants' identities, I assigned codes and labels to every participant. I implemented generic codes for each participant, such as P1001, P1002, P1003, 1004 and P1005, to maintain the anonymity of participants. After the interviews, I provided $25 gift cards to participants as compensation for participating in the study.

Member checking is a high priority activity in the data collection process. Researchers implement member checking to verify accuracy, completeness, and validity (Harper & Cole, 2012; Houghton, Casey, et al., 2013; Yin, 2014). To ensure the credibility and confirmability of the data collection process, I used member checking and the methodological triangulation technique. In member checking, researchers share the

interpretation of participants' responses with the participants to clarify and confirm accuracy with data collected during the interview (McGinley et al, 2021).

Upon analysis of each interview data, I shared the results with the participants via email to confirm within 3 days that my interpretations are consistent with their interview responses. I followed up with each participant f and received feedback on their satisfaction with my interpretations. All participants noted there were no changes needed to the interpretations. Birt et al. (2016) noted that researchers use member checking as a quality control mechanism to confirm the accuracy of participants' responses during the interview. Birt et al. proposed that researchers use member checking to detour the improper analysis of data and assure dependability. I implemented member checking by asking each participant to thoroughly verify and confirm the accuracy of my analysis and interpretation of responses of collected interview data. To reach data saturation, during each interview, I followed each open-ended interview with probing questions to explore detailed participants responses. During data analysis, I processed data repeatedly until no new data, themes or new coding emerged.

Another source of data collection is the use of a company's documents and records. The CEO of the rural hospital granted me access to use the organization's evaluation documents on patient and care team perspectives on telemedicine implementation in Critical Access Hospitals as the second source of data collection. Analysis of the provided company documents provided insight on the organization's use of education, training, collaboration physicians' role in successfully implementing telemedicine in the rural hospital.

Researchers use data from company documents to corroborate data from interviews to increase rigor and bolster research findings (Fusch et al., 2018). Researchers use triangulation to improve the validity of interviews and archival records data (Fusch et al., 2017). Triangulating two sources of data enhances the clarity and efficacy of research results (Noble & Heale, 2019). I triangulated interview data and company documents by random checks of corroborative data, gaps, and biases from member-checking responses to ensure accuracy and quality of collected data.

Data Organization Techniques

At the end of the data collection phase, researchers proceed to organize data collected from interviewing participants. In case studies, qualitative researchers collect data from multiple sources of evidence, including documentation, interviews, observations, artifacts, and journals (Yin, 2018). I interviewed the participants to collect primary data and collect secondary data from company documents. The goal of qualitative data organization and analysis is to order, structure, and provide meaning to collected data. A data analysis software helps qualitative researchers to collate, consolidate, and analyze data collected from interviews, document reviews, and field notes into codes and themes (Georgiou et al., 2012). Theron (2015) noted that data analysis does not end with coding data; instead, researchers use coding to organize data to understand the underlying message of the data. I used NVivo Version 12 Pro to store, organize and analyze data, and identify meaningful themes. Researchers use the NVivo software for coding, data analysis, and visualization of data. NVivo software helps researchers organizing and evaluating data in easy and systematic ways to understand

participants' experience (Rogerson et al., 2016). The benefits of using NVivo is that it is easy to use, effective and efficient in transcribing, coding and retrieving data (Zamawe, 2015). To organize my files, I assigned labels to every folder such as P1001, P1002, P1003, 1004 and P1005.

Researchers read interview transcripts to ensure that the contents relate to the research question I ensured that the analyzed data conform to IRB requirements. I will save all electronic information on a password-protected external hard drive and stored all raw data in a drawer for a minimum of 5 years. After 5 years have elapsed, I will permanently delete all data stored in the external hard drive, including destroying the hard drive. I will use a paper shredder to destroy all copies of raw data.

Data Analysis Technique

Data analysis aims to evaluate and interpret data in research (Palinkas et al., 2013). With advances in information technology, researchers are finding new methods for data analysis. Data analysis occurs when a researcher gathers, examines, categorizes, and organizes data in themes and tests collected data (Yin, 2014). The task of organizing collected data is necessary to guarantee the accurate classification of materials, adequate recollection, and confidentiality of study participants (Kemparaj & Chavan, 2013). I commenced my data analysis by gathering, examining, categorizing, and organizing the data collected from the semistructured interviews with the study participants.

I began data analysis by following steps that would result in detailed data interpretation. Yin (2014) recommended four logical and sequential steps of data analysis. The steps include scanning through the entire data to identify meaningful

patterns, reading the transcribed notes to get a general view of the data, coding and arranging the data into manageable themes, and interpreting the meaning. Therefore, I followed Yin's four steps in my data analysis process.

Because qualitative research is a continuum, a researcher should not wait to complete interviews before doing data analysis. I began analyzing data once I started interviewing participants. I used the NVivo Version 12 Pro software to store, organize and analyze data and identify meaningful themes. Researchers use the NVivo software for coding, data analysis, and visualization of data. NVivo software helps researchers organize and evaluate data in easy and systematic ways leading to improved understanding of participants' experience (Rogerson et al., 2016). After identifying the key themes using NVivo, I initiated the process of linking the topics to recent studies, the central research question, and the conceptual framework (TAM).

Triangulation strengthens research findings by validating multiple sources of evidence (Anney, 2014). One purpose of triangulation is to increase confidence in the results obtained during data analysis to enhance the validity of the research (Stefura, 2014). I used methodological triangulation which included comparing and collaborating my findings with the literature review, conceptual framework, my reflective journal, and secondary data so that researchers may be able to replicate the research.

By implementing member check sessions, which involved asking each participant to thoroughly verify and confirm the accuracy of my analysis and interpretation of collected interview data during the interview process, I validated the interpretation of participants' responses..

Stefura (2014) identified three standard approaches to triangulation: data source triangulation, methodological triangulation, and theory triangulation. Methodological triangulation involves implementing multiple methods to study a phenomenon (Bekhet & Zauszniewski, 2012; Campbell et al., 2020) by combining various techniques to gather data, such as company documents, interview data. I implemented methodological triangulation by combining analyzed interview data, company documents, and journal notes to gain multiple insights and perspectives on the strategies senior leaders used to implement telemedicine at the Midwestern rural hospital. With methodological triangulation, I confirmed findings, increased validity, and expanded the comprehension of the studied phenomena.

Reliability and Validity

Qualitative researchers differ in techniques for evaluating the quality and trustworthiness of research (Gunawan, 2015; Hadi, & José Closs, 2016; Koch et al., 2014). Bryman (2012) argued that researchers should not use reliability and validity to assess qualitative research. Based on Bryman's assertion, Lincoln and Guba (1985) offered an alternative criterion for validating the rigor and trustworthiness of qualitative research. Lincoln and Guba argued that researchers should ensure the reliability and validity of qualitative research by employing practices to increase the credibility, transferability, dependability, and confirmability of research findings. In this study, I demonstrated rigor by member checking data to establish reliability and validity of research findings. I demonstrated reliability and validity by triangulating collected data with my conceptual framework,

literature review my reflective journal, and secondary data so that researchers may be able to replicate my findings.

Korstjens and Moser (2018) noted that the approaches of credibility, transferability, dependability, and confirmability are the quality benchmark of all qualitative research. Utilizing the credibility, transferability, dependability, and confirmability framework in qualitative studies may enable future researchers to replicate study findings and instill trust in qualitative research.

Reliability

Reliability ensures the consistency, dependability, and replicability of research findings (Cypress, 2017; Zohrabi, 2013). Researchers acknowledge a study as reliable if the results are consistent, dependable, and replicable (Yin, 2014). In qualitative research, the researcher is liable for implementing procedures to confirm the reliability of the study finding (Dikko, 2016). With member checking, researchers return transcripts of interview data to individual participants to verify and confirm the accuracy of their responses (Harvey, 2015). Employing member checking helps the researcher gather enough data and reach data saturation (Leung, 2015). To accomplish reliability in my study, I followed the interview protocol strictly and conducted member checking to ensure the consistency and accuracy of data collected from participants.

Dependability. Dependability involves evaluating the stability and consistency of the research process and identifying changes that may affect research findings (Boesch et al., 2013). Dependability accounts for changes that happen in a context and how they influence the conduct of the research (Wahyuni, 2015). Dependability ensures the

reliability of data when applied in different contexts (Elo et al., 2014; Kallio et al., 2016).). Member checking involves participants' review of interpreted data to ensure the dependability of the study (Harvey, 2015). Researchers use member checking to prevent inaccuracies in the interpreted data and ensure the dependability of the study findings (Chang, 2014). I addressed dependability in this study by summarizing research findings and having participants review the summary to confirm the accuracy and reliability of the study.

Validity

Validity refers to the accuracy and trustworthiness of research results (Seidman, 2012; Yardley, 2016). Researchers employ diverse methods in a qualitative research process to increase the validity of the study results. Researchers apply triangulation to confirm a study's validity (Cope, 2014; Yin, 2014). Methodological triangulation refers to adopting multiple methods to ensure rigor and accuracy of data (Anney, 2014). Many scholars agree that triangulation is a validity technique to ensure the accuracy of study results (Houghton, Murphy, et al., 2015). In this section, I discuss how I established the validity of this study using qualitative methods.

Credibility. Credibility refers to the extent to which a researcher assigns confidence to the result of research findings (Anney, 2014). Researchers implement credibility to establish whether research participants' information corresponds to research findings (Lincoln & Guba, 1985). Credibility requires having detailed and meaningful descriptions, related concepts, and consistent findings (Boesch et al., 2013). Member checking involves validating the study findings to confirm credibility (Iivari, 2018; Smith

& McGannon, 2017). Lincoln and Guba asserted that member checking is the most authentic approach qualitative researchers use to prove credibility. Researchers use member checking to increase credibility when the study findings are accurate, reliable, consistent, and replicable (Nowell et al., 2017; Tracy & Hinrichs, 2017). Using member checking, researchers seek participants' view on the accuracy of collected data, descriptions, and interpretations (Harvey, 2015). I implemented member checking by returning summary of interview to individual participants to verify and confirm accuracy to ensure credibility.

Researchers use triangulation to increase the credibility of research findings. triangulation is a validity technique to ensure the accuracy of study results (Houghton et al., 2015). I applied methodological triangulation by using sources that include interviews and company documents to strengthen the validity and amplify the comprehension of study findings.

Transferability. Transferability is the degree to which researchers' findings are applicable in other contexts. In transferability, only readers can determine if research findings will apply to their locale. Morse (2015) noted that with transferability, scholars could generalize study findings to other similar situations. Researchers achieve transferability when generated evidence and findings in one context apply in another. Researchers amplify transferability through thick descriptions and purposeful sampling (Anney, 2014). Researchers provide detailed descriptions of the study phenomenon and research method for readers to confirm the applicability of the study findings in their contexts (Boesch et al., 2013). To achieve transferability, I provided detailed descriptions

of the research phenomenon and research method to readers to assess if they would apply my study findings in their contexts.

Confirmability. Confirmability refers to research consumers' confirmation of study findings to reflect the research participants' perspectives rather than the researcher's subjective opinions and biases (Cope, 2014; Kallio et al., 2016; Wahyuni, 2015). Likewise, Kisely (2015) noted that confirmability to be the extent to other researchers substantiates the result of the study. To achieve confirmability, I documented data in the form of memos as part of my research workbook. A memo served as an audit trail providing introspection of the research process and results by outlining the progressive course of the research.

Data saturation. Data saturation refers to when new information is no longer attainable, and coding is no longer possible (Ness & Fusch, 2015). Many researchers acknowledge data saturation as a high principle in qualitative research. Inability to reach data saturation can affect the validity of a study. Data saturation occurs when additional interview data does not add new information, and no new data is necessary to replicate the study (Seargent, 2012; Saunders et al., 2017). To achieve data saturation in this study, I continued to interview participants until no new data and themes emerge from interviewees' responses. Reliability and validity point to the importance of considering the quality of qualitative research. By implementing strategies to establish confirmability, transferability, dependability, and credibility, I ensured rigor, trustworthiness, and validity of my research findings.

Transition and Summary

In Section 2, I reaffirmed the purpose of the study, discussed my role as the researcher and participants of the study, presented the research method and design, and described the population and sampling strategies. Section 2 also included the data collection instruments and technique, data organization and data analysis techniques, ethical consideration in research, and the validity and reliability in research. In section 3, I provide a summary of the findings and presented the data from the study findings, including data from interviews, analysis of the interviews, and non-confidential hospital documents. I also discuss the application of the findings to professional practice and the implications for social change. Finally, I offer recommendations for action and future research, reflect and provide a summary and study conclusion.

Section 3: Application to Professional Practice and Implications for Change

This section contains an overview of the study and presentation of the leadership strategies that some rural hospital leaders use to implement telemedicine technology to improve profitability in a Midwestern U.S. state. I used examples from the research participants to link the study findings with the conceptual framework involving TAM. Other topics discussed in this section include the application of the findings to professional practice, implications for social change, recommendations for action and further study, reflections, and summary and study conclusions.

Overview of Study

The purpose of this qualitative single case study was to explore the leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability in a Midwestern U.S. state. The conceptual framework was TAM, and the overarching research question was: What leadership strategies do rural hospital leaders use to implement telemedicine technology to improve profitability? Five health care administrators of a rural hospital in a Midwestern U.S. state who have successfully implemented telemedicine technology to improve profitability participated in this study. The participants provided me with the primary data to answer the overarching research question, and the source of secondary data include nonconfidential company documents. I achieved data saturation when no additional information emerged from the interview process and document review. Based on the participants' responses to the interview questions, I identified four themes: (a) training and education, (b) identification of stakeholders and collaboration, (c) physician leader role and coordination, and (d)

transparency, information sharing, and communication. Within this study, I related TAM to the findings and provided a better understanding of the leadership strategies some rural hospital leaders use to implement telemedicine technology to improve profitability. The study findings indicate that rural hospital leaders use various leadership strategies to implement telemedicine technology to improve profitability.

Presentation of the Findings

The overarching research question was: What leadership strategies do rural hospital leaders use to implement telemedicine technology to improve profitability? Health care in the rural US is becoming inaccessible, resulting in disastrous health care outcomes for rural residents and the massive closure of rural hospitals and providers (Holmes et al., 2019). Rural health care leaders lack the awareness to implement telemedicine for financial stability and profitability (Frakt, 2019; Murphy et al., 2018). Implementing telemedicine technology may solve the financial crisis in rural hospitals (RHIhub, 2019; Schadelbauer, 2017), help rural hospitals increase revenues, and improve the quality of care in rural communities (Dinesen et al., 2016). The four themes I identified in this study were: (a) training and education, (b) identification of stakeholders and collaboration, (c) physician leader role and coordination, and (d) transparency, information sharing, and communication. In the following subsections, I will present the four themes that emerged from the thematic analysis of the participants' responses to the interview questions and document review.

Theme 1: Training and Education

Gurupur et al. (2016) demonstrated that patients were ready to use telemedicine but require more education and opportunity to use it. Companies that realize the importance of employees achieving organizational goals make every effort to invest in training development as long-term investments (Rusdiet al., 2015). The first theme to emerge from all the interview questions was the importance of training and education in implementing telemedicine technology for improved profitability in rural hospitals. The theme training and education emerged from Interview Questions 2, 4, 5, 7, and 8. All participants affirmed using training and education as a leadership strategy for implementing telemedicine for improved profitability in rural hospitals. In response to Interview Question 2, Participant 3 (P3) acknowledged the importance of developing a "solid education plan." Responding to Interview Question 4, P4 stated, "There is much training involved, obviously did not have many challenges with patients' acceptance."

Business leaders should use training to improve employee performance (Camisón & Villar-López, 2014; Durgin et al., 2014). In response to Interview Question 5, P1 said, "So, I would say, within a short amount of time, offering a variety of times that people could get trained." P1 further explained, "We did the training. Some of the training happened here at the hub site. … The training was in two steps." Responding to Interview Question 5, P5 attested, "Because they are the ones, at the front lines, and then there is patient education, being very transparent with patients asking them a question, do you feel comfortable." Thereby, "continually trying to bring our patients along with us."

explained P5. In response to Interview Question 7, P1 said, “And they ended up doing the training and working with each of their areas.”

Business leaders can use training to improve employees’ performance (Durgin et al., 2014; Rekalde et al., 2015). Responding to Interview Question 8, P2 posited, “So that means you're going to have some cross-training of hospitalists that are doing the telemedicine.” In response to Interview Question 8, P5 remarked, “So, you are educating leaders, and then have a physician lead that believes in it, to help promote it.” The participants’ responses indicate that rural hospital leaders use training and education as a leadership strategy to implement telemedicine technology for improved profitability. The study findings demonstrated that rural hospital leaders use training and education to implement telemedicine technology for improved profitability. As applied in this study, 100% of the participants confirmed using training and education as a leadership strategy to implement telemedicine technology for improved profitability in rural hospitals.

Theme 2: Identification of Stakeholders and Collaboration

The strategy of involving various stakeholders significantly improves organizational performance (Eskerod & Larsen, 2018; Touzi et al., 2016). The second theme to emerge from all the interview questions was the identification of stakeholders and collaboration in implementing telemedicine to improve profitability in rural hospitals. The theme identification of stakeholders and collaboration emerged from Interview Questions 1–8. Four participants acknowledged using the identification of stakeholders and collaboration as a leadership strategy for implementing telemedicine for improved profitability in rural hospitals. In response to Interview Question 1, P1 said,

"The strategy around there was collaborating with these six hospitals and making sure that we were meeting the needs of patients." Responding to Interview Question 1, P2 explained,

> Because we had a cluster of hospitals, they are all connected by the same electronic medical record system, and they were being staffed by the same group of hospitalists during the day, we engaged with them to figure out what is the strategy we can deliver telemedicine on…. We had to engage with all the different stakeholders in terms of the nursing staff, the physicians, the clinic physicians because those are the persons who are taking care of their patients or their primary care physicians. We had to bring everyone together. So, it is that involvement to make sure that we had the right technology, we had the support.

The use of telemedicine technology can be a cost-effective strategy for collaborating with other health care facilities (American Hospital Association, 2019b; Schadelbauer, 2017). In response to Interview Question 1, P3 noted the need for rural hospital leaders to collaborate with key stakeholders and concluded, "So these were the things we shared with our staff to help them understand what it is. How does it work? Why it is a good thing?" Responding to Interview Question 1, P5 stated, "The ER staff can hand off mental health patient to a specialist professional to assess over telemedicine develop a work plan, a disposition plan, and actually a future care plan for that patient." P1 and P3 responses to Interview Question 2 attested that they understand the importance of collaboration in implementing telemedicine in rural hospitals. P1, who established use of collaboration, remarked, "The number one strategy used was collaboration and

partnership. … a lot of collaboration with the health department, six sites, the foundation and raising money, and then setting it up with schedulers and nursing staff and doctors." Responding to Interview Question 2, P3 attested, "We are working closely with our providers … the strategy is identifying your stakeholders."

In response to Interview Question 3, P1 stated, "I would say the collaboration and partnership are the most successful because it allowed us to try something remote. However, definitely, that partnership, and the sites all appreciate it." Responding to Interview Question 3, P2 posited, "I think from a physician engagement standpoint, that drive to having very specific specialized positions where health care settings, emergency room, primary care clinic, inpatient medicine. So, I think that was a very successful strategy." In response to Interview Question 4, P1 stated, "We had two sites where we had space constraints, and we needed to work closely with them to figure out how to make it work. So, it ended up being a shared space." Responding to Interview Question 4, P2 posited, "We brought a hospitalist that covered a portion of the days ... make sure that we have got some of the workflows identified." In response to Interview Question 4, P5 remarked, "From a technical standpoint was if you want services from our tertiary, our specialists, and you need to use our technology to make it seamless, versus trying to interface two different technologies together."

Business managers should identify and meet stakeholders' requirements to improve the business success rate and performance (Eskerod & Larsen, 2018). Responding to Interview Question 5, P1 noted, "And the flexibility was more on our end because we were the hub site." In response to Interview Question 6, P2 stated, "Having a

dedicated physician on site, and then a dedicated physician available at night, it just has increased our overall nursing engagement of care team engagement." Responding to Interview Question 7, P2 asserted, "And then overall engagement of our staff, we do surveys of our colleagues. Furthermore, we knew that this would help reduce turnovers and increase nursing engagement, overall staff engagement." In response to Interview Question 8, P2 explained, "It comes with a cost, they will get that cost which can be shared with multiple sites, you can partner or purchase that service from some national organizations." Explaining further, P2 said, "You can develop a model that is more sustainable because you have got partners, and you can design a model on the front end that can meet the needs that any of the sites have to navigate."

The participants' responses to all the interview questions demonstrated that identification of stakeholders and collaboration is an essential leadership strategy for implementing telemedicine to improve profitability in rural hospitals. Eighty percent of the rural hospital leaders who participated in this study confirmed using the identification of stakeholders and collaboration as a leadership strategy to implement telemedicine for improved profitability. As applied in this study, the participants' responses aligned with Eskerod and Larsen's (2018) and Touzi et al.'s (2016) assertions that business leaders use the identification of stakeholders and collaboration to improve organizational performance. P1 and P2 established that identifying stakeholders and collaboration played a crucial role in the successful implementation of telemedicine in rural hospitals.

Theme 3: Physician Leader Role and Coordination

The theme involving physician leader role and coordination emerged from Interview Questions 1, 2, 4, 5, and 8. Four participants affirmed using physician leader role and coordination as leadership strategy to implement telemedicine for improved profitability. In response to Interview Question 1, P2 stated, “We were able to introduce the ER physicians to work dedicated in our ER.” According to P2, “We had a physician leader that was a champion; he was heading the hospital medicine program at our large tertiary center. So, he is very passionate.” Responding to Interview Question 2, P3 said, “When I look back at it, the fact that there was a kind of identified physician champion that people knew and trusted, that was leading the work.” Elucidating on the significance of having a physician leader, P3 explained, “So that strategy had a good effect. However, you cannot overemphasize the importance of having a strong physician leader.” P3 attested, “once we got it going, we did have our physician champion.”

In response to Interview Question 2, P5 attested, “From my perspective, it is successful. The strategy is not driven by finance; it is driven by the physician leaders.” Responding to Interview Question 4, P1 noted, “The challenge was coordinating and getting that done before they go live. Then it was the logistics of getting everybody trained and practicing.”

In response to Interview Question 5, P1 posited, “And just really coordinating that, I think was the state.” Responding to Interview Question 5, P5 explained, “For the physician leadership, you need a strong physician champion, whose heart and soul is in telemedicine and believes in it and believes in the future.” P5 concluded, “And to me,

that was the biggest ace in the hole from my regard is to make this successful." In response to Interview Question 8, P2 stated, "Our physician leaders understood that having an integrated campus and employed Medical Group, everyone understood the business model and what needed to happen." Responding to Interview Question 8, P3 said, "We developed that team; our nurses developed a high level of trust with telemedicine."

The participants responses indicate that rural hospital leaders use physician leader role and coordination to implement telemedicine technology for improved profitability. The study findings demonstrated that rural hospital leaders used the physician leader role and coordination as a leadership strategy to implement telemedicine technology for improved profitability. As applied in this study, 80% of the participants acknowledged using the physician leader role and coordination as a leadership strategy to implement telemedicine for improved profitability in rural hospitals.

Theme 4: Transparency, Information Sharing, and Communication

Business leaders should use communication effectively to enhance organization performance (Ahmed, 2017). Managers should send clear, precise, and timely job instructions; engage in downward communication; and use multiple channels to communicate (Raina & Roebuck, 2016). The theme involving transparency, information sharing, and communication as a leadership strategy to implement telemedicine technology for improved profitability in rural hospitals emerged from Interview Questions 1–3, 5, 8. Three participants affirmed using transparency, information sharing, and communication as a leadership strategy for implementing telemedicine technology

for improved profitability. In response to Interview Question 1, P1 attested, “That would be how I first heard about it, how we started using it in other parts of the campus. And then I started to think about how I could use it in the cancer center.” Responding to Interview Question 1, P2 said, “I think the first one is just a level of transparency with the different stakeholders. … I think being transparent as to why we were changing to improve operations and our clinic.” P2 concluded, “The biggest strategy in terms of transparency and then involvement in designing the program.” In response to Interview Question 1, P3 explained, “But they also told us that the experience was good. Moreover, they liked it. It did not take long for our staff to understand the huge benefits of telemedicine and how that complements what we are doing.”

Leaders must always be open and honest with their team members on all occasions (Sani, 2013). Communication is vital to modern employees (Cassell, 2014). In response to Interview Question 2, P2 noted, “I talked about the transparency in terms of the why. … I think very strategic communication, understanding, who are the people impacted whom we needed to win.” Responding to Interview Question 2, P3 posited, “Having good communication with your stakeholders, keeping them up to speed. So that frequent communication.” In response to Interview Question 3, P3 stated, “Communication played a big role in making it successful.”

According to Michael (2014), business leaders use effective communication to improve employee performance. Responding to Interview Question 5, P1 affirmed, “A lot of communication. … But it took much communication and stressing the importance and making it a priority.” P1 concluded, “I would say that communication was huge.” In

response to Interview Question 8, P2 said, “I think it is the negotiation of bargaining upfront.” Explaining further, participant P2 advised, “I think having those conversations upfront is a key strategy that can help drive the bottom line, profitability improvement because you are going to get some of those gains on your primary care side.”

The participants’ responses to the interview questions demonstrated that transparency, information sharing, and communication is an essential leadership strategy for implementing telemedicine technology to improve profitability in rural hospitals. Eighty percent of rural hospital administrators who participated in this study confirmed using transparency, information sharing, and communication as a leadership strategy to implement telemedicine technology for improved profitability. As applied in this study, the participants’ responses aligned with Ahmed’s (2017), Cassell’s (2014), Michael’s (2014), and Raina and Roebuck’s (2016) assertions that business leaders use transparency, information sharing, and communication to improve organizational performance.

Findings Related to TAM

Rural hospital leaders could improve profitability by using TAM to implement telemedicine technology. Researchers use TAM to explain users' behavior and intention to use technology (Marangunic & Granic, 2015). TAM could serve as a reliable framework for predicting technology acceptance in the health care ecosystem (Rho et al., 2014). Many researchers have used TAM to understand the acceptance and implementation of telemedicine technology by health care professionals (Saigi-Rubió et al., 2016). The technology within the organization regulates the environment, which

influences the implementation of telemedicine technology for improved profitability in rural hospitals. The study findings indicate that rural hospital leaders could implement telemedicine technology for improved profitability by implementing leadership strategies based on TAM. As applied in this study, all the participants attested using a blend of leadership strategies to implement telemedicine technology for improved profitability in rural hospitals.

TAM has become the leading model for describing and predicting technology acceptance (Rho et al., 2014). Chen et al. (2017) explained that TAM is the most applied conceptual model for predicting usage intention and the actual use of technology. Dajani and Yaseen (2016) opined that one of the usefulness of TAM is researchers' ability to apply it in various technology ecosystems. According to Cilliers and Flowerday (2014), researchers use TAM to predict and justify factors that influence technology acceptance and usage. The aim of technology within an organization is for stakeholders, including employees, to accept technological innovations to improve profitability. As applied in this study, rural hospital administrators should establish leadership strategies for implementing telemedicine technology for improved profitability. All participants confirmed the TAM regarding the use of leadership strategies to implement telemedicine technology for improved profitability.

Many researchers have applied TAM in various settings (Martins et al., 2014). Hu et al. (1999) applied TAM in their study to examine physicians' acceptance of telemedicine in Hong Kong. Gurupur et al. (2016) applied TAM in their study to explore patients' perceptions relating to telemedicine acceptance. Saigi-Rubió et al. (2016)

applied TAM2 in their binary logic analysis on 93 physicians. They demonstrated that physicians have favorable views of telemedicine and its potential to reduce costs and bring value to the health care ecosystem. Business leaders use TAM to implement technology within the organization. Previous research studies indicate that TAM is a practical framework that rural hospital administrators could use to align leadership strategies by implementing telemedicine technology to improve profitability. As applied in this study, all participants' responses validated the application of TAM regarding the use of leadership strategies to implement telemedicine technology for improved profitability in rural hospitals.

Applications to Professional Practice

The identification of leadership strategies that rural hospital administrators use to implement telemedicine technology for improved profitability is crucial to enhancing business performance. By implementing telemedicine technology, hospital leaders may solve the financial crisis in rural hospitals (RHIhub, 2019; Schadelbauer, 2017), which could help rural hospitals increase revenues and improve the quality of care in rural communities (Dinesen et al., 2016). According to Kvedar et al. (2014), telemedicine technology is a cost-effective alternative to traditional health care delivery. The findings from this study could contribute to the literature on telemedicine technology in rural hospitals. The study findings may help rural hospital administrators, including governmental and non-governmental agencies, health care leaders, and health care providers, to gain valuable information on leadership strategies to implement telemedicine technology for improved profitability.

According to Murphy et al. (2018), rural hospitals lack the financial resources to provide specialized services in rural communities. The use of telemedicine technology may result in positive clinical outcomes and increased patient satisfaction (Glynn et al., 2020; Williams et al., 2018). The establishment of telemedicine practice in rural hospitals can reduce health care costs and solve the growing problem of rural hospital closures and shortage of health care providers (Jong et al., 2019; Radfar et al., 2017). This study's findings could provide rural health care leaders with knowledge on how to implement telemedicine technology to improve profitability. The findings from this study could contribute to the literature on leadership strategies in the health care sector. Contemporary and upcoming rural hospital leaders may use the study findings to understand better the leadership strategies for implementing telemedicine technology to improve profitability.

Health care leaders should seek sustainable solutions to improve profitability and provide affordable, accessible, and quality care to rural residents (Kaufman et al., 2015; McLean et al., 2013). Researchers have demonstrated that patient satisfaction increased the revenues for rural health care providers (Edoh et al., 2016). With decreased patient admissions and patient visits and the elimination of time and distance barriers to care, telemedicine service utilization may increase, generating incremental revenue for rural hospitals (Cichosz et al., 2016; O'Connor et al., 2016). Based on this study findings, the most significant contribution to professional practice may be identifying potential leadership strategies rural hospital leaders use to implement telemedicine technology to

improve profitability. Health care leaders, including rural hospital providers, could use study's results to implement telemedicine technology for improved profitability.

The lack of primary care physicians could result in limited health services accessible to rural patients, decreased revenue, and the eventual closure of rural hospitals (Balasubramanian & Jones, 2016). Implementing telemedicine technology in rural hospitals may improve the quality of care, improve profitability, and reduce health care costs (Dinesen et al., 2016; Mehrotra et al., 2016). The results of the study could help health care leaders to implement telemedicine technology to improve profitability. The study findings could significantly contribute to information sharing among health care leaders seeking leadership strategies to implement telemedicine technology to improve profitability. Some health care leaders with weak leadership strategies may apply the findings of this study to implement telemedicine technology to improve profitability. The practical model could serve as the basis for implementing telemedicine technology to improve profitability in rural hospitals.

Implications for Social Change

People in rural communities have high mortality rates because of limited or no access to quality care (Caldwell et al., 2017). Using telemedicine to monitor rural patients could improve decision making in delivering care and improving patients' experiences (Kasckow et al., 2016). The study findings may contribute to positive social change by assisting rural hospital leaders in understanding the leadership strategies for implementing telemedicine technology to improve profitability and gain adequate knowledge to establish useful leadership model. The use of telemedicine technology

translates to improved outcomes and cost-savings, and reduction in medical expenditure for the rural hospital (Schadelbauer, 2017). A potential social change outcome is that health care leaders might acquire leadership strategies to provide patients' access to specialty care and improve health care outcomes. As illustrated in this study, implementing telemedicine technology to improve profitability might help rural hospital leaders sustain their health care and continue providing job opportunities to the local community.

Establishing telemedicine practices may increase patients' access to the same quality of care and specialty services available in the urban and traditional health care locales, thereby curbing the growing shortage of health care providers in rural areas (Cooper, 2015). By implementing excellent leadership strategies, rural hospital leaders could implement telemedicine technology to provide critical health care services to people in rural areas for improved profitability. By enabling rural patients to receive care in a local rural health care setting, telemedicine may improve the relationship between rural hospital leaders and community citizens (Potter et al., 2016). As demonstrated in this study findings, adapting leadership strategies might help health care leaders implement telemedicine technology to improve profitability, thereby generating economic growth for local communities. With improved profitability, rural hospital employees could gain income to promote better welfare and wellbeing among their families. The general public might learn from the study findings the leadership strategies rural hospital leaders use to implement telemedicine technology to improve profitability.

According to Stephan et al. (2016), business leaders should integrate social change practice into their organizational performance. Business leaders use corporate social responsibility to address poverty and the lack of social amenities in the local communities (Raimi et al., 2015). This study's implications for a positive social change include that local communities might benefit from the rural hospital leaders' increased resources to address corporate social responsibilities. By implementing telemedicine technology, rural hospital leaders could improve profitability and fulfil their corporate social responsibilities to the residents by building schools and libraries, sponsorship of local events, and award scholarships. With improved profitability, rural hospital leaders will pay more corporate taxes, which municipal government could use to provide social amenities to the local citizens.

Recommendations for Action

Rural hospital leaders should adopt leadership strategies to implement telemedicine technology for improved profitability. Some researchers have proposed implementing telemedicine technology to improve rural hospital profitability (Mehrotra et al., 2016). Implementing telemedicine may drive the evolution of rural-based health care systems to provide regular and specialty care service (Kohler et al., 2019). The rapid evolution of telemedicine technology enables better patient access to health care and the reduction of health care costs (Delgoshaei et al., 2017). I recommend that rural hospital leaders should have adequate knowledge of leadership strategies to implement telemedicine technology to improve profitability.

Training and education are valuable tool that business leaders use to improve organizational performance and profitability. Dantu and Mahapatra (2013) opined that institutional factors, including lack of training, negatively impact telemedicine adoption. Some negative barriers affecting telemedicine adoption are the arduous task of learning telemedicine usage (Driessen at al., 2018) and patients' level of education (Kruse et al., 2016b). Researchers have identified a lack of technical expertise in using telemedicine equipment as a significant barrier to implementing telemedicine services in rural communities (Wickramasinghe et al., 2016). I recommend that rural hospital leaders should use training and education as a leadership strategy for implementing telemedicine technology to improve profitability.

An effective leadership strategy is crucial for implementing telemedicine technology to improve profitability in rural hospitals. Rural health care leaders should leverage technology to provide regular and specialty services (Lum et al., 2020). Researchers have confirmed the cost-saving benefits of telemedicine technology (Diaz & Player, 2020; Mahar et al., 2018; Zholudev et al., 2018). A significant driver for implementing telemedicine services is to reduce costs for patients and health care providers (Diaz & Player, 2020). According to Saigi-Rubió et al. (2016), a vital driver of telemedicine technology implementation is the cost-saving benefits of using telemedicine in a physician practice. I recommend that rural hospital leaders should use a blend of effective leadership strategies to implement telemedicine technology to improve profitability.

Some rural hospital leaders lack leadership strategies for implementing telemedicine technology to improve profitability. The study findings indicate that some rural hospital leaders use a blend of leadership strategies to implement telemedicine technology to improve profitability. I recommend that rural hospital leaders should have adequate skills, experience, education, and training to adopt appropriate leadership strategies for implementing telemedicine technology to improve profitability. I will disseminate the result of this study to interested stakeholders through the presentation in literature seminars, conferences, and training; publications in business and academic journals; and sharing knowledge in my network, workplace, and social media.

Recommendations for Further Study

This qualitative single case study explored the leadership strategies that rural hospital administrators use to implement telemedicine technology to improve profitability. Implementing telemedicine technology may increase access to quality medical care for rural populations (Robb et al., 2019). The study findings provided rich information that future researchers could explore regarding the leadership strategies rural hospital leaders use to implement telemedicine technology to improve profitability. A significant limitation of this study was the small sample size of five health care administrators from a rural hospital in one Midwestern U.S. state. Researchers who use larger or smaller sample size from multiple rural hospitals may obtain different themes. Therefore, I recommend that future researchers consider using a larger size of participants from different management levels in various rural hospitals.

Rural hospital leaders are concerned with financial challenges and interested in finding lasting solutions to stem rural hospital closures (Hall & Owings, 2014; Holmes et al., 2019). Some researchers have proposed implementing telemedicine technology to improve rural hospital profitability (Mehrotra et al., 2016; Schadelbauer, 2017). This study was limited to a cross-sectional, qualitative single case study involving health care administrators in a rural hospital in one Midwestern U.S. state. I recommend that further studies involve longitudinal, qualitative multiple case study, quantitative or mixed methods on participants selected from varying levels of management in different rural hospitals at various geographical locations.

The study was limited to my professional experience in health care and personal beliefs with the topic involving the leadership strategies health care leaders use to implement telemedicine technology to improve profitability in rural hospitals. Future researchers should comprise of experts from related multi-disciplines in leadership and technology adoption to divulge some details I must have omitted in this doctoral study.

Reflections

In this qualitative single case study, I explored the leadership strategies health care leaders use to implement telemedicine technology to improve profitability in rural hospitals. To comply with research ethics, I attended NIH training, and obtained IRR approval before engaging with the participants, which offered me the opportunity to better understand the requirements for using human beings in academic research study. I used emails and telephone calls to contact the participants, which improved my collaboration, inspiration, and negotiation skills.

In conducting this study, I used purposive sampling technique to select five health care administrators of a rural hospital in a Midwestern U.S. state, who have over 5 years of experience in leadership position and have successfully implemented telemedicine technology to improve profitability. Using the purposive sampling technique, I selected participants who had the relevant skills, experience, knowledge, and competence to answer the research question. During the purposive sampling process, I interacted with the participants, improving my listening, communication, networking, emotional intelligence, inspirational, and interpersonal skills.

The qualitative research method enabled me to conduct semistructured interviews and met with the participants, which improved my communication, problem-solving, listening, and self-confident skills. Interviewing the participants at their preferred time and on the phone enabled the respondents to express themselves freely, which allowed me to gain an in-depth knowledge of the research problem. By organizing and analyzing the data, I understood the research problem, which enabled me to identify the themes and patterns and establish the study findings. Reflecting on my experience within the doctoral study process, I gained a better understanding of the doctoral study research process, thereby improving my academic research skills.

From the study findings, I gained an in-depth knowledge of the research problem from five health care administrators of a rural hospital in a Midwestern U.S. state regarding their use of leadership strategies to implement telemedicine technology to improve profitability. I learned that health care administrators use a blend of leadership strategies involving training and education; identification of stakeholders and

collaboration; physician leader role and coordination; and transparency, information sharing, and communication to implement telemedicine technology to improve profitability. My new understanding and knowledge of the research problem positively changed my beliefs, preconceived ideas and values, and personal bias and perceptions of leadership strategies health care administrators use to implement telemedicine technology to improve profitability in rural hospitals.

Summary and Study Conclusions

Health care leaders face challenges in using effective leadership strategies to implement telemedicine technology to improve profitability in rural hospitals. In this qualitative single case study, I used TAM to explore the leadership strategies that health care administrators use to implement telemedicine technology to improve profitability in rural hospitals. I administered eight open-ended questions through semistructured interviews with five health care administrators from a rural hospital in a Midwestern U.S. state to collect the primary data to answer the research question. The sources of secondary data include company documents. The four themes that emerged from the thematic analysis of data were (a) training and education (b) identification of stakeholders and collaboration, (c) physician leader role and coordination, and (d) transparency, information sharing, and communication. The study findings indicated that health care leaders used a blend of leadership strategies to implement telemedicine technology to improve profitability in rural hospitals.

Adapting leadership strategies might help health care leaders implement telemedicine technology to improve profitability, which may sustain the health care,

thereby generating economic growth for local communities. With improved profitability, health care leaders will pay more corporate taxes, which municipal government could use to provide social amenities to the local citizens. Also, improving profitability might help health care leaders to sustain their health care and continue providing job opportunities and quality health care services to the residents. People in the society might learn from the study findings the leadership strategies health care leaders use to implement telemedicine technology to improve profitability in rural hospitals. The use of TAM as a lens for this study involving rural hospital administrators may fill a gap in the literature on implementation of telemedicine technology to improve profitability in rural hospitals. The study findings align with previous scholars' conclusions regarding the need to implement effective leadership strategies to implement telemedicine technology to improve profitability in rural hospitals.

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Appendix A: Interview Protocol

The purpose of this interview is to answer the research question on leadership strategies that health care leaders use to implement telemedicine technology to improve profitability.

The interview protocol will consist of the following eleven steps:

1. I will begin the interview with a brief overview of the research, the purpose, and the time duration of the interview.
2. I will thank the participant for agreeing to participate in the interview.
3. I will present a printed-out copy of the informed consent form and review the contents of the form with the participant.
4. I will obtain the participant's signature on the consent form signifying an agreement to participate in the study
5. I will implement a serial coding system instead of using participants' names to identify the participants during the interview recording.
6. I will record the interview using an audio device. Audio recording will include a voice stamp of the date, time, and interview location.
7. I will explain that their participation is voluntary, and they can withdraw from the interview at any time without prior notice and through a verbal or email request.
8. During the interview process, I will watch for verbal cues, paraphrase interview questions as needed, and ask follow-up probing questions to get a more in-depth response.

9. I will allow all participants ample time to answer each interview question, including follow up or probing questions.
10. I will provide participants information about the member checking process that would occur following the completion of the interview, transcription, and data analysis and interpretation. Further, I will schedule a follow-up member checking interview.
11. I will wrap up the interview and thank the participant for their time and contribution to the study.

Appendix B: Letter of Invitation to Participants

Email Invitation Template (To be used when requesting participation through email)

Date: XX/XX/2020

From: Chikezie Waturuocha

Subject: Request to Participate in Doctoral Study Interview

To: Participant

Hi Participant name,

My name is Chikezie Waturuocha and I am a doctoral student in the School of Management and Technology at Walden University. I am recruiting [Name of Rural Hospital] health care administrators to participant in my doctoral study. By way of this letter, I would like to invite you to participate in a face-to-face interview to answer 8 open-ended questions.

Purpose of the Study:

The purpose of this qualitative descriptive study is to explore leadership strategies that rural hospital leaders use to implement telemedicine technology to improve profitability A potential social change outcome is that health care leaders will acquire leadership strategies to provide patients' access to specialty care and improved health care outcomes. The results of the in-depth interviews and analysis may help rural hospital administrators learn leadership strategies to implement telemedicine technology to improve profitability.

What will you need to do?

I will need you to schedule a time I may conduct a face-to-face interview with you. During the interview, I will need you to answer 8 questions approved by Walden University Committee members. You answers will be recorded and transcribed. Once the interview is complete, I will transcribe your responses and provide you an opportunity to check the content for accuracy.

Please contact or provide me with a point of contact so I can schedule some time to conduct a face-to-face interview with you.

Thank you for your consideration and participation in this study.

Regards.

Chikezie Waturuocha

Appendix C: Interview Questions

Participants will answer the following questions:

1. What leadership strategies have you used to implement telemedicine technology in the rural community to improve profitability?
2. What leadership strategies did you use that worked best in implementing telemedicine technology in the rural community?
3. How were the strategies successful?
4. What challenges did you face during implementation?
5. How did you overcome the challenges?
6. How has your leadership strategies to implement telemedicine contributed to the organization's profitability?
7. How did you assess the effectiveness of the strategies to determine your organizations' profitability?
8. What other information can you provide to help rural health care leaders implement telemedicine technology to increase profitability?