FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

DISCOVERING THE FACTORS THAT INFLUENCE A PATIENT'S ATTITUDE TOWARDS TELEHEALTH IN THE U.S.

A dissertation submitted in partial fulfillment of

the requirements for the degree of

DOCTOR OF BUSINESS ADMINISTRATION

by

Jaime Stewart

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To: Dean William G. Hardin
College of Business

This dissertation, written by Jaime Stewart, and entitled Discovering the Factors that Influence a Patient's Attitude Towards Telehealth in the U.S., has been approved regarding style and intellectual content and is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Florida International University, 2024

DEDICATION

I dedicate these years of hard work and effort to my children and all of those who were ever pushed aside to make room for this adventure. It was years in the making and thank you for your patience.

To my husband Jonathon for your willingness to stand in as my part-time replacement. You did well, I couldn't have asked for a better man.

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ABSTRACT OF THE DISSERTATION

DISCOVERING THE FACTORS THAT INFLUENCE A PATIENT'S ATTITUDE TOWARDS TELEHEALTH IN THE U.S.

by

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The primary purpose of this research is to bridge the gap between patients' perceptions of telehealth and their attitudes toward telehealth by utilizing the Technology Acceptance Model (TAM) and the Health Belief Model (HBM). Assessing patients' attitudes towards telehealth utilizing both TAM and HBM models is an essential success metric as it can be broadly implemented across various settings. Of additional importance are ways perceptions of the technology can affect a patient's overall healthcare outcomes, with the first step in developing this scale and ultimately being able to identify these key factors.

Without a comprehensive insight of a patients' attitude towards telehealth, understanding what encumbers the success of the telehealth healthcare system as the alternative method of healthcare cannot be fully recognized. As the initial threat of COVID has now come to a close, telehealth remains an option for patients seeking reliable and flexible healthcare options.

The U.S. Government Accountability Office (GAO) recently released a study revealing that Medicaid patients increased their telehealth by 15x (from 2.1 million to 32.5 million patients). Medicare increased

from 5 million to 53 million patients utilizing the platform. With telehealth becoming an alternative to in-patient visits, the present research must develop a measure of specific perceptions that affect patients' attitudes towards telehealth by investigating factors thought to be antecedents to attitude.

TABLE OF CONTENTS

INTRODUCTION

Not often does the solution become the problem. However, telehealth, as convenient as it is, should also offer the care equivalent to an in-office visit, be held to the same standards and be similarly priced. Nonetheless, insurance focused on the cost, policymakers focused on safety, and healthcare providers think about the outcomes of patient's care. Patients were introduced to telehealth as a result of COVID's emergency response to continuity of care. Some patients had no alternative, while others looked forward to a new substitute for in-office visits. The discovery of contributing factors for patients' attitudes towards telehealth ultimately should reveal their willingness to comply with their provider's recommendations, which is only one piece of the puzzle. Telehealth is defined as delivering medical health services at a distance, with no single or uniform telemedicine application (Sood et al., 2007). Adopting telehealth services has been verified as a cost-effective, efficient, and a time-saving innovation for the healthcare industry (Atanasovski et al. , 2018; Y. Li et al. , 2019; Pai & Alathur , 2019), but has yet to reveal the patient compliance results. The most time-sensitive issue the healthcare industry faced during COVID was how to address the continuity of care for individuals during the quarantine phase of the pandemic (Cureus, 2020) and thus telehealth was looked at as a solution to the dilemma. As a substitute for visiting a healthcare provider, patients could see prescribers from the comfort and protection of their homes using technology that many patients and providers had never considered previously, bringing the healthcare provider back into the house much like the in-home visits of the past. Now, as an unprecedented number of new patients have been exposed to the telehealth scene, even with COVID is in the past, there is a reluctance to return to those prehistoric ways of visiting the doctor's office. Will it be revealed that telehealth is responsible for more effective, cost efficient and available care resulting in more compliance from patients?

Pre-COVID, telehealth greatly assisted those in rural areas and those needing specialized care (Cortelyou-Ward, 2020). Although several benefits of telehealth have been revealed in previous research, including; a reduction in the time of appointment, lowered costs for patients and providers as well as bringing cost-effective health delivery services into our homes (Albarrak et al. , 2019; Hollander & Carr , 2020; Hsu , 2019; Pai & Alathur , 2019; Tsiouris et al. , 2020) telehealth remains in the infancy stage (Alaboudi et al. , 2016; Barlow et al. , 2007; Hsu , 2019; Kashyap , 2020). In addition, many studies have investigated factors that inspire a patient's adoption of new technologies or remain a telehealth user. In contrast, several others focused on a prescriber's view of the services (Buck, 2009), none considering how, and which perceptions are shaping our attitudes towards telehealth and is it tied to patient's compliance with their doctor's recommendations.

With the focus and goal of health and social care services relying on delivering high-quality health and social care services worldwide (Dunbar, 2021), the search for the most appropriate avenue to deliver these services has been met with some skepticism. For example, COVID introduced telehealth as a form of care when in-person care was abruptly halted. Although it has been several years since COVID was declared a pandemic, and is no longer considered a national emergency, interest in telehealth remains at an all-time high. The Harris Poll COVID tracker recently revealed that over half of Americans remain reluctant to engage in traditional in-office health care visits (for non-emergency visits) unless met with specific conditions. Almost 20% indicate they are unwilling to return for an in-office elective healthcare visit under any circumstances. With 82% of Americans reporting, they "liked it" or "loved it" (referring to telehealth) on the initial Harris Poll, the overall "ease" of using telehealth seemed to be what resonated the most with patients. A better understanding of these factors and how they contribute

to the overall attitude toward telehealth will benefit the current patients and improve the system for future patients.

Problem Statement

The primary purpose of this research is to bridge the gap between patients' perceptions of telehealth and their attitudes toward telehealth by utilizing the Technology Acceptance Model (TAM) and the Health Belief Model (HBM). Assessing patients' attitudes towards telehealth utilizing both TAM and HBM models is an essential success metric as it can be broadly implemented across various settings. Of additional importance are ways perceptions of the technology can affect a patient's overall healthcare outcomes, with the first step in developing this scale and ultimately being able to identify these key factors.

Generally, without a comprehensive insight into a patient's attitude towards telehealth, understanding what encumbers the success of the telehealth healthcare system as the alternative healthcare method cannot be fully recognized. As the initial threat of COVID has now come to a close, telehealth remains an option for patients seeking reliable and flexible healthcare options. Increasing the use of telehealth by 1,831 percent from January 2020 to January 2021, initially due to COVID, with V.A. telehealth alone and with safety net clinics, there was a decrease in no-show rates from 20 percent down to zero, indicating the positive impact telehealth can have, as discussed in the Committee on Appropriations United States 117th Congress Special hearing on April, 28, 2021. Although the impact has been measured and recognized, the factors that drive these patients to choose the telehealth system remain unknown. Patients have now been exposed to an alternative form of healthcare, which could be one contributing factor. More importantly, patients and providers want to keep that option (telehealth) open and include more patients

needing more desired results through their traditional avenue of healthcare (Fisk, Livingstone, et al. 2020). This avenue is provider- and patient-friendly and benefits the entire healthcare system (Nickelson, 1998). Factors influencing patients' choosing telehealth are essential to understand as influencing factors determine future behaviors (Glasman & Albarracín, 2006).

Significance of the Problem

With the rapid implementation of telehealth options and the acceleration of their acceptance by providers, insurance companies, and patients, it is crucial to assess the factors affecting patients' perceptions (Abraham et al., 2022). Assessing patients' attitudes towards telehealth utilizing both TAM and HBM models is an essential success metric as it can be broadly implemented across various settings. Of additional importance are ways perceptions of the technology can affect a patient's overall healthcare outcomes. With the first step in developing this scale it to identify these critical factors of its acceptance among patients and determine if the outcomes are consistent with compliance to prescriber's recommendations.

There are many concerns with healthcare, including the industry currently exceeding 4.3 trillion dollars (roughly $12,914 per person), according to National Health Expenditure Accounts (NHEA, 2022). Offloading some of this burden surrounding the healthcare industry is long overdue. Money alone is not the only driver for the healthcare industry. There are other barriers to healthcare professions that we only sometimes think about. For instance, the burden of violence against physicians and other care providers has been a significant concern (Grossman & Choucair, 2019), and keeping patients at home would eliminate this threat. Another burden the healthcare industry faces is the environmental impact of hospitals and clinical services. With

energy scarcity and increasing energy costs, healthcare energy consumption threatens healthcare delivery and increases consumer costs (Brown, 2012). It does not stop there; providers are at risk of contracting the illnesses they are trying to prevent, and the more they are exposed, the greater the risk they face (Agalar, 2020). Telehealth provides an alternative to increasing the risk of exposure to healthcare providers and patients seeking medical treatment for other ailments.

In addition, telehealth has been widely adopted as an efficient and cost-effective way for quality healthcare services and outcomes to be delivered as an alternative to in-office treatment (Rutledge, Kott, et al. 2017). This decreases unnecessary emergency department visits and prolonged hospital stays and has also been crucial to reducing medication misuse (Cascella, 2014). With the cost of telehealth reducing the overall cost of healthcare to patients, it also reduces that barrier to healthcare. Telehealth provides a great potential for cost reduction overall, focusing on productivity gains, reduction in secondary care, alternative funding models, and telementoring (Snoswell, Taylor, et al. 2020). Determining the overall cost benefit to the healthcare system has yet to be actualized. Studies have yet to see enough data and healthcare outcomes from these patients to determine how cost-effective and beneficial it is.

Believe it or not, before COVID in 2019, the telehealth system was already being adopted. The problem, like most new-to-market technologies in any industry, there were multiple barriers. Nevertheless, the policies needed for billing the claims through insurance were unique to telehealth. In 2018, a Bipartisan Budget Act was approved by Congress and signed into law, making significant progress for Medicare's telehealth policy (Thomas, Durfey, et al. 2019). Since then, legislation, like The Consolidated Appropriations Act of 2023, extended many Medicare telehealth flexibilities for people with Medicare through December of 2024. This policy allowed access to telehealth regardless of geographical location rather than only in rural areas. In

addition, these visits would be paid for by Medicare and allow the patients the flexibility to stay in their own homes, which would reduce their visit time in total (HHS, 2023). The Advancing Telehealth Beyond COVID-19 Act of 2022 is important to note as it extended coverage until December 2024 if the emergency ended prior, which it has. In addition, this policy delayed the implementation of specific in-person evaluation requirements for mental health telehealth services until January 1, 2025, or the first day after the end of the emergency period. These bills and policies, like many others, have been pivotal in the success of telehealth (Congress 2021-2022). The problem is the "unknown" telehealth represents to insurance companies, the healthcare industry, and policymakers, despite knowing the goal should always be patient-focused results. Insurance focuses on the cost, policymakers focus on safety, and healthcare providers think about the outcomes of telehealth care. As telehealth develops, many of these aspects take time to measure. Discovering how patients are influenced can shed light on how policies can be developed that further encourage these stakeholders to cater to the patient's needs, making a full collaborative care model.

Most recently, the GAO made several highlights in their recent assessment of telehealth for Medicaid and Medicare beneficiaries requesting data to determine the overall benefits to the patient that focuses on telehealth, primarily to advance the quality of care for patients utilizing the service. As of April 2023, GMO recommended that CMS develop a plan for reporting a measure for which it is the steward, most notably looking into the level of care and health outcomes for patients. Collecting this data is imperative as the outcome will determine if millions of patients can sustain their continuity of care utilizing telehealth.

Research Gap

Attitudes towards adopting new technologies have been around since XX and remain similar. Studies even exist that identify patients' attitudes toward adopting medical technologies even. However, no one was ready when COVID accelerated this process.

Many studies have investigated factors that inspire a patient's adoption of new technologies or remain a telehealth user (Kruse, 2017), while several other researchers focused on a prescriber's view of the services (Moffatt, 2011), none considered how perceptions shape our attitudes towards telehealth.

The U.S. Government Accountability Office's study revealed that Medicaid patients increased their telehealth by 15x (from 2.1 million to 32.5 million). Medicare increased from 5 million to 53 million patients utilizing the platform. With telehealth becoming an alternative to in-patient visits, the present research must develop a measure of specific perceptions that affect patients' attitudes towards telehealth by investigating factors thought to be antecedents to attitude. With GAO's recommendations: (1) collect and analyze information about the effect delivering services via telehealth has on the quality-of-care Medicaid beneficiaries receive, and (2) determine any next steps based on the results of the analysis, it comes as no surprise the telehealth area lacks research it so desperately needs. More specifically, they released this statement:

> *CMS does not collect, assess, or report information about any effect delivering services via telehealth has on the quality of care Medicaid beneficiaries receive and has no plans to do so. Given the concerns GAO has raised about the quality of care provided via*

telehealth, doing so is essential. It would also be consistent with how CMS has encouraged states to use data on quality of care to identify disparities in health care and target opportunities for improvement to advance health equity. These efforts could begin with data for quality measures CMS already collects or through other means. CMS neither agreed nor disagreed with GAO's recommendations. GAO maintains that CMS must collect and analyze information to assess telehealth's effect on the quality-of-care Medicaid beneficiaries receive.

Research Questions

What factors affect a patient's attitude toward telehealth in the U.S.?

Research Contributions

This research will contribute to the body of knowledge in the field of telehealth, most notably to the attitude of patients before, during or after use of the system. First, it will expand our understanding of the healthcare innovation regarding telehealth and how we can utilize a behavioral understanding to determine the willingness to comply with a provider's recommendation. The present study attempts to address multiple gaps and, in doing so, make significant contributions. The first contribution would be to define the relationship between perceived usefulness and the attitude toward the use of telehealth. Extending this limited research will define the usefulness's impact on the attitude toward accepting telehealth technology. Previous studies divulge the importance of perceived usefulness on attitude and how practitioners can use this to their advantage when demonstrating the use of telehealth (Djamasbi et al., 2009). Exploring attitude's impact will broaden the impact of their overall usage of

telehealth now that COVID no longer requires patients to utilize the system but is an option. Another meaningful relationship that contributes to the overall new post-COVID body of knowledge is the perceived ease of use. The most recent studies compiled data from 2009 and discovered that ease of use was less critical than perceived usefulness when patients evaluated their telehealth use. By including ease of use as a contribution to the overall attitude towards telehealth, it significantly impacts the acceptance of telehealth. This study is among the first to utilize the approach with this combination of TAM and BHMs. Increased use of telemedicine services began with the COVID-19 pandemic. Assessing patients' attitudes toward the use of telehealth, and thus the new technology, is an essential metric of success and can be broadly implemented across various settings (Abraham et al., 2022). The most important part of this study is how patients perceive telehealth to shape their attitudes about telehealth care. This study assesses patients' perceptions of the telehealth system and how it changes their attitudes toward telehealth care for participants in the United States. Understanding these factors may help medical professionals and patients understand the barriers and concerns related to patients' attitudes toward telehealth, and how to address them to create a healthcare environment where patients are more compliant with their prescriber's recommendations.

BACKGROUND LITERATURE REVIEW

Healthcare and technology are both ever-evolving mechanisms forced to work in tandem to solve the issue of continuity of care during COVID. COVID is spread through respiratory droplets that are produced when an individual coughs, sneezes, or coughs (Terry, 2021); by May 2021, more than 31 million cases were identified, and more than 570,000 deaths were reported (Centers for Disease Control & Prevention 2020). During the emergency state, many transmission-reducing

recommendations were made. Some of those recommendations were to remain 6 feet away from one another, wash our hands frequently, and adequately wear face coverings. Of these recommendations, remaining quarantined and keeping physical distance resulted in the widespread use of telehealth technology within the healthcare system (Wosik et al., 2020). In addition, including alternative options to in-office visits, telemedicine (telemedicine or teledoc), and virtual care solutions became more common resolutions during the COVID virus spread and a method to continue care while keeping patients safe (Bokolo, 2020). Although several benefits of telehealth have been revealed in previous research, including; a reduction in the time of appointment, lowered costs for patients and providers as well as bringing cost-effective health delivery services into our homes (Albarrak et al. , 2019; Hollander & Carr , 2020; Hsu , 2019; Pai & Alathur , 2019; Tsiouris et al. , 2020) telehealth remains in the infancy stage (Alaboudi et al. , 2016; Barlow et al. , 2007; Hsu , 2019; Kashyap , 2020). Consequently, the timing was impeccable; COVID was introduced to an interconnected society where individuals can quickly use information and communication technologies, particularly the Internet (Daragmeh, 2021). Even though telehealth has been utilized in the past, mainly for telepsychiatry, a much broader population found this to be the only method for continuity of care during social distancing. Telehealth minimized risks to high-risk populations, lessened the exposure of sick patients to the aging population, and reduced exposure to healthcare staff. While now more broadly used, telehealth can be applied for non-emergent care for chronic conditions and follow-ups after hospitalizations. In a recent study, compared with usual care, patients receiving telehealth were associated with a higher quality of life (Chen, 2017).

Not without its downside, telehealth has encountered numerous barriers to implementation. To name a few; technology issues (internet connection speed/inability to hear or no internet access)

(Ftouni et al., 2022), cost and reimbursement (Miller, 2006), incompatible health records (Zhang & Saltman, 2022), and privacy issues (Hale et al., 2014) to name a few. In addition to these barriers to entry and patients' acceptability, the providers must also see this newly offered technology as a value. The delivery of their services must meet the standards of everyone's needs; the study by Glaser et al. revealed that 87% of providers who used telehealth services were satisfied with their visit, and 83% believed that the patient was also satisfied with the care they had received.

Showing how consumers can benefit from technology in the healthcare field, telehealth has relied upon more than ever since its conception in 1959 during COVID (Nesbitt, 2012). GAO recently released their study, which uncovered that Medicaid patients increased their telehealth usage 15x (from 2.1 million to 32.5 million), and Medicare increased from 5 million to 53 million patients utilizing the platform (Aiken, 2013), proving that telehealth usage has increased dramatically and is here to stay. As with technology, attitude toward the acceptance of it is a concept that is quite broad: it includes normative beliefs (Van Geelen et al., 2013) in addition to personal opinions and preferences. With this new alternative to the in-office visit, the increased utilization of multiple surveys has reported patient satisfaction and attitude towards it measured; a common thread though most were the overall high patient satisfaction with their services (Pogorzelska, 2022). Upon reviewing these articles, there is a literature deficit when addressing the perceptions of telehealth and the effect this has on patients' attitudes toward telehealth.

Theory

This study aims to investigate a patient's attitude towards adopting telehealth services by integrating two well-known models: utilizing the healthcare belief model (HBM) and the theory of technology acceptance (TAM). The theoretical model is loosely based on a combination of the TAM (Technology acceptance model) and the HBM (Health Belief model).

Utilizing the TAM model, this study seeks to explain the acceptance of telehealth as predicted by the users' behavioral intention and how it will influence their attitude. The TAM model, first introduced by Fred Davis in 1987, specifies the cause of interrelatedness among system design features, perceived usefulness, perceived ease of use, attitude toward using, and actual usage behavior (Davis, 1987). This model initially explained the acceptance of technology, and it discovered that perceived usefulness was 50% more influential than ease of use in determining usage. This forward-thinking model allows research to begin at a stage before use, with the perception of ease of use. These perceptions can come from many places, and for telehealth, that could be a marketing campaign, a healthcare provider, or even family and friends. As a collaborative care venture, patients can be assured that telehealth is safe, effective, and comparable to in-person healthcare based on knowledgeable advice.

TAM also reveals that attitude plays a significant role in the implication of technology. TAM has been used for decades, and in some cases, research has reported that individuals often ignore their objective knowledge and allow their behavior to be guided by their attitude toward it (Sanbonmatsu & Fazio, 1990). Although knowledge a system’s benefits are valuable, more information is needed to sway someone's decision. In a recent study involving marketing and the influence on behavior to adopt telehealth, it measured several businesses in different stages of adopting telehealth. The study revealed that the type of marketing and how aggressively it was

done depended greatly on the perception of the benefits of telehealth. For instance, if a marketing manager viewed it from a cost-effective means of care, their approach would be much different than if they viewed it as an alternative to in-person care (Dansky & Ajello, 2005). Although data remains in the collection phase, and there should be some exciting revelations soon, word-of-mouth marketing might be the most valuable marketing technique that affects the patient's attitude in the early stages of adoption however,. Word-of-mouth marketing is widely known to be effective; for instance, most marketing executives (61%) say it is the most effective form of marketing (Berger, 2014). Where these perceptions of benefits from telehealth come from are of particular importance as they can be markers for guidance to patients that are otherwise uninterested in telehealth. The attitude towards telehealth, or any system for that matter, greatly depends on perception which is molded by marketing.

These perceived benefits further the importance of healthcare workers and current telehealth patients having a positive experience from start to finish. Not only easy and user-friendly technology but an attentive provider and insurance company that promptly and properly completes the claims process, creating a genuinely compressive collaborative care experience. If properly implemented, the telehealth experience will have a positive impact, and they can then share this experience giving confidence to other patients who may not have tried telehealth but are interested. Furthermore, if provider’s recommendations are followed closer, and patient’s become healthier when using the telehealth system, it is a true win for the healthcare system as a whole.

Most recently, the TAM model rationalization of factors that influence telehealth users discovered that in the elderly, there are vital factors indicative of user patterns (Zhou, 2019). The impact of the study centered around ease of use, information quality, and medical service

satisfaction while positively influencing behavior intentions to use telehealth in older adults. Although TAM can explain what influences our behavior to accept telehealth technology, it is a new element related to factors contributing to our attitude towards telehealth in general. The TAM model leaves out patients' perceptions when utilizing telehealth technology specifically. This study will offer insight into the patient's attitude towards telehealth and discover how changing that is monumental in phasing out the old in-office patient care approach.

As seen in the health belief model, patients perceived threat to sickness or disease (perceived susceptibility), a belief of consequence (perceived severity), potential positive benefits of action (perceived benefits), perceived barriers to action, exposure to factors that prompt action (cues to action), and confidence in the ability to be useful (perceived usefulness) all play a role in our attitudes towards anything, generally (RHIhub, 2005). Combing the acceptance of this new technology, as it applies to our health intentions, adds a new dimension to healthcare outcomes. HBM's efficiency in calculating and justifying behavior has been well documented in the last several years (Carpenter, Citation2010; Harrison et al., Citation1992; Janz & Becker, Citation1984; Zimmerman & Vernberg, Citation1994). Carpenter's study is the most current and thorough of these, revealing that the strongest predictors of behavior were consistently perceived benefits, and the least predictive was perceived severity. Although susceptibility was not found as a significant contributor, Carpenter's study reflects on how the HBM has been used as a theoretical basis to inform the design of interventions to change behavior, despite its weak evidence for the model to predict behavior. Until now, there has been no evidence to support HBM as the basis for the design regarding patients' attitudes towards telehealth in any way.

Perceived Usefulness (P.U.)

Perceived usefulness in technological advances is one of the fundamental determinants of user acceptance (Davis, 1989). In turn, a system high in *perceived* usefulness is one for which a user believes in a positive use-performance relationship (Davis, 1989). Among the many variables that may influence a system's use, previous research suggests that this is one of the main determinates that are especially important. With other technological advances, perceived usefulness positively affected the intention to use e-filing when filing their taxes using e-file, for example (Rekayana, 2016). The core belief in the TAM is that individuals' usage of technology is mediated by their acceptance of that technology which in turn is determined by two cognitive factors, perceived usefulness (P.U.) and perceived ease of use (PEOU) (Jones & Kauppi, 2018). Similarly, it is the extent to which someone believes technology will improve their performance at work and if it will be seen as more desirable (Aryani, 2016). The perception of utility directly affects the intention to try telehealth; if the patient does not feel that there is a benefit, the patient will not intend to use the telehealth system (Susanto, 2011) as applied to telehealth.

Likewise, if patients feel that using telehealth to receive medical care is easy, it also increases their intention to use it. A quality system is only valued if designed to meet user satisfaction through ease. In turn, if the system is easy to use, it will be likely less likely to have barriers for new users, and be less cumbersome than the current system. The mediocre way of in-office visits have never had an alternative, meaning nothing to compete with for insurance or ways to get care from providers both near and far. Finally there is something that is an "alternative," and its cost effective with a more efficient ease of use. If there is a way to determine that patient's health is at the same level or better than an in-person visit, its not an alternative. It's the clear way to go for patient healthcare outcomes that are successful.

Perceived Ease of Use (PEOU)

The perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort." Although several theoretical models employed studies investigating user acceptance and usage actions of emerging technologies, proving ease of use is a determinant of acceptance, the Technology Acceptance Model is the most widely applied. Within the TAM model is a three-stage process that factors in cognitive responses, which ignites an affective response (attitude toward technology/intention to use), influencing use behavior (Davis, 1989). Representing the behavior, TAM encompasses the outcomes predicted by ease of use, usefulness, and intention. In Davis's subsequent 1993 article, he implies that behavioral intention can be substituted by the attitude towards the behavior, revealing that the higher the effective rate, the more likely it is for the behavior to occur. This study also addresses that perceived ease of use does not affect the behavior directly, and therefore, it underpins the effect of perceived usefulness. Therefore, if an application is expected to be easy to use, it will be considered helpful for the user and, therefore, will more likely stimulate the acceptance of this technology (Davis, 1989; Davis, 1993).

Perceived Susceptibility (P.S.) and Perceived Benefits (P.B.)

The definition of perceived susceptibility explains how the patient will estimate the likelihood of getting sick or suffering an unintended result (Abraham et al., 2023). The Health Belief Model (HBM) explores the influences COVID had on the healthcare-seeking behaviors of those higher-risk patients; it was discovered that awareness increased susceptibility and risk of a more severe episode if they contracted COVID. HBM provides guidelines and offers program development where addressing reasons for non-compliance becomes evident (Julinawati, 2013). Of the HBM's

four primary constructs for compliance with healthcare actions; (1) perceived barriers of recommended health action, (2) perceived benefits of recommended health action, (3) perceived susceptibility of the disease, and (4) perceived seriousness of the disease, this study will examine the perceived susceptibility and perceived benefits. In a similar cancer control study, perceived susceptibility (P.S.) and perceived benefits (P.B.) constructs are used to explain and predict the health behaviors of patients while informing and evaluating intervention strategies (Rosentstock, 2005). If studies use both P.S. and P.B., based on rational action, they will share the assumption that people do take action to prevent, screen for, and attempt to control for illness if they; believe they are (a) susceptible to illness, especially when the consequences to them are particularly harmful (b) when they do take the proper precautionary measures they can actively reduce their risk of illness and (c) if the benefits outweigh the barriers or costs of doing so (Janz et al., 1995). In addition, this assumption is that patients trust their providers and that the healthcare system will effectively serve them and their best interests.

Deriving from a cognitive model of behavior theories that deploy the constructs of P.S. and P.B. are generally from HBM (Bandura, 1986). Hence, the constructs P.B. and P.S. are based on rational decision-making and personal agency, social, cultural, political, economic, or historical, as a distal influence on beliefs. Background factors, while important, are only as important as their effect on the beliefs that determine the behavior (Bandura, 1986). It remains that P.B. and P.S. are crucial to the attitudes towards behavior in any aspect, particularly healthcare behaviors.

Social Norms

Social norms are the informal governing rules of behaviors in groups and societies. Norms have been tested in many facets and can lead to good and bad behaviors regarding our participation

choices. For instance, one study investigated eating habits and found that most people follow social eating patterns that include food choices and amounts consumed (Higgs, 2015), resulting in worsened eating habits. Another study referenced recycling habits and socially approved or disapproved effects of people's intentions (Cialdini, 2003). These informal governing bodies (social norms) take effect, often without us knowing. In healthcare, it is even more important what our social circle thinks, not only about diet, but a provider and even how we receive care. The results for healthcare-related social norms have been varied. Some studies revealed there could be positive effects of social norms (Belle, 2021), no effects (Robinson, 2013), and sometimes a negative effect (Scholly, 2005). With such a wide range of social factors, telehealth is the least studied, offering a new perspective on why individuals have chosen telehealth and giving providers a better opportunity to put these attributes into practice.

Conceptual Framework

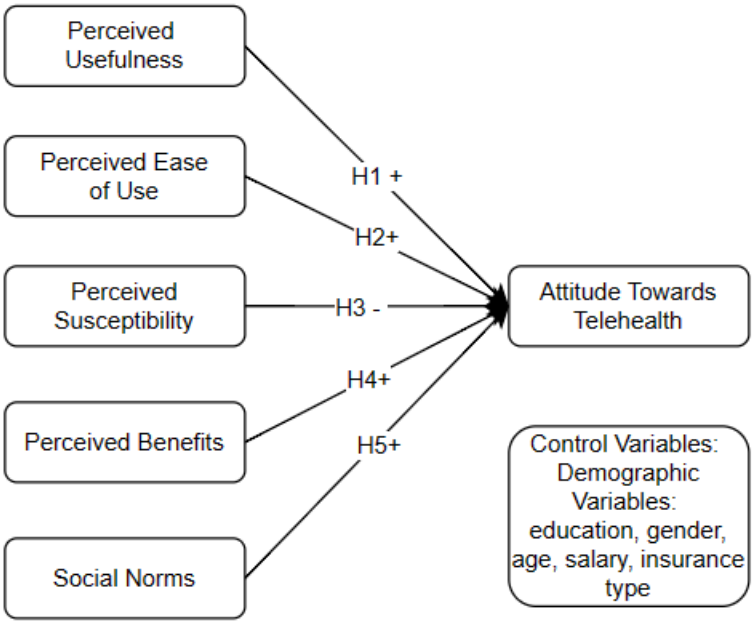

Figure 1 The Conceptual Research Model

Theoretical Development and Hypotheses

With the increased availability of information, patients will find that internet use for healthcare outcomes and their provider's recommendations are also more readily available (Bokolo). In the current consumer-centric environment for healthcare, patients are more empowered than ever to

make decisions based on their own choice as they become active decision-makers in this role. Increasing their choice for quality care has decreased health-related consumer costs and increased competition among providers; this competition includes offering virtual care to patients (Marshall). As accessibility increases and providers can see patients quicker, giving them a more accurate diagnosis and prescribing medication faster (Kozikowski), patients will believe telehealth is beneficial, and therefore, the following hypothesis has been generated:

H1: Perceived usefulness of telehealth has a positive effect on the attitude toward telehealth

In health and social care, the European Commission and the Institute of Medicine have proffered the following definitions of quality: "health care that is effective, safe and responds to the needs and preference of patients" (IOM, 1990). Understanding the threats associated with virtual care and knowing they are reduced to utilizing software and anti-virus technologies encourages patients to utilize the virtual space. Now that threats seem less likely in the modern world, we have almost all of our information online, but still kept very private, like our bank information. In our modern society threats on the internet seem to not be taken seriously and we even utilize online banking for instance, despite the potential fears. Laws offer privacy, security, and protection for health information collected by covered entities such as health care plans, clearinghouses, and providers who use electronic resources to transmit health care information (Smith). Telehealth providers must always ensure compliance with regulations, patient confidentiality, and system security when practicing in a telehealth model. The perception that we are not safe online can be a barrier to any patient wanting to utilize the service, and thus, the following hypothesis is generated:

H2: Perceived ease of use of telehealth has a positive effect on the attitude toward telehealth

Offering the answer to various health-related questions, patients frequently use the internet for information used to make an informed decision. Outside influence from many sources can help develop our decision-making process. Background factors, while important, are only as crucial as their influence on the beliefs that determine the behavior (Bandura, 1986). It remains that P.B. (Perceived Benefits) and P.S. (Perceived Susceptibility) are essential to the attitudes toward behavior in any aspect, particularly healthcare behaviors. Past research has proven the effectiveness of outside opinions and clearly shown that choices and confidence differ (Sniezek, 1995) when we have an outside opinion to compare our choice. Background factors, while important, are only as important as their effect on the beliefs that determine the behavior (Bandura, 1986). It remains that P.B. and P.S. are essential to the attitudes towards behavior in any aspect, but mainly to healthcare behaviors. When patients believe telehealth reduces the likelihood of a catastrophic health event, they are more likely to use the service and see it as a benefit. Therefore, the following hypotheses are generated:

H3: Perceived susceptibility to telehealth has a negative effect on the attitude toward telehealth

Perceived susceptibility, by definition, is the likeliness a dieses or illness will become a threat to you. For instance, if a woman believes she has a high risk of getting breast cancer, she will more interested in getting a mammogram. This of course is a perception, its not often our perceptions are guided by facts and history, then our own misguided notions. This personalized risk evaluation is more often based on our own characteristics and behaviors and not a formal medical evaluation. Even still, certain populations believe they are more susceptible than others

for certain conditions or diseases, and therefore this construct is less consistent with facts than the others.

H4: Perceived benefits of telehealth have a positive effect on the attitude toward telehealth

Social norms are the informal governing rules of behaviors in groups and societies. Norms have been tested in many facets and can lead to good and bad behaviors regarding our participation choices. For instance, one study investigated eating habits and found that most people follow social eating patterns regarding food choices and amounts consumed (Higgs, 2015), resulting in worsened eating habits. Another study referenced recycling habits and socially approved or disapproved effects a person's intentions (Cialdini, 2003). These informal governing bodies (social norms) often take effect without us knowing. In healthcare, it is even more important what our social circle thinks, not only about diet, but a provider and even how we receive care. The results for healthcare-related social norms have been verified.

H5: Positive Social norms regarding telehealth has a positive effect on the attitude toward telehealth

This research design was chosen as the focal case exploring research questions related to developing patients' attitudes towards healthcare. Ultimately this is the foundation for the research that aims to determine the health outcomes of patients utilizing telehealth and if those outcomes are generally better, worse, or equal to an in-person patient experience. In order to develop the outcomes, a preliminary study focusing on why patients chose telehealth is necessary. Research regarding telehealth is relatively new and does not focus on attitudes toward adoption or outcomes in general. Telehealth, in general, has been going through innovation since

COVID and is now being adapted as a more comprehensive healthcare method. This initial study will provide a firm ground for exploring other research questions regarding how to reach a greater patient base, market this innovation, provide feedback for new policies, and gain traction with providers.

RESEARCH METHODOLOGY

Chosen Method:

The research will be conducted using a digital survey with Qualtrics software. The survey will measure the factors which a patient considers when choosing or not to choose telehealth as their healthcare option. We define a patient as anyone who has sought medical attention in the past two years.

Perceived Usefulness

Questions derived from Asiimwe, 2015's adoption of new technology on mobile phones. This particular study identified challenges pertaining to use and how to improve use, utilizing the TAM method. I adjusted to questions to be telehealth related and presented on a 7-point Likert scale.

1. Using telehealth would improve the quality of my health
2. Using telehealth gives me greater control over my healthcare outcomes
3. Telehealth would make it easier to track my healthcare goals
4. Using telehealth allows me to accomplish my healthcare goals more quickly
4. Overall, I find telehealth useful in my everyday life

Perceived Ease of Use

Questions derived from Asiimwe, 2015's study as mention in Perceived Usefulness. These questions similarly were altered for telehealth and presented on a 7-point Likert scale.

1. Learning how to use Telehealth would be easy for me
2. If find telehealth an easy way to get my healthcare needs met
3. It is easy for me to remember how to perform my doctor's recommendations using the telehealth system
4. Interacting with the telehealth portal seems difficult to maneuver
5. Overall, I find telehealth is an easy system to use

Perceived Susceptibility

Questions derived from (An, 2021), from measurement items geared towards enhanced care provided during visits. The idea that telehealthcare improves the care received from healthcare providers, thus increases usefulness, therefore decreased susceptibility and presented on a 7-point Likert scale

1. My telehealth provider keeps me informed of possible concerns they have
2. When seeing my provider through telehealth, I understand what is expected of me for follow up, if any
3. I believe my health is the provider's main concern during the visit
4. My health has improved since switching to telehealth
5. I find telehealth the solution to many of the compliance concerns I have faced

Perceived Benefits

Questions derived from (Hah, 2019), a study geared towards perceptions of telehealth driven care performance to law a for the designs of an effective telehealth driven education program, and presented on a 7-point Likert scale

1. Telehealth is easier to use than going to see the doctor
2. I never miss my telehealth appointments, because they are a convenient way to keep my health on track
3. I think my health has improved since switching to telehealth
4. If I had a choice, Telehealth is my preferred method to see my doctor
5. Having telehealth available to me lets me know that my insurance cares about keeping me healthy

Social Norms

Questions derived from (Nawawi, 2018) on the influence of friends and family. Although family had a clear powerful influence, friends were a very close second in social norms. With the benefit of mentioning both friends and family questions were developed and presented on a 7-point Likert scale

1. Is there a friend or family member who uses Telehealth?
2. If a friend used Telehealth and had mentioned a positive experience, would you be more likely to switch?
3. If your friend showed you how to use Telehealth, would you feel it is easier to switch
4. If your friend has a positive experience with Telehealth, do you feel its more likely you will?
5. If your friends and family have a positive experience with something, are you more likely to be interested in the product?

Attitudes Towards Telehealth

Questions based on Biruk and Abetu 2018 and Edison and Geissler 2003.

1. I think telehealth reduces medical errors
2. I find telehealth can eliminate unnecessary visits to my health care provider
3. I believe telehealth is compatible with my current health situation
4. I have seen others use telehealth and it looks easy

Participants and Procedure

To further explain the importance of the methodology and design procedures used to explore and support the findings of this study, a full conceptual research model and hypothesis clarification must be developed. While a brief overview of both will be included below, a description and explanation of the measures and their meanings will be provided for clarity.

Research Design

This study investigates the factors behind an individual's attitude when choosing to utilize or not utilize telehealth as a form of healthcare provider when seeking medical care. As an alternative to qualitative research, which employs interviews to extrapolate data, a quantitative survey will be deployed to assess telehealth attitudes. Response options include: 1='strongly disagree', 2 = 'disagree', 3='neither disagree nor agree', 4 = 'agree', and 5 = 'strongly agree'. Higher scores indicated more positive telehealth attitudes.

The sample will be drawn from a population of participants, who are 18 years of age and older, and have needed medical attention in the past two years, no matter the reason or for how long they resided in the United States during treatment, and that have and have not utilized the telehealth platform. Participants could have accessed the system via telephone, zoom (or similar video conferencing tools), email, or any other internet-provided medical services to access remote healthcare services. There is no age limit, economic or demographic disqualification criteria. These measures will be included in the study, but as control variables, and include gender (male and female), age (in years), race/ethnicity, educational level (less than high school, high school graduate, some college or associate degree), and health insurance coverage.

Participants were recruited through Amazon MTURK.

To verify the level of candidate diversity in the study, they will be asked a brief demographic questionnaire, shown in Appendix B. These questions will be required for the participants to proceed with the survey. The sample pool will be limited to the participants solicited to participate in the survey. The informed consent is shown in Appendix C and will also be required before the survey. There will be approximately 350 participants.

Pilot Study

An initial informed pilot test of the survey was conducted utilizing eight participants to determine the feasibility of the more extensive study. The participants received a document providing an overview of the research to assist with their understanding of the study. They were then asked to complete an online survey that was also provided. The feedback was overall

positive with the exception of verbiage changes to aid with clarification. The average informed pilot survey completion time was approximately eight minutes. The thirteen respondents ranged in age from their mid-30s to their late 60s, with nine being male and four being female. Respondent educational level: All reported having a college degree and utilizing telehealth for a variety of reason and having a diverse annual income.

A pilot study was then undertaken by leveraging Amazon Mechanical Turk and was able to collect 155 responses. Forty-two (42) were removed because they did not finish the survey or failed the attention checks. This provided 113 usable responses for the pilot, of which 37 (or 32.7%) were female and 76 (or 67.3%) were men. In Table 1 are the descriptives of all the items used in the pilot study and the reliabilities. Overall, these results suggest that the measurement instrument used in the pilot study was reliable and had good construct validity. The pilot study indicated a factor structure that is valid for measuring the sex main factors: Perceived Usefulness (PU), Perceived Ease of Use (EOU), Perceived Susceptibility (PE), Perceived Benefits (PB), Social Norms (SN), and Attitude (ATT). Table 1 shows the descriptive statistics of the pilot data and provides an overview containing the item code, the mean, standard deviation, and alpha score for the measures retained in the pilot.

Table 1. Pilot Data Descriptive Statics

Construct Name and Reference	Item Code	Mean	Std Deviation	Alpha
Perceived Usefulness	PU1	5.54	1.323	0.85
	PU2	5.55	1.195	
	PU3	5.40	1.373	
	PU4	5.52	1.225	
	PU5	5.61	1.228	
Perceived Ease of Use	EOU1	5.67	1.097	0.76
	EOU2	5.38	1.227	
	EOU3	5.43	1.238	
	EOU4	4.88	1.738	
	EOU5	5.42	1.266	
Perceived Susceptibility	PE1	5.17	1.426	0.81
	PE2	5.20	1.453	
	PE3	5.35	1.266	
	PE4	5.36	1.464	
	PE5	5.09	1.473	
Perceived Benefits	PB1	5.52	1.282	0.71
	PB2	5.20	1.548	
	PB3	5.41	1.300	
	PB4	5.28	1.191	
	PB5	5.48	1.218	
Social Norms	SN1	5.37	1.276	0.81
	SN2	5.45	1.210	
	SN3	5.56	1.260	
	SN4	5.32	1.311	
Attitude	A1	5.23	1.343	0.83
	A2	5.43	1.355	
	A3	5.29	1.443	
	A4	5.42	1.231	
	A5	5.60	1.074	
	A6	5.48	1.456	
	A7	5.52	1.078	

The pilot data and outcomes were removed from the research data before further collection since the results of the informed pilot and pilot are not intended to be published or disseminated. As

with the Pilot, the final survey was delivered in Qualtrics and subsequently advertised for respondents on Amazon Mechanical Turk (MTurk). In Amazon MTurk, the qualifications were set as: location must be the United States of America, a participant must have a history of approved responses greater than 95% on previous surveys and they must have been approved by more than 50 other MTurk postings. The MTurk Worker ID was used to flag those who participated in the pilot study and were thus excluded from the main studies' data collection. Given the relatively limited sample size of the pilot data, all constructs were retained for the main study. This was to ensure the robustness of the results. The descriptive statistics of the entire dataset will be evaluated after completing the collection, as the sample size will be larger. This will allow for a more comprehensive assessment of the data and help minimize the potential impact of any outliers or anomalies in the data.

Measurements

For the final study, all measures from the pilot study were retained and used in the main study. This includes utilizing the same instruments and protocols for data collection as well as maintaining adherence to the study's design. The majority of questions were presented on a Likert scale, and results were downloaded from Qualtrics. These results were then uploaded into SPSS version 29.

The only noted change from the pilot was that the main study was set to capture 350 respondents in MTurk. Those that failed the attention checks (47), and those who completed the survey in less than 120 seconds (126) were removed. The average completion time reported in Qualtrics was around 8 minutes. Ultimately, this provided valid responses to be retained for final analysis. While the data was in SPSS, demographic and analytics were run. Out of the 343 valid responses, (≈57%) identified themselves as male, with approximately 42% reporting as female

(Table 2). Approximately 95% of the total responses had at least a two-year college degree, and 15% stated they held a graduate degree; with the entire educational breakdown provided in Table 2.

Table 2.

Gender		**N**	**Percent**
	Male	196	57
	Female	145	42.2
	Prefer Not to say	2	0.6
Education			
	HS Diploma	10	2.9
	Some College	5	1.5
	Associate degree	7	6.4
	Bachelor's Degree	269	78.2
	Master's or beyond	52	15.1
Age			
	18-30	134	39
	31-40	122	35
	41-50	58	16.9
	51-60	17	5
	61-70	12	3.5
Salary			
	<$20K	18	5.2
	$20-$40K	92	26.7
	$40k-$80k	178	51.7
	$80k-$100K	48	14
	>$100k	7	2

Descriptive statistics provide a snapshot of the data and can help identify any outliers or patterns that may be relevant to the analysis. They were then calculated to understand the data

distribution and provide an overview of the means, standard deviations, and variances of the model indicators. These statistics have been compiled in Table 3 below.

Table 3. Descriptive Statistics

Construct		Mean	SD	Analysis N
Precieved Susceptibility	PE1	5.47	1.131	343
	PE2	5.23	1.318	343
	PE3	5.37	1.182	343
Precieved Benefits	PB1	5.66	1.086	343
	PB2	5.47	1.128	343
	PB4	5.28	1.186	343
Social Norms	SN1	5.57	1.023	343
	SN2	5.55	1.161	343
	SN4	5.47	1.174	343
Attitude	ATT2	5.53	1.199	343
	ATT3	5.48	1.164	343
	ATT4	5.45	1.262	343
	ATT7	5.56	1.001	343
	ATT5	5.67	1.124	343

Structural equation modeling (SEM) was used because of its ability to handle missing data and measurement errors which is common in innovation research. SEM was used to predict the determinants in adoption of a wearable healthcare devise and in a healthcare study. In this study, the SEM was applied to verify factors that have significant influence on wearable health technology adoption. Thereafter, in a second stage, they used the NN analysis for more accurate prediction of substantial factors for wearable healthcare adoption. Proving the SEM is critical in the development of a more complex statistical model for a less simplistic linear model (Shahla 2019).

Another advantage of SEM is its ability to test for multiple causal relationships simultaneously. SEM was used to determine the adoption of electronic medical records in healthcare. The study focused on the provider's willingness to use electronic medical records and how that is a key indicator of the success for the EMR implementation in a hospital. SEM analysis results specified in this study that the perceived service level was an important antecedent of perceived usefulness.

SEM explains multiple causal relationships at once, examine latent variables and handle missing data and measurement errors. Overall, it is well suited to provide a deeper understanding of the factors that influence the successful development and implementation of new ideas and technologies within healthcare.

CHAPTER IV: MAIN STUDY DATA ANALYSIS AND RESULTS

Data Analysis

Based on the Research Model (Figure 4), an analysis was ran using SPSS showing the interactions and relationships between the hypothesized variables. The measures in this model were determined to be reflective in nature because they share a unified construct. Exploratory Factor Analysis (EFA) was used to confirm the validity of the latent variable measures.

During the evaluation of PEOU (perceived ease of use) and PU (perceived usefulness), (hypothesis 1 & 2) it was found that both constructs needed to be removed due to cross loading or loading on unintended factors and to strengthen the model. Each construct reliability was reviewed, using a factor weighting scheme, the outer loadings for each latent variable. First,

items that presented weak loadings (≤.3) and items used in the survey as attention checks were removed. For example, SN3, SN5, PB 3, PB5, PE 4, PE 5, ATT1 and ATT6 were cross loading and was thus removed.

The vast majority of loadings retained were greater than .6. Table 4 shows the remaining cross loading values.

Table 4. Rotated Component Matrix

	Component			
	1	2	3	4
ATT5	0.695			
ATT2	0.689			
ATT3	0.660			
ATT7	0.577			
ATT4	0.541			
SN4		0.751		
SN2		0.671		
SN1		0.668		
PB1			0.772	
PB4			0.613	
PB2			0.567	
PE1				0.814
PE2				0.735
PE3				0.477

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.a
a Rotation converged in 7 iterations.

Findings

The model was evaluated for predictive ability based on the size of the R2 value which value, which accounted for 0.536 (53.6%) of the variance in Attitude (ATT) Table 8 below. To test the hypotheses, the significance and relevance of the structural model relationships were assessed. The results suggest that the model cannot explain a relatively large portion of the variation in Attitude and the proposed relationships between some of the factors. The study also indicates that leadership styles moderate the relationships in the model. Overall, the model results in Table 5.

Table 5.
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.366	0.366		14.671	<.001
	AGE	0.035	0.045	0.043	0.784	0.434
	GEN	0.079	0.09	0.047	0.868	0.386
	EDU	-0.026	0.066	-0.021	-0.387	0.699
	INSUR	0.104	0.052	0.11	1.986	0.048
	SAL	-0.046	0.058	-0.044	-0.799	0.425
2	(Constant)	3.143	0.422		7.445	<.001
	AGE	0.008	0.031	0.009	0.25	0.803
	GEN	0.013	0.063	0.008	0.215	0.83
	EDU	-0.097	0.047	-0.08	-2.078	0.039
	INSUR	0.1	0.036	0.106	2.755	0.006
	SAL	-0.026	0.04	-0.025	-0.65	0.516
	SN	0.278	0.046	0.299	6.049	<.001
	PB	0.307	0.048	0.314	6.453	<.001
	PE	-0.231	0.041	-0.259	-5.684	<.001

a Dependent Variable: ATT

A multiple regression analysis was conducted to examine the relationship between Perceived Susceptibility and Attitude, while controlling for age, education, insurance type, salary and gender of the respondent. Neither Tolerance nor VIF statistics indicated the present of marked multicollinearity. The full model was significant [$F(333) = 48.101$, $p < .001$] and explained 53.6% of the variance in Attitude. Of interest to H3, the unstandardized coefficient for was -.231 indicating that, while holding age, education, insurance type, salary and gender constant, each unit increase in perceived susceptibility (PE) leads to a decrease of .231 units in Attitude, in the

same direction as predicted in the research model, and this relationship is significantly different from zero [$t(343) = -5.684$, $p < .001$]. These results provide support for the negative relationship between PE and Attitude as predicted in H3.

A multiple regression analysis was conducted to examine the relationship between Perceived Benefits and Attitude, while controlling for age, education, insurance type, salary and gender of the respondent. Neither Tolerance nor VIF statistics indicated the present of marked multicollinearity. The full model was significant [$F(333) = 48.101$, $p < .001$] and explained 53.6% of the variance in Attitude. Of interest to H4, the unstandardized coefficient for was .307 indicating that, while holding age, education, insurance type, salary and gender constant, each unit increase in perceived benefits (PB) leads to a increase of .307 units in Attitude, in the same direction as predicted in the research model, and this relationship is significantly different from zero [$t(343) = 6.453$, $p < .001$]. These results provide support for the positive relationship between PB and Attitude as predicted in H4.

A multiple regression analysis was conducted to examine the relationship between Social Norms and Attitude, while controlling for age, education, insurance type, salary and gender of the respondent. Neither Tolerance nor VIF statistics indicated the present of marked multicollinearity. The full model was significant [$F(333) = 48.101$, $p < .001$] and explained 53.6% of the variance in Attitude. Of interest to H5, the unstandardized coefficient for was 0.278 indicating that, while holding age, education, insurance type, salary and gender constant, each unit increase in social norms (SN) leads to a increase of 0.278 units in Attitude, in the same

direction as predicted in the research model, and this relationship is significantly different from zero [$t(343) = 6.049$, $p < .001$]. These results provide support for the positive relationship between SN and Attitude as predicted in H5.

A second study was conducted and deployed using Jamovi software to further the examination of the relationship between attitude and telehealth using all of the constructs from the original study.

Table 6. Test for Exact Fit

χ^2	df	p
318	189	<.001

Table 7. Fit Measures

			RMSEA 90% CI	
CFI	TLI	RMSEA	Lower	Upper
0.907	0.886	0.0778	0.0627	0.0924

In order to determine how well the observed date fits our model, a model fit test was conducted, using χ^2, which provides a test of the hypothesis.

Upon examining the Factor Loadings – Modification Indices table, a judgement was made as to whether it made sense to add the highest modification index values (MI) into the model the χ^2 value will reduce by around the same amount. Several adjustments were made which resulted in the following findings.

Here, our χ^2 indicates 318, the test statistic. Df indicates 189 and our p value which is less than .001, which indicates that the test is statistically significant. Although this does not point to the source of the significance. The CFI is 0.907 which is above .9 and TLI is .886 which is close to the acceptable threshold of .9, and the RMSEA is .0778 and is below the threshold of 0.08. Therefore, we look at the modification indices to examine potential changes to the model to improve model fit.

Table 8. Factor Loadings

Latent	Observed	Estimate	SE	Z	p	Stand. Estimate
PU	PU2	0.927	0.0973	9.52	1.000	0.776
	PU3	1.006	0.1124	8.95	1.297	0.739
	PU4	0.918	0.0990	9.28	1.450	0.753
	PU5	0.909	0.1011	9.00	1.263	1.753
EOU	EOU1	0.773	0.0944	8.18	1.000	2.753
	EOU2	0.966	0.0994	9.72	1.430	3.753
	EOU3	0.879	0.1056	8.32	1.687	4.753
	EOU5	0.859	0.1104	7.78	1.423	5.753
PE	PE1	0.793	0.1386	5.72	1.000	6.753
	PE2	0.900	0.1348	6.67	1.543	7.753
	PE3	0.971	0.1106	8.78	1.353	8.753
PB	PB1	0.977	0.1142	8.55	1.000	9.753
	PB2	0.565	0.1500	3.76	0.843	10.753
	PB4	0.749	0.1120	6.67	0.972	11.753
SN	SN1	0.946	0.1083	8.74	1.000	12.753
	SN2	0.846	0.1024	8.27	1.492	13.753
	SN4	1.052	0.1069	9.84	1.250	14.753
Attitude	ATT3	1.082	0.1095	9.88	1.000	15.753
	ATT4	1.050	0.1214	8.65	1.605	16.753
	ATT2	0.702	0.1104	6.36	1.451	17.753
	ATT5	0.663	0.0955	6.95	1.325	18.753
	ATT7	0.576	0.1008	5.71	1.154	19.753

The Factor Loadings table reports on the loadings of each item on its factor (both standardized and unstandardized estimates), as well as their standard error, confidence interval, and p-value. The loadings of all items on their respective constructs are significant and high. The p<.001 and are all statistically significant with appropriately loading in column "Stand. Estimate." The Z-statistic and p-value for each of these parameters indicates they make a reasonable contribution to the model (i.e. they are not zero) so there doesn't appear to be any reason to remove any of the specified variable-factor paths, or factor-factor correlations from the model.

Table 12. R^2

Variable	R^2
Attitude	0.8

Based on the R square test, the amount of variance of attitude in this model explains 78.7% of variance in attitude based on these factors that we have included in the model. (Baseline models in behavior, examples. Mention factors we have included, independent variable).

Looking at the correlations between the constructs themselves, pairs of constructs are significantly correlated ($p < .05$) with each other:

The results table Parameter Estimates shows the estimates for each path (both standardized and unstandardized), as well as their standard errors, confidence intervals, and p-values. Note that in the Jamovi results the standardized coefficients are in the column labeled β, with the unstandardized coefficients in the column labeled Estimates. For example, the Perceived

Susceptibility and Attitude relationship has a standardized coefficient of 0.223 and an unstandardized one of 0.0499.

Table 13. Parameters estimates

				95% Confidence Intervals				
Dep	**Pred**	**Estimate**	**SE**	**Lower**	**Upper**	**β**	**z**	**p**
Attitude	PE	0.156	0.0499	0.0587	0.254	0.223	3.14	0.002
Attitude	EOU	0.593	0.0938	0.4088	0.776	0.716	6.32	< .001
Attitude	PB	0.119	0.0384	0.0434	0.194	0.213	3.09	0.002
Attitude	SN	0.123	0.0452	0.0343	0.211	0.176	2.72	0.007
Attitude	PU	0.272	0.0551	0.1646	0.380	0.385	4.95	< .001

The results of the SEM analysis, as shown in Figure 2, provide insights into the relationships between the variables that were examined. The table displays the standardized coefficients (β), which represent the strength and direction of the relationships between the variables. The p-values in Figure 2 indicate the statistical significance of the relationships, with all values below the .05 level indicating a significant relationship with the exception of PB1. Figure 2 summarizes the results of this study which examined the relationship between attitude towards telehealth and actual telehealth usage. All of the hypothesis were supported. β values represent the strength of the relationships between the independent and dependent variables.

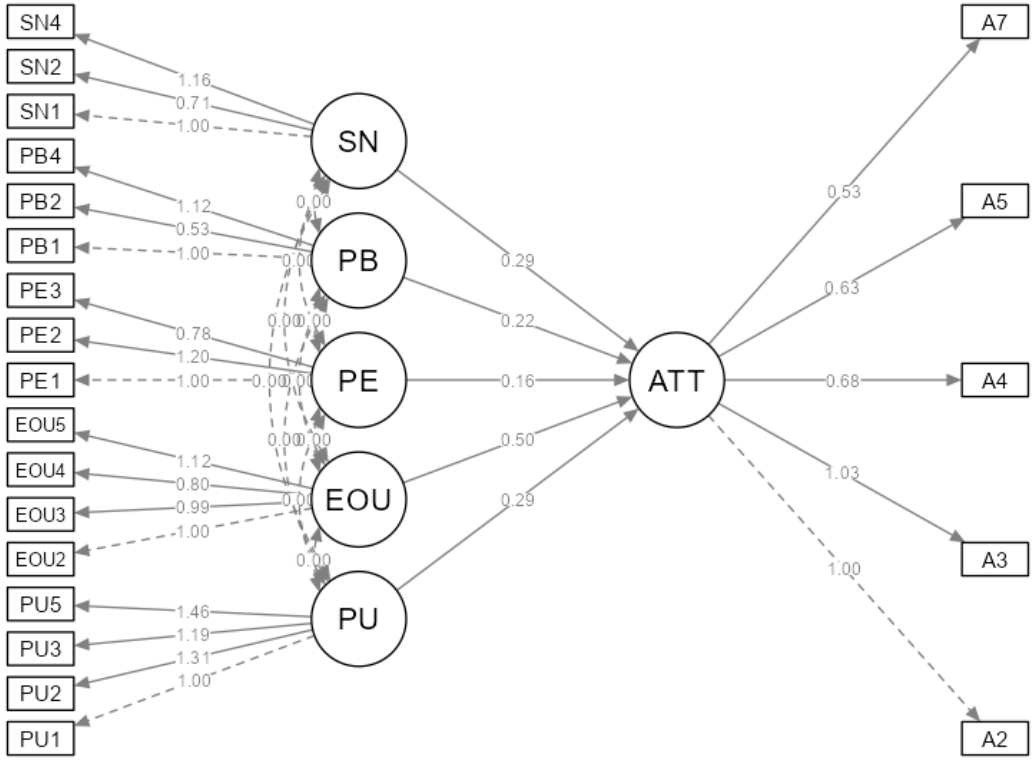
SN4
SN2
SN1
PB4
PB2
PB1
PE3
PE2
PE1
EOU5
EOU4
EOU3
EOU2
PU5
PU3
PU2
PU1
1.16
0.71
1.00
1.12
0.53
1.00
0.78
1.20
1.00
1.12
0.80
0.99
1.00
1.46
1.19
1.31
1.00
SN
PB
PE
EOU
PU
0.29
0.22
0.16
0.50
0.29
ATT
0.53
0.63
0.68
1.03
1.00
A7
A5
A4
A3
A2

Figure 2.

CHAPTER V: SUMMARY, IMPLICATIONS, AND OUTCOMES

Summary of Findings

This study aimed to gain a deeper knowledge of the factors contributing to attitude towards telehealth and actual usage of the telehealth system. This paper reports the significance several factors have on the attitude towards the telehealth system. The results indicated that the attitude toward telehealth, are widely unknown and require further exploration. The study posed a singular question:

What factors affect a patient's attitude toward telehealth in the U.S.?

The factors affect a patient's attitude can be vast and very impactful on how they feel about telehealth. Although telehealth was a forced innovation brought on by a pandemic, its important to find out its current place in the post-pandemic world. Moreso, is it here to stay and how can this innovation be used to produce a healthier society.

Theoretical Implications

The result of this study provides evidence that there are factors that impact a patient's attitude towards telehealth. The findings highlight the need for additional research that focuses on compliance with prescriber's recommendations while utilizing telehealth versus the typical in-office visit. This study also recognizes that telehealth is new and still in its infancy. Furthering the need for research in this field.

While innovation in healthcare is important it might not always replace what has been so effective in the past. Now that telehealth is here, it seems to be here to stay. The discovery of what makes it so effective and how it can be promoted as a convenient alternative when an

emergency should arise, warrants more time to let telehealth carve out a path of its own. Additionally, by understanding why so many refuse to go back into the doctor's office can the missing piece to the telehealth puzzle.

As with most innovation, especially in healthcare, there is some skepticism. No surprise, it comes from insurance companies, prescribers, and even patients. Everything from its cost effectiveness to online security has come into question. But the positive effects of telehealth are significant. Telehealth provides access to a doctor from anywhere internet will reach, zero car rides to the doctor's office and easier follow up care. As accessibility increases and providers can see patients quicker, giving them a more accurate diagnosis and prescribing medication faster (Kozikowski), patients will realize telehealth is beneficial.

As the body of knowledge increases surrounding telehealth, we can properly address how to use it for everyone's advantage. Another important study also brought up an even more unique use for telehealth, to reduce isolation for patients and doctors. In a 2018 study of the attitudes towards telehealth of final-year medical students, and how telehealth training can be developed, it was discovered that most students indicate they are no elements for training. This is another flaw that will come with resistance to telehealth but can be addressed by studies similar to this one.

It is not without noting that telehealth was introduced at a time when much of the world was focused on health and did its best to provide an alternative to in-office healthcare visits. Telehealth was not meant to replace that system, but to supplement it and keep healthy patients out of the office. It did serve its purpose and now needs to find its final position in the healthcare system.

In office visits can never be replaced, there will always be the “eyes-on” approach to certain aliments, like a simple skin condition. The need for blood work, and many other tests and treatments will always require us to take that dreaded car ride. With that being said, telehealth did come in and provide us with a connection to healthcare when the world was shut down and that cannot be overlooked. It is owed a chance to serve along side in-office visits. This study was never meant to look at telehealth like a replacement, just to see what role it will have in the future of healthcare. Slowly we are discovering how effective it is, and more importantly its value to a patient.

It’s important to recognize that technology in healthcare cannot be forced or mandated. As technology evolves, it is almost impossible to keep it out of healthcare. Evolution of the way things are done are second nature and everyone is always interested in the fasted and most effective way to get something done. Technology in telehealth and its success has been the focus of much research, especially as of late. This research encompasses a large variety of topics, from reducing medication errors, improving compliance, healthcare quality and safety (Alotaibi, 2017). Technology has benefited healthcare in so many ways from Xrays to blood pressure monitoring devices. Telehealth should be seen as a possible new technology advance for healthcare and given time to mold itself into a valuable resource.

In the past, healthcare and attitudes towards it have fluctuated. In part because social norms often influence our behaviors. By understanding how these social influences can be adjusted is crucial to telehealth’s survival. By understanding this interaction, we can better guide physicians to offer the service and patients to see it as a health benefit. In addition, policy leaders will have to take notice if telehealth is seen as an alternative to in-person health visits, all while reducing physician risks, and the burden of medical waste by hospitals and providers. The importance of

the aspects of telehealth and how it is changing how we view healthcare, will lead us to discovering if this telehealth avenue of care yields equal results to its in-office counterpart.

Discussion of Practical Implications

The importance of attitude in adoption of new technology cannot be understated. It is widely recognized as a crucial driver of adoption and successful implementation of technology. In today's health focused environment, new technology is able to inform policy, especially on how to best allocate funds to health interventions and technologies. Healthcare policies encompass a wide range of activities, from payers who focused on therapeutic added value and clinically significant benefit, to large health gains and favorable risk-benefit balance at an acceptable cost (Ciani, 2016). New technology is essential for the growth and development of any organization (Gunday et al., 2011) and most especially, when it comes to our health.

Technology advances in healthcare is not just about new ideas, methods, and devices themselves anymore. In healthcare specifically health technologies come with recognizing and rewarding innovation that will foster present and future advancement (Aronson, 2012). Telehealth is part of the global healthcare system innovation and should be seen as a useful healthcare addition. Telehealth offers faster response times, access to prescribers that are out of reach, and is less of a time restraint for patients, in addition to many other benefits. Improved patient attitude towards the innovation of telehealth, and all healthcare technology, can lead to the adoption of telehealth all over the world. Prescribers that encourage and support the telehealth innovation have been shown to be more likely to provide these services in rural areas and in-turn reduce the inequity in rural healthcare access (Pit, 2018). Perceiving telehealth as beneficial, would benefit patients and healthcare providers alike. It should be noted that a recent study showed the perceived usefulness of the equipment did not significantly increase (pre- to post-usage) when questioned about

telehealth post "telehealth training" (Wade, 2012). This would seem to indicate why Perceived Use (PU) and Perceived Ease of Use (PEOU) were strongly cross loading and were ultimately rejected from the SPSS study. Perhaps what we discovered was that the attitude is no longer affected by the perception of ease of use. At least not when it comes to telehealth. The pendulum is swinging towards beneficial and away from useful and could be further investigated to confirm. Ultimately that is what this study has set out to find, the factors that contribute towards the attitude of telehealth.

Even though the previously mentioned study indicated that perceived ease of use and usefulness were not a predictor of future compliance, it was positively correlated at future compliance post-training. That is a very significant find considering how poorly understood telehealth is and its influence in the healthcare field. This study, at the least, has discovered that the Perceived Use and Perceived Ease of Use variables need to be seen as less of an influence on attitude. More weight should be given to the variable Perceived Benefits, Social Norms and Perceived Susceptibly. Having the proper weight on how attitudes are formed, at least when it comes to telehealth, will prove to be invaluable when it comes to future research in the telehealth technology field. And although this finding contradicts previous attitude research, it sheds a new light on how we place "value" on our health and the influence technology has.

Furth more, healthcare practitioners are interested in how to utilize telehealth as an alternative to traditional care, especially when targeting the rural populations. Although, medical students are apprehensive when it comes to telehealth challenges, such as lower patient rapport, lack of confidence, and legal aspects, these can easily be addressed as the telehealth discussion furthers (Pit). All of which can be addressed with training and time to adjust for the addition of telehealth. There is rarely technology that is adapted overnight and seen in a positive

contribution, we are especially critical when it comes to our health and the health of those we love. The desire for my training in telehealth from medical students is a good sign. It is at least an indication that they are willing to see where it will fit in with their practice and future in the healthcare field.

The importance of attitude when it comes the adoption of telehealth is equally important in any decision-making process. Research has been done to prove the value attitude has in a host of ways, it's a great predictor of how quickly which behaviors we engage in, and even which products to buy (Duckworth, Bargh, Garcia, & Chaiken, 2002; Maio & Olson, 2000). Most importantly attitudes predict the behaviors we engage in, in some respect. It's also important to mention that our attitudes are complex, and while they seem easy to predict, it's not always the case. While attitude is important, it can be changed. The good news is persuasive conversations are often successful in changing someone's attitude. In addition, people often identify with another individual or social group that has a similar attitude about something (Eaton, 2008). Again, this is great news with it comes to telehealth, mainly because it is newly introduced. There is still time to make a positive impression on perspective patients and healthcare providers. These results imply that while attitude is important in the adoption of the new technology, patients' perceptions surrounding it can be influenced. Ultimately, like in many other cases, attitude does impact our perceptions, with this study, we have revealed that there should be given less weight to Perceived Use and Perceived Ease of Use, and more attention should be paid to Perceived Benefits, Social Norms and Perceived Susceptibly. All of which are malleable and able to be shaped by having a conversation with a patient.

The attitude that patients have towards telehealth is largely from various sources. Those could include healthcare providers, their friends or family and even a negative past experience with

computer technology. Those are all major hurdles to get over for anyone, technostress was introduced as the "inability to adapt or cope with a new computer technology in a healthy manner" (Brod 1984). Although it has been examined and researched this can also come into play with telehealth's introduction, as it is part of technology. Investigating if individuals with high technostress find telehealth to be beneficial would also make a large impact on the telehealth field of study. After all, we are not just examining technology or health. This is an examination of both, requiring a parallel study with twice as many barriers to entry as one would if examining technology or health alone.

Limitations and Suggestions for Future Research

Understanding what factors affect our attitudes towards telehealth could help patients and providers foster a culture of acceptance. One limitation of the study was that it used an online cross-sectional survey which does not allow comprehensive conclusions regarding causality, nor does it fully capture the dynamic nature of the relationship between factors effecting attitude. Replicating the findings using a multimodal method, such as in a laboratory or field experiment, as well as longitudinal designs, may prove valuable. The additional investigation related to attitude sub factors and their antecedents of telehealth acceptance elements may provide insightful results.

Researchers could expand this study to examine the role attitudes towards technology as well as attitudes towards healthcare influence our adoption of a duel-purpose technology. Technology has become increasingly intertwined with healthcare and deserves further investigation. Researchers could explore how different healthcare technology platforms can work in tandem to

create a healthcare environment that is more preventative than reactive. And what recipe of healthcare technology gives the best results.

Investigating the AI aspect of healthcare will have it come full circle. This would involve investigating each technology and its importance in a patient's individual care plan. Additionally researching which healthcare technologies have been the most influential when it comes to patient compliance. If a medical device sends an alert, will you act on that alert? Understanding the relationship between the influence technology has on our actual health behaviors would be pivotal in analysis.

Future research into which targeted audience has the best results and how can it be implemented where insurances can then cover it at a reasonable price.

LIST OF REFERENCE

Engaging third-year medical students on their internal medicine clerkship in telehealth during COVID-19. Abraham HN, Opara IN, Dwaihy RL, Acuff C, Brauer B, Nabaty R, Levine DL. Cureus. 2020;12:0. [PMC free article] [PubMed] [Google Scholar] [Ref list]

Cortelyou-Ward, K., Atkins, D.N., Noblin, A., Rotarius, T., White, P., & Carey, C. (2020). Navigating the Digital Divide: Barriers to Telehealth in Rural Areas. Journal of Health Care for the Poor and Underserved 31(4), 1546–1556. doi:10.1353/hpu.2020.0116.

Kruse, Krowski, N., Rodriguez, B., Tran, L., Vela, J., & Brooks, M. (2017). Telehealth and patient satisfaction: a systematic review and narrative analysis. BMJ Open, 7(8), e016242–e016242. https://doi.org/10.1136/bmjopen-2017-016242

Moffatt, & Eley, D. S. (2011). Barriers to the uptake of telemedicine in Australia – A view from providers. Rural and Remote Health, 11(1), 116–121. https://doi.org/10.22605/RRH1581

Board on Health Care Services; Institute of Medicine. The Role of Telehealth in an Evolving Health Care Environment: Workshop Summary. Washington (D.C.): National Academies Press (U.S.); 2012 November 20. 3, The Evolution of Telehealth: Where Have We Been and Where Are We Going? Available from: https://www.ncbi.nlm.nih.gov/books/NBK207141/

Buck S. Nine human factors contributing to the user acceptance of telemedicine applications: a cognitive-emotional approach. Journal of Telemedicine and Telecare. 2009;15(2):55-58. doi:10.1258/jtt.2008.008007

Chen, Y.-Y., Guan, B.-S., Li, Z.-K., & Li, X.-Y. (2017). Effect of telehealth intervention on breast cancer patient's quality of life and psychological outcomes: A meta-analysis. Journal of Telemedicine and Telecare, 24(3), 157–167. https://doi.org/10.1177/1357633X16686777

Ftouni, R., AlJardali, B., Hamdanieh, M., Ftouni, L., & Salem, N. (2022). Challenges of Telemedicine during the COVID-19 pandemic: a systematic review. BMC medical informatics and decision making, 22(1), 207. https://doi.org/10.1186/s12911-022-01952-0

Zhang, X., & Saltman, R. (2022). Impact of Electronic Health Record Interoperability on Telehealth Service Outcomes. *JMIR medical informatics*, *10*(1), e31837. https://doi.org/10.2196/31837

Glaser M, Winchell T, Plant P, et al. *Telemed J E Health.* 2010;16:472–479. Provider satisfaction and patient outcomes associated with a statewide prison telemedicine program in Louisiana. [PubMed] [Google Scholar] [Ref list]

Pogorzelska K, Chlabicz S. Int J Environ Res Public Health. 2022;19 Patient satisfaction with telemedicine during the COVID-19 pandemic-a systematic review [PMC free article] [PubMed] [Google Scholar] [Ref list]

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly, 13(3), 319–340. https://doi.org/10.2307/249008

Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions, and behavioral impacts. International journal of man-machine studies, 38(3), 475-487

Rosenstock, I. M. (2005). Why do people use health services? Milbank Quarterly, 83, 4.

Janz, N., Champion, V., & Stecher, V. (1995). The health belief model in theory at a glance: A guide for health promotion practice (NIH, 1995, pp. 95-3896). Bethesda, MD: National Institute of Health, National Cancer Institute.

Sood, S., Mbarika, V., Jugoo, S., Dookhy, R., Doarn, C. R., Prakash, N., & Merrell, R. C. (2007). What is telemedicine? A collection of 104 peer-reviewed perspectives and theoretical underpinnings. Telemedicine and e-Health, 13(5), 573-590

Atanasovski et al. Citation2018Atanasovski, B., M. Bogdanovic, G. Velinov, L. Stoimenov, A. S. Dimovski, B. Koteska, … B. Jakimovski. (2018). "On Defining a Model Driven Architecture for an Enterprise E-health System." Enterprise Information Systems 12 (8–9): pp. 915–941. [Taylor & Francis Online], [Web of Science ®], [Google Scholar]; Y. Li et al. Citation2019; Pai and Alathur Citation2019

Li, Y., H. Wang, Y. Li, and L. Li. 2019. “Patient Assignment Scheduling in a Cloud Healthcare System Based on Petri Net and Greedy-based Heuristic.” Enterprise Information Systems 13 (4): 515–533. [Taylor & Francis Online], [Web of Science ®], [Google Scholar]

Pai, R. R., and S. Alathur. 2019. “Assessing Awareness and Use of Mobile Phone Technology for Health and Wellness: Insights from India.” Health Policy and Technology 8 (3): 221–227. [Crossref], [Web of Science ®], [Google Scholar]

Tsiouris, K. M., D. Gatsios, V. Tsakanikas, A. A. Pardalis, I. Kouris, T. Androutsou, … F. Mostajeran. 2020. “Designing Interoperable Telehealth Platforms: Bridging IoT Devices with Cloud Infrastructures.” Enterprise Information Systems 14 (8): 1–25. [Web of Science ®], [Google Scholar]

Alaboudi, A., A. Atkins, B. Sharp, A. Balkhair, M. Alzahrani, & T. Sunbul. (2016). "Barriers and Challenges in Adopting Saudi Telemedicine Network: The Perceptions of Decision Makers of Healthcare Facilities in Saudi Arabia." Journal of Infection and Public Health 9 (6): 725–733. [Crossref], [PubMed], [Web of Science ®], [Google Scholar]

Barlow, J., D. Singh, S. Bayer, & R. Curry. (2007). "A Systematic Review of the Benefits of Home Telecare for Frail Elderly People and Those with Long-term Conditions." Journal of Telemedicine and Telecare 13 (4): 172–179. [Crossref], [PubMed], [Web of Science ®], [Google Scholar]

Hsu, W.-Y. (2019). "A Customer-oriented Skin Detection and Care System in Telemedicine Applications." The Electronic Library 37(6): 1007–1021. [Crossref], [Web of Science ®], [Google Scholar]

Kashyap, R. (2020). Applications of Wireless Sensor Networks in Healthcare IoT and WSN Applications for Modern Agricultural Advancements: Emerging Research and Opportunities (pp. 8–40): IGI Global. [Google Scholar]

Bokolo Anthony Jnr (2020). Use of Telemedicine and Virtual Care for Remote Treatment in Response to COVID-19 Pandemic. Journal of medical systems, 44(7), 132. https://doi.org/10.1007/s10916-020-01596-5

Albarrak, A. I., R. Mohammed, N. Almarshoud, L. Almujalli, R. Aljaeed, S. Altuwaijiri, & T. Albohairy. (2019). "Assessment of Physician's Knowledge, Perception and Willingness of Telemedicine in Riyadh Region, Saudi Arabia." Journal of Infection and Public Health. [Crossref], [Web of Science ®], [Google Scholar]

Hollander, J. E., and B. G. Carr. 2020. "Virtually Perfect? Telemedicine for COVID-19." New England Journal of Medicine 382 (18): 1679–1681. [Crossref], [PubMed], [Web of Science ®], [Google Scholar]

Samar Rahi, Mubbsher Munawar Khan & Mahmoud Alghizzawi (2021). Factors influencing the adoption of telemedicine health services during COVID-19 pandemic crisis: an integrative research model, Enterprise Information Systems, 15:6, 769–793, DOI: 10.1080/17517575.2020.1850872

Aitken, Murray, Valakova, Silvia (2013). Medicare Telehealth: Actions Needed to Strengthen Oversight and Help Providers Educate Patients on Privacy and Security Risks. (2022, September 26). U.S. Government Accountability Office (U.S. GAO). https://www.gao.gov/products/gao-22-104454

Zhou, Z., L., K., N., Campy, K. S., Qu, S., & Wang, S. (2019). Factors influencing behavior intentions to telehealth by Chinese elderly: An extended TAM model. International Journal of Medical Informatics (Shannon, Ireland), pp. 126, 118–127. https://doi.org/10.1016/j.ijmedinf.2019.04.001

The health belief model - rural health promotion and disease prevention toolkit (2005) The Health Belief Model - Rural Health Promotion and Disease Prevention Toolkit. RHIhub. Available at: https://www.ruralhealthinfo.org/toolkits/health-promotion/2/theories-and-models/health-belief (Accessed: April 20, 2023)

van Geelen, Bolt, I. L. E., van der Baan-Slootweg, O. H., & van Summeren, M. J. H. (2013). The Controversy Over Pediatric Bariatric Surgery: An Explorative Study on Attitudes and Normative Beliefs of Specialists, Parents, and Adolescents With Obesity. Journal of Bioethical Inquiry, 10(2), 227–237. https://doi.org/10.1007/s11673-013-9440-0

Higgs, S. (2015). Social norms and their influence on eating behaviors. Appetite 86, 38–44. doi: 10.1016/j.appet.2014.10.021

Cialdini, R. B. (2003). Crafting normative messages to protect the environment. Current directions in psychological science, 12(4), 105-109.

Belle, N., & Cantarelli, P. (2021). Nudging public employees through descriptive social norms in healthcare organizations. Public Administration Review, 81(4), 589-598

Robinson, E., Harris, E., Thomas, J., Aveyard, P., & Higgs, S. (2013). Reducing high-calorie snack food in young adults: a role for social norms and health based messages. International Journal of Behavioral Nutrition and Physical Activity, 10(1), 1–8.

Chung, A., & Rimal, R. N. (2016). Social norms: A review. Review of Communication Research, 4. 1-29, doi: 10.12840/issn.2255-4165.2016.04.01.008

Bae, Y. S., Kim, K. H., Choi, S. W., Ko, T., Lim, J. S., & Piao, M.. (2021). Satisfaction and Usability of an Information and Communications Technology–Based System by Clinically Healthy Patients With COVID-19 and Medical Professionals: Cross-sectional Survey and Focus Group Interview Study. JMIR Formative Research, 5(8), e26227. https://doi.org/10.2196/26227

Telehealth: The coming 'new normal' for healthcare, part 2 (2021) Harris Poll. Available at: https://theharrispoll.com/briefs/telehealth-part-2/ (Accessed: May 18, 2023).

Grossman, D. C., & Choucair, B. (2019). Violence and the U.S. health care sector: burden and response. Health Affairs, 38(10), 1638-1645.

Brown, L. H., Buettner, P. G., & Canyon, D. V. (2012). The energy burden and environmental impact of health services. American Journal of public health, 102(12), e76-e82.

AĞALAR, CANAN and ENGİN, DERYA ÖZTÜRK (2020). "Protective measures for COVID-19 for healthcare providers and laboratory personnel," *Turkish Journal of Medical Sciences*: Vol. 50: No. 9, Article 14. https://doi.org/10.3906/sag-2004-132

Available at: https://journals.tubitak.gov.tr/medical/vol50/iss9/14

Djamasbi, S., Fruhling, A., & Loiacono, E. (2009). The influence of affect, attitude, and usefulness in the acceptance of telemedicine systems. Journal of Information Technology Theory and Application (JITTA), 10(1), 4.

H.R.4040 - 117th Congress (2021-2022): Advancing Telehealth Beyond COVID–19 Act of 2021. (2022, July 28). https://www.congress.gov/bill/117th-congress/house-bill/4040

Shahla Asadi, Rusli Abdullah, Mahmood Safaei, Shah Nazir, "An Integrated SEM-Neural Network Approach for Predicting Determinants of Adoption of Wearable Healthcare Devices", *Mobile Information Systems*, vol. 2019, Article ID 8026042, 9 pages, 2019. https://doi.org/10.1155/2019/8026042

Ciani, Oriana, et al. "De innovatione: The concept of innovation for medical technologies and its implications for healthcare policy-making." *Health Policy and Technology* 5.1 (2016): 47-64.

Aronson, Jeffrey K., Robin E. Ferner, and Dyfrig A. Hughes. "Defining rewardable innovation in drug therapy." *Nature Reviews Drug Discovery* 11.4 (2012): 253-254.

Pit, Sabrina Winona, and Jannine Bailey. "Medical students' exposure to, knowledge and perceptions of telehealth technology: is our future workforce ready to embrace telehealth service delivery?." *Health Education in Practice: Journal of research for professional learning* 1.2 (2018): 55-72.

Alotaibi, Yasser K., and Frank Federico. "The impact of health information technology on patient safety." *Saudi medical journal* 38.12 (2017): 1173.

Asiimwe, Edgar. "MLCMS actual use, perceived use, and experiences of use." *International Journal of Education and Development using ICT* 11.1 (2015).

(2021) - *va TELEHEALTH program: Leveraging recent investments to build future capacity*. Available at: https://www.govinfo.gov/content/pkg/CHRG-117shrg50338/html/CHRG-117shrg50338.htm (Accessed: 30 March 2024).

Hah, Hyeyoung, and Deana Goldin. "Exploring care providers' perceptions and current use of telehealth technology at work, in daily life, and in education: qualitative and quantitative study." *JMIR Medical Education* 5.1 (2019): e13350.

An, Min Ho, et al. "Using an extended technology acceptance model to understand the factors influencing telehealth utilization after flattening the COVID-19 curve in South Korea: cross-sectional survey study." *JMIR medical informatics* 9.1 (2021): e25435.

An, Min Ho, et al. "Using an extended technology acceptance model to understand the factors influencing telehealth utilization after flattening the COVID-19 curve in South Korea: cross-sectional survey study." *JMIR medical informatics* 9.1 (2021): e25435.

Nawawi, S. N., M. R. Roslin, and N. Abdul Hamid. "The importance of friends' and family members' influence and subjective norm in propelling individual's intention to purchase halal personal care products." International Journal of Academic Research in Business and Social Sciences 8.11 (2018): 2017-28.

https://www.hhs.gov/about/news/2023/05/10/hhs-fact-sheet-telehealth-flexibilities-resources-covid-19-public-health-emergency.html#:~:text=The%20Consolidated%20Appropriations%20Act%2C%202023%2C%20extended%20many%20Medicare%20telehealth%20flexibilities,than%20only%20in%20rural%20areas.

Berger, J. (2014). "Word of mouth and interpersonal communication: A review and directions for future research." Journal of consumer psychology **24**(4): 586-607.

Biruk, K. and E. Abetu (2018). "Knowledge and attitude of health professionals toward telemedicine in resource-limited settings: a cross-sectional study in North West Ethiopia." Journal of healthcare engineering **2018**.

Cascella, L. (2014). "Virtual Risk: an overview of telehealth from a risk management perspective." Disponibile online su www. medpro. com/documents/10502/2820774/Virtual+ Risk+-+ An+ Overview+ of+ Telehealth. pdf (ultimo accesso novembre 2015).

Dansky, K. H. and J. Ajello (2005). "Marketing telehealth to align with strategy." Journal of Healthcare Management **50**(1): 19-30.

Davis, F. D. (1987). "User acceptance of information systems: the technology acceptance model (TAM)."

Edison, S. W. and G. L. Geissler (2003). "Measuring attitudes towards general technology: Antecedents, hypotheses, and scale development." Journal of Targeting, Measurement, and Analysis for Marketing **12**: 137-156.

Fisk, M., et al. (2020). "Telehealth in the context of COVID-19: changing perspectives in Australia, the United Kingdom, and the United States." Journal of medical Internet research **22**(6): e19264.

Glasman, L. R. and D. Albarracín (2006). "Forming attitudes that predict future behavior: a meta-analysis of the attitude-behavior relation." Psychological Bulletin **132**(5): 778.

Nickelson, D. W. (1998). "Telehealth and the evolving health care system: Strategic opportunities for professional psychology." Professional Psychology: Research and Practice **29**(6): 527.

Rutledge, C. M., et al. (2017). "Telehealth and eHealth in nurse practitioner training: current perspectives." Advances in medical education and practice: pp. 399–409.

Sanbonmatsu, D. M. and R. H. Fazio (1990). "The role of attitudes in memory-based decision making." Journal of Personality and Social Psychology **59**(4): 614.

Snoswell, C. L., et al. (2020). "Determining if telehealth can reduce health system costs a scoping review." Journal of Medical Internet Research **22**(10): e17298.

Thomas, K. S., et al. (2019). "Perspectives of Medicare Advantage plan representatives on addressing social determinants of health in response to the CHRONIC Care Act." JAMA network open **2**(7): e196923-e196923.

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