INSTITUTO
UNIVERSITÁRIO
DE LISBOA

Explaining Factors Affecting Users' Acceptance and Use of Internet+ Medical Technology in China under the COVID-19 Pandemic Era

Zou Min

Master in Business Administration

Supervisor:

PhD Shaozhuang Ma, Associate Professor,

ISCTE - IUL

October 2022

BUSINESS SCHOOL

Explaining Factors Affecting Users' Acceptance and Use of Internet+ Medical Technology in China under the COVID-19 Pandemic Era

Zou Min

Master in Business Administration

Supervisor:

PhD Shaozhuang Ma, Associate Professor,

ISCTE - IUL

October 2022

Acknowledgment

To everyone who assisted me in writing my thesis, I would like to express my deepest gratitude. First, to my supervisor Professor Shaozhuang Ma, for his continuous support and professional guidance in each meeting. Second, to all the teachers who helped me and shared precious knowledge with me. In addition, to the respondents, for taking their valuable time to participate in the research. Finally, to thank my family and friends from the bottom of my heart for their unconditional love.

Resumo

A dissertação tem como objetivo enriquecer o campo de pesquisa explorando os fatores que afetam a aceitação dos usuários da Internet da tecnologia Internet+ Medical na China durante a era pandemia COVID-19. O modelo estendido foi baseado no modelo UTAUT2 e incorporou a confiança do paciente como um novo construto com efeito moderador. Uma amostra de 259 respostas válidas foi coletada usando uma pesquisa focada nos usuários da tecnologia Internet+ Medical na China na era COVID-19. Para análise dos dados foram aplicados o AMOS 23.0 e o SPSS Statistics 23.0.

O resultado demonstra que a intenção comportamental de adotar a tecnologia Internet+ Medical está positivamente relacionada à facilitação da condição e do hábito. E dos seis construtos, o hábito tem a maior influência positiva na intenção comportamental. Além disso, observa-se que as relações entre hábito e intenção comportamental (β =.108, $p < 0.05$), e entre condição facilitadora e intenção comportamental (β =.167, $p < 0.05$) são positivamente moderadas pela confiança.

Palavras-Chave: UTAUT2, confiança, COVID-19, Internet+ Tecnologia médica, Internet móvel, intenção de comportamento

Sistema de Classificação JEL: I10 - General

Abstract

The dissertation aims to enrich the field of research by exploring the factors affecting Internet patients' acceptance of Internet+ Medical technology in China during the COVID-19 pandemic era. The extended model was based on the UTAUT2 model and incorporated patient trust as a new construct that has a moderating effect. A sample of 259 valid responses was collected using a survey focused on the Internet+ Medical technology users in China in the COVID-19 era. AMOS 23.0 and SPSS Statistics 23.0 were applied to analyze the data.

The result demonstrates that behavioral intention to adopt Internet+ Medical technology is positively related to facilitating conditions and habit. And out of the six constructs, habit has the strongest positive influence on behavioral intention. Additionally, it is observed that the relationships between habit and behavioral intention (β =.108, $p < 0.05$), and between facilitating conditions and behavioral intention (β =.167, $p < 0.05$) are positively moderated by trust.

Key Words: UTAUT2, trust, COVID-19, Internet+ Medical technology, mobile Internet, behavior intention

JEL Classifications: I10 - General

摘要

本文旨在研究，在新冠肺炎疫情时代影响中国用户接受互联网+医疗技术的因素，以丰富研究领域。扩展模型基于 UTAUT2 模型，并将患者信任作为具有调节效应的新结构加入到扩展模型当中。通过对新冠疫情时代使用互联网+医疗技术的中国用户进行调查，共收集了 259 份有效样本。本论文使用 AMOS 23.0 和 SPSS Statistics 23.0 对数据进行分析。

结果显示，便利条件和习惯与使用互联网+医疗技术的行为意愿之间的关系呈正相关。在这六个结构中，对行为意愿的正向影响最大的因素是习惯。此外，还观察到便利条件与行为意愿（$\beta = .167$，$p < 0.05$）和习惯与行为意愿两组之间的关系（$\beta = .108$，$p < 0.05$）均受到信任的正向调节。

关键词：技术接受与使用统一理论 2（UTAUT2）、信任、新冠肺炎疫情、互联网+医疗技术、移动互联网、行为意向

JEL 分类号: I10 - General

Table of Contents

List of Tables

List of Figures

Glossary of acronyms

Term	Definition
COVID-19	Corona Virus Disease 2019
UTAUT	Unified Theory of Acceptance and Use of Technology
PE	Performance Expectancy
EE	Effort Expectancy
FC	Facilitating Conditions
SI	Social Influence
HB	Habit
PV	Price Value
TR	Trust
BI	Behavior Intention

1. Introduction

1.1 Research Background

In the 1970s, the World Health Organization defined Internet+ Medical as a kind of telemedicine service. In this thesis, Internet+ Medical refers to all medical behaviors through the Internet platform, and its users are people with health needs. With the help of the internet and information technology, medical practitioners can offer online services in the forms of diagnosis, monitoring and control, treatment, research and evaluation, medical education, and so on (Lu et al., 2020). China's Internet+ Medical industry is anticipated to reach 41 billion yuan in 2020, with a 50.5% growth from year to year, and the Internet Health Insurance market accounts for the largest proportion, reaching 28.8% (iResearch, 2020).

Although mobile technology has the advantages of mobility, portability, and flexibility, patients favor traditional systems when they looking to enhance access to healthcare services (Al-Azzam et al., 2019). By the end of October 2020, China has more than 900 Internet hospitals and more than 5500 second-class and upwards hospitals that can provide online medical services (China Internet Network Information Center, 2021). At present, China's online medical service mainly consists of three sectors: health consultation, follow-up of chronic diseases, and disease guidance (China Internet Network Information Center, 2021). The vast development of information and communications technology has led to the emergence of new platforms for the Internet+ Medical industry (Rub et al., 2020).

Compared with conventional medicine, Internet+ Medical has the advantages of convenience, speed, and being less time intensive. In Hu et al. (2022) research, it pointed out that creating doctors' personal brands positively influences doctors' intention to use Internet+ Medical service; It also emphasizes the importance of patients' perceived benefit factors, for instance, satisfying online medical experiences in the past and perceived information security help to rise patients' use intention.

Internet+ Medical covers five industrial chains nowadays: 1) Internet Hospital: As one part of Internet+ Medical products, Internet hospital is an integrated service platform based on physical hospitals, which provides healthcare services such as general consultation,

subsequent visit, online consultation, electronic prescription, online payment and drug delivery (Wang et al., 2022); 2) Medical Data Informatization: It provides data processing results for clinical decision-making in the hospital through computer science, network communication technology and data analysis; 3) Pharmaceutical E-commerce: This is a kind of post-diagnosis service for drug exchange by medical institutions, pharmaceutical enterprises, banks, drug manufacturers, medical information service providers and third-party institutions on the Internet platform; 4) Medical and Health Insurance: It is a means of disease prevention before diagnosis and treatment; 5) Medical Intelligent Hardware: It has a platform for disease prevention and monitoring body's condition. This hardware integrates health data through a built-in sensor chip and monitors health data such as weight, exercise, sleep time, sleep quality, and heartbeat, and then provides users with healthy life guidance and chronic disease management products according to the data analysis results (iResearch, 2020).

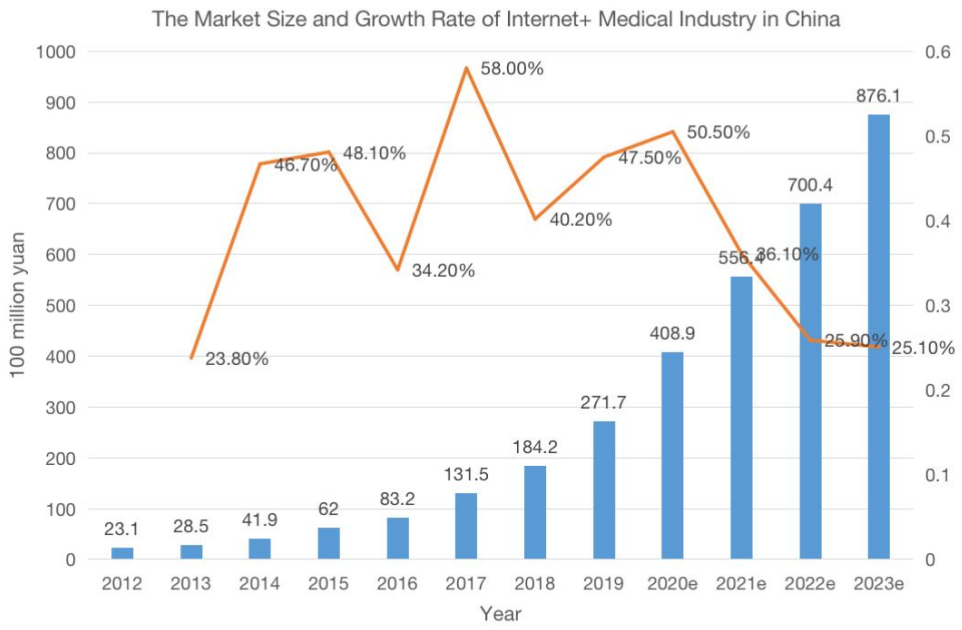

Figure 1.1 The Market Scale and Growth Rate of the Internet+ Medical Industry in China

Health systems are affected by the COVID-19 pandemic seriously, especially hospital intensive care units. Due to the impact of the pandemic, the public's traditional medical treatment habits have changed significantly, and they gradually rely more on Internet+ Medical products than before. As the only proven method to control the spread of the virus is

absolute isolation of the population (Vargas, 2020), consulting without face-to-face communication with the internet medical community has emerged as an effective and practical choice for patients in this special period (Lv, 2021). iResearch (2020) found that the use time of healthcare applications and web pages increased significantly from November 2019 to April 2020, during which users' interest in rehabilitation exercise, diet matching, and family health data monitoring was raised by a large margin.

COVID-19 also speed up the introduction of Internet+ Medical policy, in the aspect of online inquiry, online drugs store, and payment of online medical insurance (Jiang et al., 2021). But before the pandemic, the Chinese government's attitude towards Internet+ Medical care was cautious, and the market was in a rational period at that time. With the implementation of the regulations in 2018, public hospitals are becoming the main force in the construction of Internet hospitals, accounting for nearly 70% (cn-healthcare & Jingdong Health, 2021). Following the COVID-19 outbreak, the Chinese government started to gradually improve the healthcare security system with the liberalization of related policies.

In China, the National Healthcare Security Administration, the National Health Commission, and other administrative units have issued a range of guidelines to encourage the coordinated development of online and offline healthcare services from the three aspects of medical services, medicine, and medical insurance since 2019. In China, there were 1004 Internet hospitals in total as of December 31st, 2020 (cn-healthcare & Jingdong Health, 2021). The leap forward growth of Internet hospitals in one year benefited from the perfect policy environment, the COVID-19 pandemic, and the rigid demand for the continuous improvement of patients' medical experience.

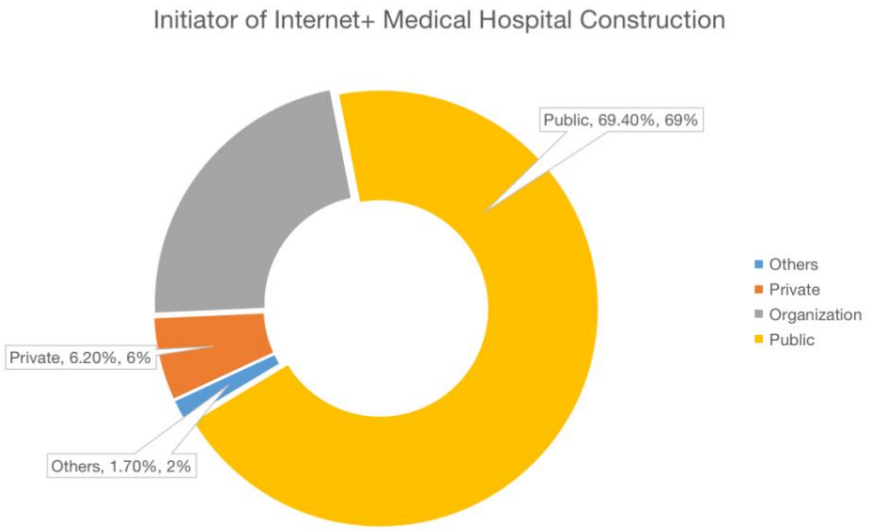

Figure 1.2 Initiator of Internet+ Medical Hospital Construction

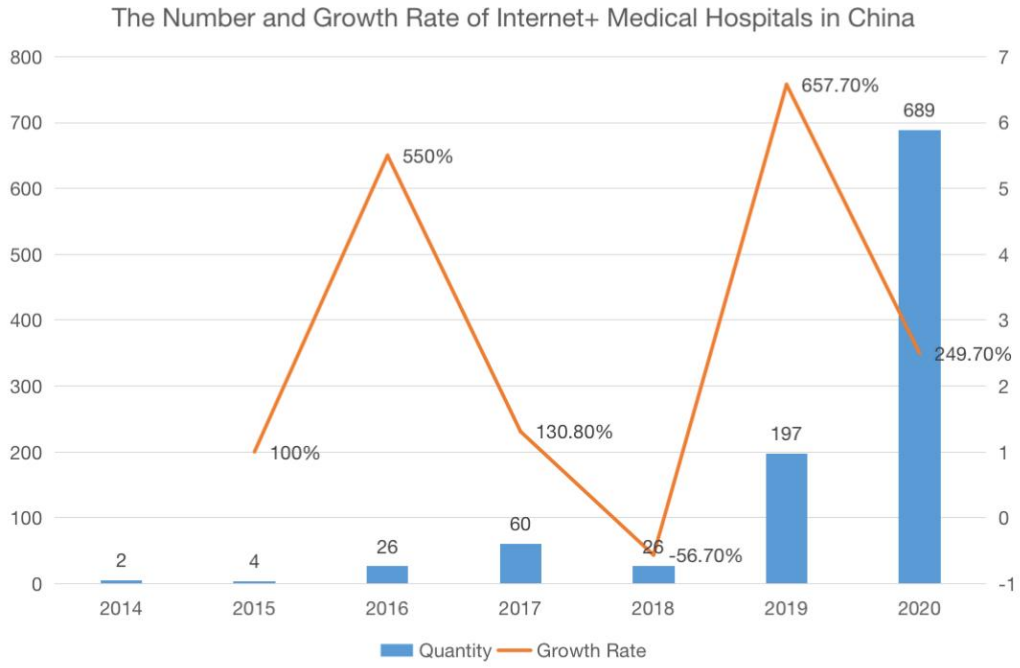

Figure 1.3 The Number and Growth Rate of Internet+ Medical Hospitals in China

Although a report from Seagate shows that biomedical data is the fastest-growing big data, there are still numerous issues behind the standardized collection, sharing, and processing of massive amounts of data. Cao et al. (2022) noted the current threats to the online health community in China: The supervision of the government tends to lag behind the changes in

Internet+ Medical treatment, so the emerging industry lacks comprehensive and effective supervision; The concept of most patients has not been completely changed due to the influence of traditional medical treatment idea; With the increasing market demand, both tech giants and large hospitals have joined the highly competitive market, which may bring incremental pressure on small and medium-sized companies. As a matter of fact, there are still other several challenges in the development of China's Internet+ Medical industry: 1) The supervision system of medical quality is imperfect; 2) Telemedicine exists medical risks and threats to patient safety; 3) The phenomenon of scarce high-quality medical resources cannot be eliminated; 4) User privacy security; 5) Fragmentation of medical data; 6) Barriers to information exchange; 7) No unified standard for service price; 8) Failure to fully access medical insurance payment; 9) Fairness and effectiveness of medical services; 10) Limitations of service scope; 11) Doctor-patient trust; 12) Date leakage(Li & Wang, 2020; Zhang et al., 2020; Lv, 2021; Z. Cao et al. 2022).

However, despite the rapid development of this industry, there are few literature studies on patients' use of Internet+ Medical services, especially those based on the UTAUT2 theory.

1.2 Research Objectives

For patients, the use of Internet+ Medical services and products directly depends on their intention to use. Therefore, it is crucial to identify the elements that have an impact on patient's willingness to utilize the Internet+ Medical technology. However, there are few literature studies on patients' use of Internet+ Medical services, notably those based on the UTAUT2 theory. This thesis attempts to offer various countermeasures for the advancement of the Internet+ Medical industry for many participants, such as hospitals, mobile or healthcare service providers, manufacturers of medical equipment, IT companies, mobile operators, application developers, data firms, and insurance companies, as well as provide data support for the government to formulate relevant regulatory policies.

1.3 Research Questions

The extended model, which was based on the UTAUT2 model, added trust as a new moderating construct. The dissertation aims to enrich the field of research by exploring the

factors influencing Internet users' acceptance of Internet+ Medical technology in China during the COVID-19 pandemic era. It focused on addressing the research questions:

- Whether UTAUT2 model can effectively explain users' behavior of using Internet+ Medical technology among patients?
- What is the relationship between users' intention to use Internet+ Medical services and trust among patients?

1.4 Structure of the Dissertation

The study background, purposes, research questions, and dissertation structure are presented in Chapter 1. It details the definition, development, market size of Internet+ Medical and the impact of COVID-19, and policy implications for the industry. By exploring the opportunities and research gap of the Internet+ Medical product in China, the research question was raised.

Chapter 2 sorts out, summarizes and defines the related concepts of the UTAUT2 model and trust by referring to the mature research models and theories proposed by previous scholars. The conceptual model pointed out in this research retains the original seven variables of the UTAUT which are performance expectancy, effort expectancy, social influence, facilitating conditions, price value, habit and behavior intention, and the new construct: trust was added considering the prominent position of trust in the doctor-patient relationship.

Chapter 3 makes a detailed description of measurement scales, participants, scale translation, and data collection. According to the literature and hypothesis model, the specific questions in the measurement scales are defined, and the measurement dimensions are designed. Before the formal investigation, the scale is modified through pre-investigation. In the formal investigation stage, the scope is broadened by using the sampling method.

After receiving and screening the sample, Chapter 4 presents a sample description and a descriptive statistical analysis of the effective sample. Following that, the sample's reliability and validity were evaluated, and the output of the structural equation model was displayed, using the data analysis programs SPSS and AMOS. The chapter's overview of data findings was discussed at the conclusion.

The research findings based on data investigation and analysis are summarized in Chapter 5. At the same time, the study's restrictions and recommendations for further investigation were mentioned. Furthermore, the practical implications and theoretical contribution were discussed as they put forward prospects and suggestions for the development status of Internet+ Medical.

2. Literature Review, Research Hypotheses & Conceptual Model

This chapter summarizes and defines the related concepts of the UTAUT2 model and trust by referring to the mature research models and theories proposed by previous scholars. The conceptual model that this dissertation proposes retains the original seven constructs from the UTAUT model which are performance expectancy, effort expectancy, social influence, facilitating conditions, price value, habit, and behavior intention, and adds trust as a new construct, considering the important position of trust in the doctor-patient relationship and the differences in individuals' willingness to try the technology.

2.1 Internet+ Medical

In exploring the factors affecting the use of the Internet+ Medical service, Fan et al. (2021) selected a part of permanent residents of Yantai City in China as the survey object and results revealed that gender, occupation, and electronic literacy all significantly influence the use; Among the residents who have used the service before, women accounted for 56.9%, slightly higher than men; The utilization rate of enterprises, institutions, and self-employed individuals is higher than people in other occupations. When using the cross-section method to investigate the variables affecting the use of Internet+ Medical products by middle-aged and elderly patients with chronic diseases, Yuan et al. (2021) found that up to 72.0% of the 250 participants were willing to use Internet medicine; The main influencing factors were gender, age, income, COVID-19, electronic literacy, knowledge of Internet and treatment effect.

Based on the Innovation Diffusion Theory (IDT), Li (2018) verified that the relative superiority, compatibility, simplicity, and distinctness of innovation results of the Internet+ Medical platform are positively correlated with the acceptance of service through the sampling method. The effectiveness of consultation and diagnosis is enhanced through online doctor-patient communication. It not only meets the basic needs of patients for consultation but also offsets the problems of insufficient disease information disclosure from offline patients and insufficient emotional care of patients, which strengthens the sense of experience and meets personalized needs. Through a thorough and detailed survey of doctors and patients, based on the core responsibilities of patients and doctors, as well as the extent of patient

participation, Cao (2021) classified four distinct types of online doctor-patient communication and he found that the main mechanisms that lead to differences in consultation results depend on the patient's expectations, the doctor's modifications, technical authorization and the Internet condition, and that might contribute to variation in the behavior of patients, health improvement degree, the effectiveness of consultations, and the satisfaction of patients.

According to the Three Helix Structure Theory, Wang & Zhang (2022) proposed the Four Helix Structure of the Internet+ Medical industry, which is composed of medical institutions, government, enterprises, and universities, and defines the duties of all participants to realize the sharing of resources. Wei et al. (2021) suggested that tiered medical services combining online and offline should be established to increase the accessibility of diagnosis and treatment and lower the operating expense of the whole medical system, to alleviate the uneven distribution of medical resources and the shortage of some poor areas in China; Given the low coverage of medical insurance, the government should include chronic disease treatment on medical insurance list and set the General Practice department as the first consulting room; As the main provider of Internet+ Medical services, colleges should strengthen the training of general practitioners.

2.2 Unified Theory of Acceptance and Use of Technology II (UTAUT2)

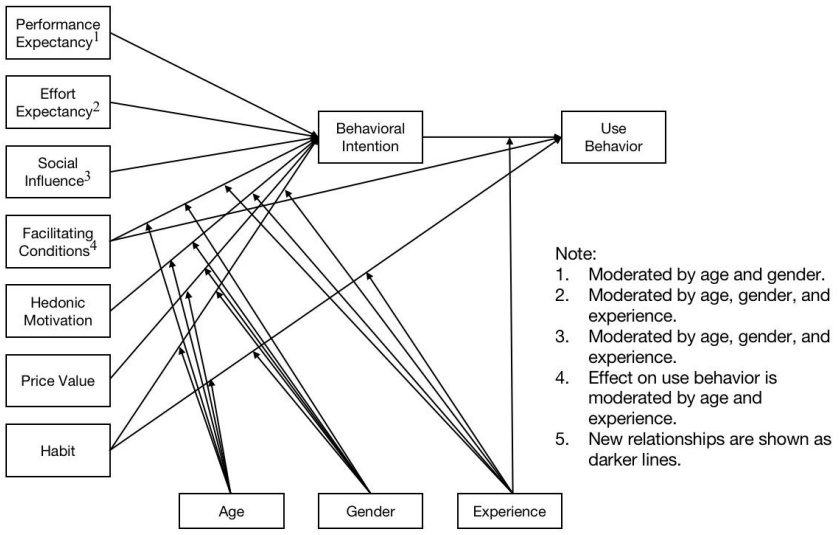

Figure 2.1 Unified Theory of Acceptance and Use of Technology II (UTAUT2) Model

With the continuous development of technology, people often contact or accept new technology in life, but people's adoption of new services or products is affected by distinct factors (Huang & Gan, 2017). Venkatesh et al. (2003) eliminated structural redundancies stemming from previous research and developed the Unified Theory of Acceptance and Use of Technology (UTAUT) model. It is developed in the organizational environment and pays attention to the practical value (extrinsic motivation) of users (Tamilmani et al., 2021). Since Venkatesh et al. (2003) proposed this theory, numerous academics have applied it, for instance in explaining the behavioral intention of technical products related to smartphones (Araújo Vila et al., 2021). The model includes four main constructs: 1) Performance Expectancy, which is regarded as "the degree to which using a technology will provide benefits to consumers in performing certain activities"; 2) Effort Expectancy, which is regarded as "the degree of ease associated with consumers' use of technology"; 3) Facilitating conditions, which means "consumers' perceptions of the resources and support available to perform a behavior"; 4) Social influence, which is defined as "the extent to which consumers perceive that important others believe they should use a particular technology" (Brown et al., 2005; Venkatesh et al., 2003, 2016; Chang, 2012). Behavioral intention means "the degree to which user's motivations intend to accept and use the system" (Fishbein et al., 1975).

Although UTAUT has been widely accepted, the basic framework was expanded by Venkatesh et al. (2012) to the customers' context (Tamilmani et al., 2021). Hedonic motivation, price value, and habit are three additional influencing elements that are integrated into the original model, and UTAUT2 emphasizes the inner drive of technology users (Tamilmani et al., 2021; Gansser & Reich, 2021). The price value was regarded as "consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost for using them (Dodds et al. 1991)". It is regarded as a supplement to effort expectancy because it involves investment in time and effort to acquire new technologies (Venkatesh et al., 2012). Consumer purchase decisions will be positively impacted when quality is measured by price value, however, due to budget constraints, this may have an adverse effect on purchase possibilities (Araújo Vila et al., 2021). Habit refers to "a perceptual construct that reflects the results of prior experiences" (Venkatesh et al., 2012). The formation of habit does not need the participation of conscious mental activities because its structure is rooted in personal experience which promotes the consistency of past and present behavior (Gansser & Reich, 2021). It has been illustrated in several studies that habit has a beneficial impact on behavioral intention (Azizi et al., 2020; Araújo Vila et al., 2021).

Venkatesh et al. (2012) noticed that the expansion influencing factors proposed in UTAUT2 had significant differences in behavior intention and use compared with UTAUT and they also concluded that experience, gender, and age all had moderating impacts in the relationship between hedonic motivation and behavior intention.; Age and gender act as moderators on the influence of price value on willingness; Technology use is affected both directly and indirectly by habit, which is moderated by individual differences (Chang, 2012).

When studying farmers' intention to accept IoT (The Internet of things) traceability technology and finding the parameters that affect farmers' willingness to accept, Sun et al. (2021) indicated that performance expectancy, effort expectancy, social influence, personal innovation, and perceived risk all had an impact on their desire to adopt new technologies. Arajo Vila et al. (2021) discovered that performance expectancy has the biggest impact on tourists' buying willingness and positively affects potential tourists when utilizing the UTAUT2 model to analyze tourists buying intentions for thermal suites. Azizi et al. (2020) concluded that performance expectancy, effort expectancy, social influence, facilitating conditions, price value, and habit all positively affect students' willingness to utilize blended learning. The results of a paper investigating the variables that influence the acceptance of mobile banking technology in Jordan showed that effort expectancy, performance expectancy, facilitating conditions, social influence, and trust have a positive influence on the adoption of mobile banking (Gharaibeh et al., 2018).

The variables in this paper are defined as follows: Performance Expectancy means the extent to which adopting Internet+ Medical products or services will bring improvements to patients' health and meet their medical healthcare needs; Effort Expectancy is the level to which users individually consider whether Internet+ Medical technology is effortless to use and quick to master; Social Influence refers to the extent to which patients think that important people surround them consider they ought to try Internet+ Medical technology; Facilitating Conditions is defined as the extent to which users regards that they have the necessary resources and support (for instance, support staff and technical infrastructure) to use Internet+ Medical technology; Habit is regarded as the level to which users have used Internet+ Medical technology regularly in the past; Price Value is regarded as the cognitive judge and weigh between the monetary expense for using Internet+ Medical services or products and the perceived advantages of them. If the level of price value is high, it indicates

that Internet+ Medical Service offers a decent value at the present price and is value for money; Trust is defined as the level to which a patient believes the products or services based on Internet+ Medical are safe, harmless, effective and reliable; The level of motives to accept Internet+ Medical technologies is referred to as behavioral intention.

Thus, the following hypothesis are stated:

Hypothesis 1 (H1): Performance Expectancy is positively related to Behavioral Intention to use Internet+ Medical technology.

Hypothesis 2 (H2): Effort Expectancy is positively related to Behavioral Intention to use Internet+ Medical technology.

Hypothesis 3 (H3): Social Influence is positively related to Behavioral Intention to use Internet+ Medical technology.

Hypothesis 4 (H4): Facilitating Conditions is positively related to Behavioral Intention to use Internet+ Medical technology.

Hypothesis 5 (H5): Price Value is positively related to Behavioral Intention to use Internet+ Medical technology.

Hypothesis 6 (H6): Habit is positively related to Behavioral Intention to use Internet+ Medical technology.

2.3 Trust

According to Alrubaiee & Alkaa'ida (2011), in the medical field, trust is associated with patient safety. As an important concept in the field of medical and health, patient trust refers to patients' fully confidence in doctors or medical institutions in the process of medical treatment, which means patients believe in the professional skills of doctors in diagnosis and treatment and they view doctors are patient-centered, sincere and undefended who can fully

consider the interests of patients and do their best to restore the health of patients (Chen et al., 2017; Liu et al., 2021). Patient trust can be divided into 1) General trust, in a broad sense, is the trust of patients and their families in medical service providers; 2) Interpersonal trust, in a narrow sense, refers to patients' trust in the ability and motivation of specific doctors (Chi et al., 2018; Zhou, 2018). Compared with general trust, interpersonal trust sprang from the direct contact between patients and doctors, while the information contained in general trust is vague and not specific enough to a certain extent, so patients will feel more deeply about interpersonal trust. In the process of establishing and maintaining a doctor-patient relationship, there is a strong mutual influence between general trust and interpersonal trust (Liu et al., 2010). Interpersonal trust needs to be based on general trust, so with the establishment of interpersonal trust, the patient's attitude toward the doctor may change, which will also change the general trust. Patients' trust in doctors is one of the most crucial factors in the doctor-patient relationship.

Although patient trust has been intensively investigated, less focus has been placed on identifying the reasons for patients continue to utilize and convince Internet+ Medical technology, indicating the requirement for more research into the factors that influence trust in these circumstances (Hong et al., 2019). Abdallah et al. (2017) built a conceptual model that incorporates variables from UTAUT2 together with trust and investigated the determinants that drive willingness and acceptance of e-banking in Jordan and they observed that trust had a significantly positive impact on the willingness of consumers. Jiang et al. (2020) found that privacy concerns and social influence will have a significant influence on people's willingness to utilize technology via the intermediary variable of trust. In analyzing what drives Chinese patients' trust in digital health resources Hong et al. (2019) pointed out the importance of patients' trust online since it enhances behavioral intention, suggesting that trust may have a significant effect on consecutive acceptance willingness Internet+ Medical technology.

Consequently, we hypothesize that:

Hypothesis 7a (H7a): Trust moderates the relationship between performance expectancy and behavioral intention of using the Internet+ Medical technology, such that performance

expectancy is more positively related to behavioral intention among users with high levels of trust than those with lower levels of trust.

Hypothesis 7b (H7b): Trust moderates the relationship between effort expectancy and behavioral intention of using the Internet+ Medical technology, such that effort expectancy is more positively related to behavioral intention among users with high levels of trust than those with lower levels of trust.

Hypothesis 7c (H7c): Trust moderates the relationship between social influence and behavioral intention of using the Internet+ Medical technology, such that social influence is more positively related to behavioral intention among users with high levels of trust than those with lower levels of trust.

Hypothesis 7d (H7d): Trust moderates the relationship between facilitating conditions and behavioral intention of using the Internet+ Medical technology, such that facilitating conditions is more positively related to behavioral intention among users with high levels of trust than those with lower levels of trust.

Hypothesis 7e (H7e): Trust moderates the relationship between price value and behavioral intention of using the Internet+ Medical technology, such that price value is more positively related to behavioral intention among users with high levels of trust than those with lower levels of trust.

Hypothesis 7f (H7f): Trust moderates the relationship between habit and behavioral intention of using the Internet+ Medical technology, such that habit is more positively related to behavioral intention among users with high levels of trust than those with lower levels of trust.

2.4 Conceptual Model

In this conceptual model, performance expectancy, effort expectancy, social influence, facilitating conditions, habit, and price value will have an effect on users' behavioral intention to accept and utilize Internet+ Medical technology. Moreover, the influence of performance

expectancy, effort expectancy, social influence, facilitating conditions, habit, and price value on behavioral intention will be moderated by trust.

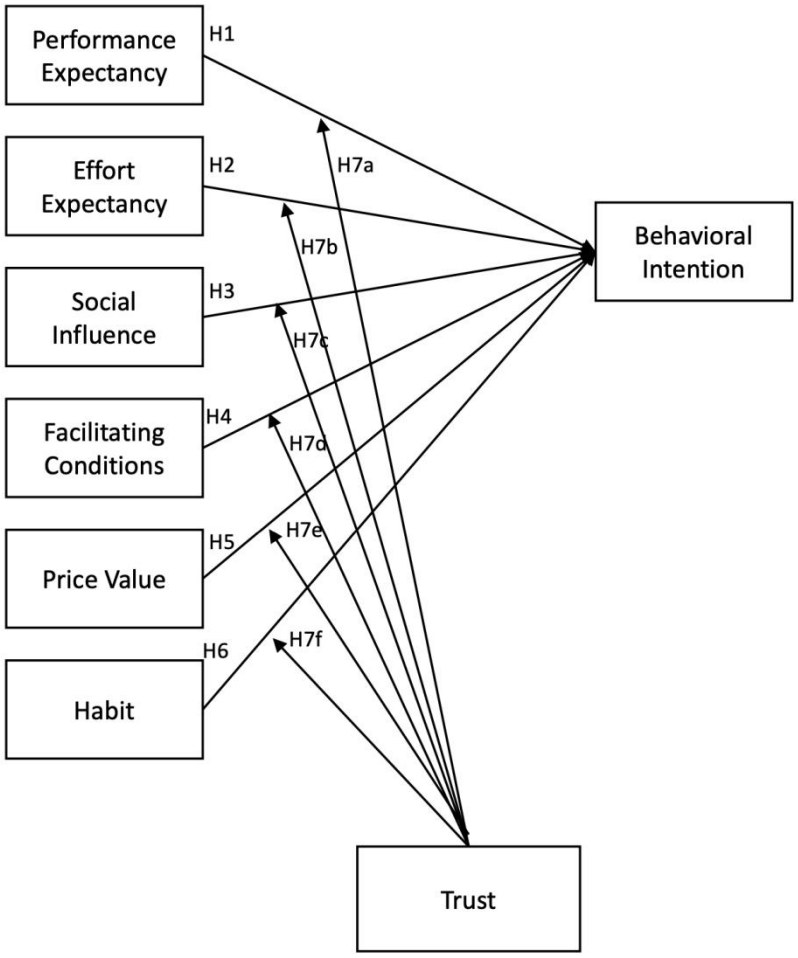

Figure 2.2 Research Model

3. Methodology

3.1 Process of Data Collection

The survey questionnaire was targeted at China's COVID-19 Internet+ Medical technology users. The quantitative method is implemented in the analysis. With the aims of obtaining the necessary data for statistical analysis, convenient sampling and snowball sampling were applied. The questionnaire was released on the investigating website named “Wenjuanxing”. The objectives of the survey were briefly explained at the beginning and the anonymity and privacy of the respondents were guaranteed. A QR code or link to the survey was shared across various online social media and messaging platforms including Wechat, Weibo, Douban, and Xiaohongshu, for individuals who volunteered to respond. Before distribution, the questionnaire was pretested on ten participants. Subsequently, some items were redrafted to improve clarity. The data were collected from the 24th of June until the 17th of July in 2022 and no incentives were provided in exchange for participation. In the end, 331 respondents completed the questionnaire. After collection, the data was transferred to the statistical software SPSS 23 to be adjusted. In this survey, data screening mainly includes the following four steps: 1) Exclude the people who have never used Internet+ Medical technology. 2) Remove the data with the same answer. 3) The respondents who answered one or both attention check questions incorrectly were eliminated. 4) Filter out people who take too long (over one thousand seconds). After screening, 72 (21.75%) questionnaires were invalid and 259 (78.25%) valid samples were finally obtained. The software AMOS 23.0 and SPSS Statistics 23.0 were performed to analyze the data.

3.2 Scale Translation and Adjustments

The initial English-language questionnaire was reviewed for material accuracy by several bilingual people. The questionnaire was initially translated from its original English version into Chinese given that Chinese is the primary language spoken by citizens in China and it was conducted in China. After analyzing and adjusting some wording, it was then converted again into English to ensure that the translation was equivalent. Since the target population of UTAUT2 was the present individuals who used Internet+ Medical technology and this questionnaire was conducted in China, some adjustments need to be made in each item and

translation. For example, “mobile Internet technology” was altered to “Internet+ Medical technology”. A group of ten respondents was asked to participate in a pilot survey of the scales and it was found that the scales were valid and credible.

3.3 Participants

Use of Internet+ Medical in a patient setting is a decision taken voluntarily. The target is the users of Internet+ Medical technology and they were provided a link to the online questionnaires via a professional platform named "Wenjuanxing". The data excluded any respondents who had no previous experience with Internet+ Medical since only existing Internet+ Medical users were able to provide answers to questions concerning habit, and the respondents who answered one or both attention check questions incorrectly were eliminated in addition. Completed 331 questionnaires were collected, leaving a final sample of 259 Internet+ Medical technology users.

3.4 Measurement Scales

The questionnaire's parameters could include the nine components listed below: (1) performance expectancy; (2) effort expectancy; (3) social influence; (4) facilitating conditions; (5) price value; (6) habit; (7) behavioral intention; (8) trust; (9) demographic characteristics. The scales for the UTAUT variables were rearranged from Venkatesh et al. (2003). The scale of price value was stem from Dodds et al. (1991), the habit scale was adjusted from Limayem and Hirt (2003) and the scale of trust was rearranged from Gefen et al. (2003). The parts from (1) to (8) were measured by three to five items. The questionnaire began with a list of thirteen common Internet+ Medical services and products in China. It was provided for respondents to choose from, and they were asked to add others if those were not mentioned on the list. The specific items from each part are summarized in the tables.

3.4.1 Performance Expectancy (PE)

The performance expectancy was measured with four-item (For example: “Using Internet+ Medical technology can satisfy my medical healthcare needs.”), which were rearranged from Venkatesh et al. (2003). The scale's anchors were from "strongly disagree" to "strongly agree",

and it was scored on the Likert scale with five-point. The KMO of performance expectancy was .672, the Bartlett's Bartlett test's $p < .001$, and Cronbach's α of performance expectancy was .628. Appendixes A-3 showed the component of performance expectancy which was made up of four items containing PE1, PE2, PE3, and PE4. Since Cronbach's α of PE is less than 0.7, it is necessary to eliminate the item with the smaller amount of extraction in the common factor analysis of variance to increase Cronbach's α. After removing the PE1 item, the value of Cronbach's α raised from .628 to .667.

3.4.2 Effort Expectancy (EE)

The effort expectancy was measured with four-item (For example: "It is easy for me to become skillful at using Internet+ Medical technology."), which were drawn from Venkatesh et al. (2003). The scale's anchors were from "strongly disagree" to "strongly agree", and it was scored on the Likert scale with five-point. The KMO of effort expectancy was .809, and the Bartlett's Bartlett test's $p < .001$, implying that PCA and factor analysis were effective for effort expectancy. The internal consistency measured by Cronbach's α was good, at .847. The effort expectancy items were displayed in Appendices A-3 contain EE1, EE2, EE3, and EE4.

3.4.3 Social Influence (SI)

The social influence was measured with four-item (For example: "People who influence my behavior think that I should use Internet+ Medical technology."), which were drawn from Venkatesh et al. (2003). The scale's anchors were from "strongly disagree" to "strongly agree", and it was scored on the Likert scale with five-point. The KMO of social influence was .702, and the Bartlett's Bartlett test's $p < .001$, implying that PCA and factor analysis were effective for social influence. The internal consistency measured by Cronbach's α was good, at .844. Appendixes A-3 showed the four items of performance expectancy which consisted of SI1, SI2, and SI3.

3.4.4 Facilitating Conditions (FC)

The facilitating conditions was measured with four-item (For example: "I have the knowledge necessary to use Internet+ Medical technology."), which were rearranged from Venkatesh et

al. (2003). The scale's anchors were from "strongly disagree" to "strongly agree", and it was scored on the Likert scale with five-point. The KMO of facilitating conditions was .759, and the Bartlett's Bartlett test's $p < .001$, implying that PCA and factor analysis were effective for facilitating conditions. The internal consistency measured by Cronbach's α was good, at .792. The items of facilitating conditions were displayed in Appendices A-3 containing FC1, FC2, FC3, and FC4.

3.4.5 Price Value (PV)

The price value was measured with three-item (For example: "Internet+ Medical technology is reasonably priced."), which were drawn from Dodds et al. (1991). The scale's anchors were from "strongly disagree" to "strongly agree", and it was scored on the Likert scale with five-point. The KMO of price value was .578, and the Bartlett's Bartlett test's $p < .001$. The internal consistency measured by Cronbach's α was good, at .748. Appendixes A-3 showed the component of facilitating conditions. The items of price value were displayed in Appendices A-3 contain PV1, PV2, and PV3.

3.4.6 Habit (HB)

The habit was measured with four-item (For example: "When I encounter health problems, I am used to using Internet+ Medical technology for treatment."), which were adapted from Limayem and Hirt (2003). The scale's anchors were from "strongly disagree" to "strongly agree", and it was scored on the Likert scale with five-point. The KMO of habit was .818, and the Bartlett's Bartlett test's $p < .001$, implying that PCA and factor analysis were effective for habit. The internal consistency measured by Cronbach's α was good, at .862. The items of habit were displayed in Appendices A-3 contain HB1, HB2, HB3, and HB4.

3.4.7 Trust (TR)

Trust was measured with five-item (For example: "I believe that Internet+ Medical technology is trustworthy."), which were rearranged from Gefen et al. (2003). The scale's anchors were from "strongly disagree" to "strongly agree", and it was scored on the Likert scale with five-point. The KMO of trust was .813, and the Bartlett's Bartlett test's $p < .001$,

implying that PCA and factor analysis were effective for trust. The internal consistency measured by Cronbach's α was good, at .784. The items of trust were displayed in Appendices A-3 contain TR1, TR2, TR3, TR4, and TR5.

3.4.8 Behavioral Intention (BI)

The behavioral intention was measured with three-item (For example: “I plan to continue to use Internet+ Medical technology frequently.”), which were rearranged from Venkatesh et al. (2003). The scale's anchors were from "strongly disagree" to "strongly agree", and it was scored on the Likert scale with five-point. The KMO of behavioral intention was .813, and the Bartlett’s Bartlett test’s $p < .001$, implying that PCA and factor analysis were effective for behavioral intention. The internal consistency measured by Cronbach's α was good, at .804. The items of behavioral intention were displayed in Appendices A-3 contain BI1, BI2, and BI3.

3.4.9 Demographic Characteristics

In this research, demographic profiles on education level, gender, age, monthly income, and city were gathered. Furthermore, health status and Internet experience had been collected. A 0 or 1 dummy variable, with 1 standing for "female," was used to code gender. Age is categorized into four ranges and is expressed in years. Education level was divided into four ranges, from “primary school” to “master's degree and above”. There were six categories for monthly income according to the living standard of urban residents in China, with yuan as the unit. For Internet experience, the five-point scale's anchors varied from "never" to "many times per day".

3.5 Date Analysis

The IBM SPSS Statistics 23.0 program was conducted to examine the data. To study the sample's demographics and other variables, descriptive statistics were performed. The research conducted correlation analysis to determine the relationship between various factors. The Kruskal-Wallis Test was performed for variance analysis since the sample data had an

abnormal distribution. The AMOS software and the Structural Equation Modeling (SEM) method are utilized for data processing and analysis.

4. Results

4.1 Descriptive Statistics

The sample collection time was from the 24th of June until the 17th of July in 2022, and 331 respondents completed the questionnaire. After excluding invalid questionnaires, 72 (21.75%) questionnaires were invalid, leaving 259 (78.25%) effective samples. Table 4.1 represented the demographic profile, in which males (46.7%) and females (53.3%) were about the same proportion. Considering age, the majority of the respondents were aged 25-34, accounting for 68.7%, and the respondents were 29.7 years old on average. Regarding the education level, a bachelor/college degree or above accounted for 66.4%, and nearly 30% had a master's degree or above. The majority of them (91.9%) used the Internet frequently in their daily life. Besides, more than half of the participants (68.7%) were in health status, and 64.9% of them lived in first-tier cities. Further, the monthly income (after tax) was mainly 5000 yuan to 20000 yuan (61.4%). 29.8% of the valid data had a monthly income of less than 5000 yuan and 8.9% had an income above 20000 yuan. Therefore, the portrait of this sample was a male or female who was nearly 30 years old, well-educated, middle-income, in health status, had rich experience in the Internet, and lived in a large city.

Table 4.1 Sample Profile of Internet+ Medical Technology Users (n = 259)

Parameters	**N (%)**
Gender	
Male	121 (46.7)
Female	138 (53.3)
Age	
≤ 21	45 (17.4)
22-29	178 (68.7)
30-50	33 (12.7)
> 50	3 (1.2)
Education Level	
High school degree or below	8 (3.1)

College / Bachelor degree	172 (66.4)
Master degree or above	79 (30.5)
Monthly Income After Tax	
Below 2000 yuan	46 (17.8)
2000-5000 yuan	31 (12.0)
5000-8000 yuan	53 (20.5)
8000-10000 yuan	48 (18.5)
100000-20000 yuan	58 (22.4)
Above 20000 yuan	23 (8.9)
Frequency of Use of the Internet	
Frequent	238 (91.9)
Occasional	21 (8.1)
Health Status	
Healthy	178 (68.7)
Sub-healthy	79 (30.5)
Disease status	2 (.8)
City of Residence	
First-tier cities	168 (64.9)
Other cities	91 (35.1)

4.2 Variance Analysis

Since the sample data was abnormal distribution, the Kruskal-Wallis Test was used for variance analysis. The effort expectancy was significantly different in terms of age ($p = .009$), education level ($p = .001$) and the city they lived in ($p = .024$). In terms of effort expectancy, the four age groups demonstrated significant differences (Age $\leq$ 21, Mean Rank = 114.84; Age 22-29, Mean Rank = 139.44; Age 30-50, Mean Rank = 106.83; Age > 50, Mean Rank = 52.17). Participants with a master's degree or above (Mean Rank = 149.24) scored significantly higher in price value than those with a bachelor's / college degree (Mean Rank = 124.58) and a high school degree or below (Mean Rank = 56.63). It turned out that the effort

expectancy scores of respondents who lived in first-tier cities (Mean Rank = 116.02) were significantly higher than those in other cities (Mean Rank = 137.57).

Besides, regarding facilitating conditions, significant differences were found in gender (p = .049), age (p = .001), education level (p < .001), and the frequency of use of the Internet (p < .001). Compared to males (Mean Rank = 120.39), females (Mean Rank = 138.43) scored higher in facilitating conditions. Meanwhile, there were significant differences in the degree of facilitating conditions among the four age groups (Age ≤ 21, Mean Rank = 110.01; Age 22-29, Mean Rank = 142.03; Age 30-50, Mean Rank = 95.26; Age > 50, Mean Rank = 98.00). Participants with a master's degree or above (Mean Rank = 155.00) scored significantly higher in facilitating conditions than those with a bachelor's / college degree (Mean Rank = 122.14) and a high school degree or below (Mean Rank = 52.06). The level of facilitating conditions among people who used the Internet frequently (Mean Rank = 135.46) was significantly higher than those who used the Internet occasionally (Mean Rank = 68.07).

In terms of price value, the group of education levels demonstrated a significant difference (p = 0.33). Participants with a master's degree or above (Mean Rank = 138.75) scored significantly higher in price value than those with a bachelor's / college degree (Mean Rank = 128.83) and a high school degree or below (Mean Rank = 68.75). Additionally, there was a significant variation in behavioral intention (p = 0.46) between the two groups living in cities of different sized. The behavioral intention scores of respondents who lived in first-tier cities (Mean Rank = 136.65) were significantly higher than those in other cities (Mean Rank = 117.71).

4.3 Correlation Analysis

The Spearman correlation coefficients between the fifteen components were presented in Table 4.2. It was observed that performance expectancy, effort expectancy, social influence, facilitating conditions, price value, habit, trust, and behavioral intention were all significantly positively correlated with each other. In addition, the correlation between behavioral intention and performance expectancy (r = .295, p < .001), effort expectancy (r = .359, p < .001), social influence (r = .341, p < .001), facilitating conditions (r = .426, p < .001), price value (r = .393, p < .001), habit (r = .611, p < .001) and trust (r = .252, p < .001) were positive. The

correlation value between behavioral intention and habit was the highest. In order to evaluate for multicollinearity, the variance inflation factors (VIFs), which had a range of 1.031 to 2.236, were computed. It was suggested that multicollinearity was not the main problem as the value of VIF was less than the conservative threshold of 5.

Moreover, the descriptive statistical analysis result for constructs are shown in Table 4.2. Among these variables, facilitating conditions received the highest scores (mean = 3.97), indicating that most respondents had the necessary information and resources to access the technology of Internet+ Medical and Internet+ Medical technology itself is compatible with other technologies they used. When they encounter difficulties in use, they usually get help from others. In terms of performance expectancy, its average value was 3.54 and the score is lower than effort expectancy (mean = 3.86), as most people think that there is no great difficulty in using this technology, but the performance of the technology is only slightly effective. The level of social influence is rather low for the participants (mean = 3.27), suggesting the people who were important or influential to them had little impact on their use of Internet+ Medical technology. Regarding price value, the mean of it was 3.53 which implies the price of Internet+ Medical technology is not completely equivalent to its value. The scores for habit (mean = 3.38) and trust (mean = 3.28) were relatively low among these variables. The mean value of behavioral intention was 3.70, this indicates that respondents have a relatively high willingness to use Internet+ Medical technology in the future.

Table 4.2 Descriptive Statistics and Spearman Correlations Analysis (n = 259)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Gender	/	/	1.000														
Age	/	/	-.126*	1.000													
Education Level	/	/	.164**	.066	1.000												
Monthly Income	/	/	-.251**	.425**	.179**	1.000											
Frequency of Use of the Internet	/	/	-.034	-.008	-.040	.069	1.000										
Health Status	/	/	.135*	.074	-.026	-.015	-.049	1.000									
City of Residence	/	/	.187**	-.302**	-.071	-.282**	.048	.028	1.000								
Performance Expectancy	3.54	0.63	-.054	-.034	-.009	-.009	.060	-.046	-.062	(.667)							
Effort Expectancy	3.86	0.60	.070	-.029	.209**	.048	-.080	-.002	-.141*	.303**	(.847)						
Social Influence	3.27	0.71	-.070	-.021	.001	-.043	.038	-.017	-.070	.442**	.348**	(.844)					
Facilitating Conditions	3.97	0.567	.123*	-.028	.260**	.048	-.251**	.023	-.015	.263**	.506**	.199**	(.792)				
Price Value	3.53	0.58	.055	-.048	.112	-.103	-.079	-.032	-.058	.408**	.393**	.465**	.463**	(.748)			
Habit	3.38	0.75	.063	-.073	.059	-.017	-.090	-.004	-.032	.372**	.425**	.481**	.363**	.484**	(.862)		
Behavioral Intention	3.70	0.47	.055	.086	.106	.054	-.015	.009	-.124*	.295**	.359**	.341**	.426**	.393**	.611**	(.804)	
Trust	3.28	0.59	.054	-.081	-.034	-.139*	-.021	-.021	-.077	.393**	.226**	.426**	.178**	.443**	.443**	.252**	(.784)

Notes.

*. Correlation is significant at the 0.05 level (2-tailed).

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

The value in parentheses is Cronbach's α of the corresponding variable.

The average values are all between 1 and 5.

4.4 Structural Equation Model (SEM)

4.4.1 Model Fit.

The Structural Equation Modeling (SEM) method using the AMOS platform was performed for data processing and analysis in this research. In Figure 4.1, the structural equation model is presented, which was used to test H1, H2, H3, H4, H5, and H6. As shown in Table 4.3, the fitting data were satisfactory after deleting FC4 and HB4. According the index, the model has an adequate fit ($\chi 2$ = 360.122, $\chi 2$/df = 1.916, p < 0.001, IFI = .936, CFI = .935, TLI = .920, RMSEA = .060) (Hair et al., 2014). The value of RMR is .028, which is less than.050; TLI, IFI, and CFI all have values higher than 0.9; GFI, AGFI, NFI, and RFI all have values larger than 0.8, meanwhile, PGFI, PNFI, and PCFI all have values greater than 0.6, and the RMSEA value is 0.06, which is less than 0.08.

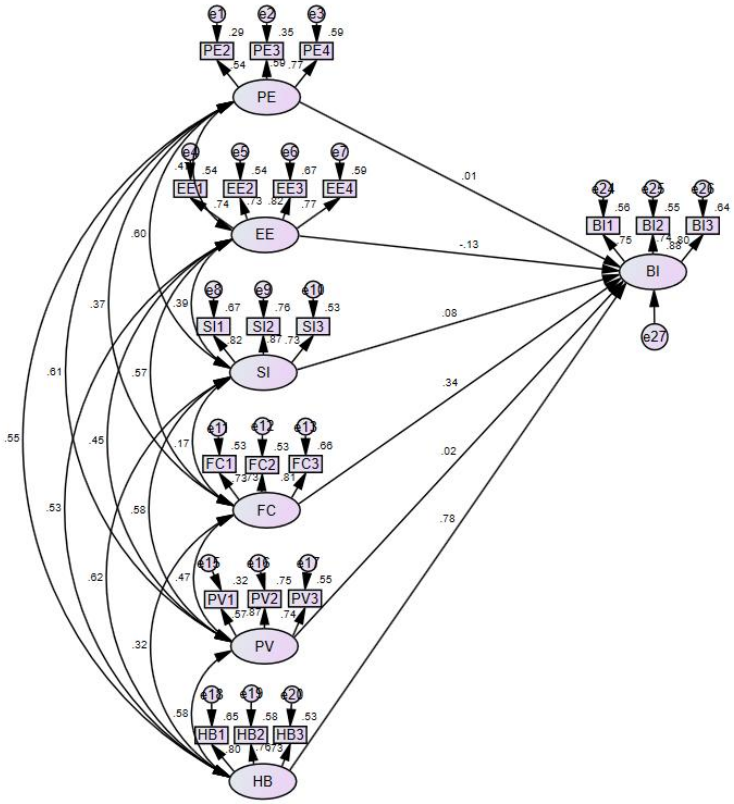

Figure 4.1 SEM Result of Research Model

Table 4.3 Model Fit

Index	Receiving Range	Optimal Range	Value	Results
CMIN	as small as possible	as small as possible	360.122	Accept
CMIN/DF	< 5	1 ~ 3	1.916	Accept
RMR	< 0.05	< 0.05	.028	Accept
GFI	[0.7 ~ 0.9]	> 0.9	.893	Accept
AGFI	[0.7 ~ 0.9]	> 0.9	.856	Accept
NFI	[0.7 ~ 0.9]	> 0.9	.875	Accept
IFI	[0.7 ~ 0.9]	> 0.9	.936	Accept
RFI	[0.7 ~ 0.9]	> 0.9	.847	Accept
TLI	[0.7 ~ 0.9]	> 0.9	.920	Accept
CFI	[0.7 ~ 0.9]	> 0.9	.935	Accept
PGFI	> 0.5	> 0.5	.664	Accept
PNFI	> 0.5	> 0.5	.712	Accept
PCFI	> 0.5	> 0.5	.761	Accept
RMSEA	< 0.10	< 0.05	.060	Accept

4.4.2 Model Testing Based on UTAUT2

It can be concluded from Table 4.4 that four-hypothesis based on UTAUT2 model have been verified. H4 is supported since the data indicates that facilitating conditions has a positive impact on behavioral intention ($\beta = .342$, $p < 0.001$). In this research, the impact of users' habits was the highest among the seven constructs. As it shows that habit has the greatest positive effect on behavioral intention ($\beta = .779$, $p < 0.001$) therefore it supports H6. Consequently, according to the results obtained, it can reach the conclusion that the model could partly be competent in explaining users' intention to use Internet+ Medical technology. These findings indicated that improving facilitating conditions and forming habits are crucial to the intention of people to use Internet+ Medical technology.

Table 4.4 Model Testing Result Based on UTAUT2

Hypothesis	Path	Estimate (Standardized)	S.E.	C.R.	P	Results
H4	FC→BI	.342	.082	3.951	***	Accept
H6	HB→BI	.779	.069	7.566	***	Accept
H2	EE→BI	-.125	.080	-1.563	.118	Reject
H1	PE→BI	.012	.103	.131	.896	Reject
H3	SI→BI	.084	.058	1.027	.305	Reject
H5	PV→BI	.016	.109	.183	.855	Reject

4.4.3 Moderating Effect Testing

Following the recommendation by Wen et al. (2005), the method was to create interaction items generated by trust and other variables, respectively. The significance test results of interaction items would determine whether the trust had moderating effects. The moderating effect of trust is proven to be significant in the path of FC → BI ($\beta = .167$, $p < .05$) and HB→BI ($\beta = .108$, $p < .05$) after studying the moderating role of trust in several paths using the AMOS 23.0 program. As a result, H7d and H7f were supported. The result of H7d shows that when people consider that they have the information and support needed to utilize Internet+ Medical technology and they trust in the service based on Internet+ Medical technology, the possibility of adopting the Internet+ Medical technology will be higher compared with users with low trust. Additionally, H7f illustrates that if people used Internet+ Medical technology regularly in the past and they trust the service based on Internet+ Medical, their intention of them to use the Internet+ Medical technology will be stronger than those with low trust.

However, there was no significant moderating effect from the trust ($p > .05$) in the path of PE → BI, EE → BI, SI → BI, and PV → BI. Therefore, H7a, H7b, H7c, and H7e are rejected. The findings of the moderating effect test were summarized below in Table 4.5.

Table 4.5 Moderating Effect Testing (trust)

Hypothesis	Path	Estimate (Standardized)	S.E. (Interactive items)	C.R. (Interactive items)	P (Interactive items)	Results
H7d	FC→BI	.167	.092	2.605	.009	Accept
H7f	HB→BI	.108	.035	2.304	.021	Accept
H7a	PE→BI	.012	.001	.833	.405	Reject
H7b	EE→BI	.100	.142	1.472	.141	Reject
H7c	SI→BI	.001	.015	.030	.976	Reject
H7e	PV→BI	.089	.052	1.207	.228	Reject

5. Discussion and Conclusion

5.1 Main Findings and Conclusion

Under the COVID-19 pandemic, the Chinese government has introduced relevant policies to vigorously support the use of Internet+ Medical, which has considerably enhanced the growth of the Internet+ Medical industry in China. There are many existing good theories to explain people's behavior worldwide, which are widely used by western scholars. In terms of UTAUT2, it is rarely targeted in the area of Internet+ Medical technology though it is widely used. Particularly, it is uncertain whether this concept has good applicability applied in China. Thus, the purposes of this dissertation are to explore the applicability of the UTAUT2 extended model and identify the main driving factors influencing the patient's willingness to accept Internet+ Medical technology in the COVID-19 period. Further, this research intends to fill the blank in an area that has been neglected.

Compared with the previous literature, this thesis proposes a more comprehensive framework to explain users' behavioral intentions. The model includes seven original variables of UTAUT2 and an additional construct. To achieve the aims of this study, questionnaires were distributed in China, and data were collected from 259 people. Through structural equation verification, the conceptual framework proposed in this study shows that facilitating conditions, habit, trust, and behavior intention are maintained in the structure. In addition, the factor loadings of PE1 were only .462, indicating that the validity of the item is not ideal, and it should be removed. It can be seen that under the influence of China's cultural background, the reliability and applicability of UTAUT2 may still have some problems. This can be the result of variations in language and culture. On the other hand, after deleting FC4 and HB4, a good overall fitting result is obtained demonstrating the internal consistency and good structural validity of the research model. In summary, the findings of this research offer preliminary evidence for the model as a reliable tool to explain the predictors of Chinese users' behavioral intentions.

In general, this study verified that facilitating conditions, habit, and trust have a significantly positive effect on the users' willingness to adopt Internet+ Medical technology. The data analysis results showed that four of the hypotheses established according to the literature have

been accepted. For potential users, the driving factors for the future use of Internet+ Medical technology are habit and facilitating conditions in order of importance. First, the study evaluated that habit is positively related to behavioral intention, which is following the UTAUT2 structure. Additionally, among the six structures, habit has the greatest impact on behavior intention. Hence, encouraging habit formation is more essential than before. Secondly, as another finding of this study, it has been determined that behavioral intention is significantly and positively affected by the facilitating conditions, which also conforms to the UTAUT2 model. Finally, the moderating role of trust on people's intention to utilize Internet+ Medical technology was verified. Specifically, the impact of facilitating conditions and habit on users' behavioral intention is moderated by the trust. The test results revealed that users with various levels of trust differed significantly in their scores for habit and facilitating conditions. In other words, compared with people with low trust, those with higher trust were more willing to accept the products or services. Therefore, considering the hypothesis results, it may be concluded that increasing the degree of facilitating conditions, habit and trust is a particularly crucial and necessary strategy to improve behavior intention.

On the other hand, the research results suggest that other elements including performance expectancy, effort expectancy, social influence, and price value do not significantly have effects on patients' behavioral intentions. In fact, given the conclusion, it suggests a change in consumer perceptions, with patients starting to pay less attention to the cost performance of Internet+ Medical services or products but focusing more on the necessary resources and support when using Internet+ Medical technologies. The second possible explanation is that relatives, friends, and colleagues around the users seldom recommend Internet+ Medical services or products which is not enough to drive them to accept them. Meanwhile, the data results illustrated that among the six variables, performance expectancy and effort expectancy received the second and third-highest scores respectively. However, these two constructs have no significant impact on the use intention. This illustrated that compared with the consumer context in the previous literature, the driving factors of users may have started to change in the Internet+ Medical industry.

5.2 Practical Implications

The results have practical implications for both companies providing Internet+ Medical products or services and the Government medical department. In this study, facilitating conditions and habit positively affect behavioral intention to accept Internet+ Medical technology. Therefore, the government and enterprises can provide more available resources and support for people to use Internet+ Medical products or services. For example, by reducing the price of smartphones to lower the use cost; providing customer service by online guidance or telephone guidance; carrying out the activity to popularize scientific knowledge to let more people know about the new technology; holding various online and face-to-face activities to encourage people to exchange ideas on Internet+ Medical products. Since habit has the strongest influence on behavioral intention, service providers can offer promotional activities to help users form the habit of using the service and the government can vigorously promote the convenience of this technology.

Additionally, it was found that trust has a moderating effect on users' willingness. To be specific, the impact of facilitating conditions and habit on users' behavioral intention is moderated by the trust. This means that the increment in users' trust level will help to enhance their willingness to use Internet+ Medical technology. With the promotion and popularization of Internet+ Medical technology, it can be seen that users' trust is particularly important. Thus, companies should continue to improve network security, protect data privacy and reduce risk, to maximize their willingness to use. Moreover, in terms of risks, government departments should strengthen supervision to prevent accidents such as medical risks, privacy disclosure, and property fraud.

5.3 Limitations and Future Research

Despite making considerable progress toward its study objectives, the study remained had the following limitations. First of all, the majority of the population in this research was collected from large cities, which have considerable geographic restrictions and may not accurately represent the actual circumstances of all users. Future research may sample in a larger scope. For instance, expanding the study area to other regions, industries, or cultures to enhance the representative. Secondly, the scale may not be fully suitable in the Chinese context. In future

studies, more research methods can be developed to improve validity and reliability. In addition, this study only analyzed one new construct "Trust", based on the UTAUT2 model. In the future, the original model can be extended by other new variables which may also have a relationship with the existing constructs. Meanwhile, other models that are more interpretative can also be applied to analyzing users' intentions or behaviors since they may generate new findings and provide additional insights.

5.4 Theoretical Contribution

Based on the UTAUT2, this thesis explored the behavioral intention of Chinese people to use Internet+ Medical technology during the epidemic period. Since the UTAUT2 model theory originated from other countries, the cultural background and the recognition of Internet+ Medical technology were considered in designing the research questionnaire. At the same time, this dissertation enriched the literature on the acceptance of Internet+ Medical technology among Chinese users.

Bibliography

Abdallah, A., Dwivedi, Y. K., & Rana, N. P. (2017). International Journal of Information Management Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, 37(3), 99–110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002

Al-Azzam, M. K., Alazzam, M. B., & Al-Manasra, M. K. (2019). MHealth for decision making support: A case study of EHealth in the public sector. *International Journal of Advanced Computer Science and Applications*, 10(5), 381–387. https://doi.org/10.14569/ijacsa.2019.0100547

Alrubaiee, L., & Alkaa'ida, F. (2011). The Mediating Effect of Patient Satisfaction in the Patients' Perceptions of Healthcare Quality – Patient Trust Relationship. *International Journal of Marketing Studies*, 3(1). https://doi.org/10.5539/ijms.v3n1p103

Araújo Vila, N., Fraiz Brea, J. A., & Pelegrín Borondo, J. (2021). Applying the UTAUT2 model to a non-technological service: The case of spa tourism. *Sustainability (Switzerland)*, 13(2), 1–13. https://doi.org/10.3390/su13020803

Azizi, S. M., Roozbahani, N., & Khatony, A. (2020). Factors affecting the acceptance of blended learning in medical education: application of UTAUT2 model. *BMC Medical Education*, 20(1). https://doi.org/10.1186/s12909-020-02302-2

Brown, S. A., and Venkatesh, V. 2005. "Model of Adoption of Technology in the Household: A Baseline Model Test and Extension Incorporating Household Life Cycle," *MIS Quarterly* (29:4), pp. 399-426.

Cao, B. (2021). Internet-based Medical Treatment: Online Doctor-Patient Communication, Effect, and Influence. *Journal of Shenzhen University*, 38(01), 119–130.

Cao, Z., Cai, J., & Liu, R. (2022). The research on the development of online health communities in China based on SWOT analysis. *Soft Science of Health*, 36(1), 32–35.

Chang, A. (2012). UTAUT and UTAUT 2: A Review and Agenda for Future Research. *The Winners*, 13(2), 106–114. https://doi.org/10.21512/tw.v13i2.656

Chang, Y. T., Chao, C. M., Yu, C. W., & Lin, F. C. (2021). Extending the Utility of UTAUT2 for Hospital Patients' Adoption of Medical Apps: Moderating Effects of e-Health Literacy. *Mobile Information Systems*, 2021. https://doi.org/10.1155/2021/8882317

Chen, W., Bao, Q., Li, X., & Gong, Z. (2017). The Influence of Patient Trust and participation Behavior on Doctor patient Trust. *Medicine and Philosophy*, 38(9A), 21–24.

Chi, S., Chen, C., Wang, X., Liu, M., Chi, I., & Bai, Z. (2018). A systematic review of effectiveness of interventions on patient trust. *Chinese Mental Health Journal*, 32(3), 245–251.

China Internet Network Information Center. (2021). *The 47th China Statistical Report on Internet Development*.

cn-healthcare, & Jingdong Health. (2021). *Internet Doctor's Diagnosis and Treatment Behavior and Happiness Report.*

Dodds, W. B., Monroe, K. B., and Grewal, D. 1991. "Effects of Price, Brand, and Store Information on Buyers," *Journal of Marketing Research* (28:3), pp. 307-319.

Fan, S., Yu, L., Wang, G., Xu, Q., Hou, R., Dou, S., Fang, C., & Han, C. (2021). Analysis of Residents' Use of Internet Medicine and its Influencing Factors. *Health Vocational Education*, 39(10), 125–126.

Fishbein, M., and Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley Publishing Company.

Gansser, O. A., & Reich, C. S. (2021). A new acceptance model for artificial intelligence with extensions to UTAUT2: An empirical study in three segments of application. *Technology in Society*, 65. https://doi.org/10.1016/j.techsoc.2021.101535

Gefen, D., E. Karahanna, and D. W. Straub. 2003. "Trust and TAM in Online Shopping-An Integrated Model". *MIS Quarterly*, 27(1),51-90. https://dl.acm.org/citation.cfm?id = 2017185

Gharaibeh, M. K., Arshad, M. R. M., & Gharaibh, N. K. (2018). Using the UTAUT2 model to determine factors affecting adoption of mobile banking services: A qualitative approach. *International Journal of Interactive Mobile Technologies*, 12(4), 123–134. https://doi.org/10.3991/ijim.v12i4.8525

Hair, J.F, Black, W.C., Babin, B.J., & Anderson, R.E. (2014). *Multivariate data analysis (Seventh edition, Pearson new international edition)*. Harlow, Essex: Pearson Education Limited.

Huang, L., & Gan, Q. (2017). An empirical study of the usage intention to use tourism apps based on a UTAUT model. *Tourism Research*, 9(2), 26–38. http://www.tjyybjb.ac.cn/CN/article/downloadArticleFile.do?attachType = PDF&id = 9987

Hu, X., Fang, H., YuanJianfeng, & Wang, P. (2022). Current situation and analysis of influencing factors of doctors and patients' willingness to use Internet medical. *Chinese Hospitals*, 26(1), 41–43. https://doi.org/10.19660/j.issn.1671-0592.2022.1.13

Hong, Z., Deng, Z., & Zhang, W. (2019). Examining factors affecting patients' trust in online healthcare services in China: The moderating role of the purpose of use. *Health Informatics Journal*, 25(4), 1647–1660. https://doi.org/10.1177/1460458218796660

iResearch. (2020). *China Internet+ Medical Industry Research Report*. https://www.iresearch.cn/include/ajax/user_ajax.ashx?work = idown&rid = 3645

Jiang, Z., Wang, Z., Liu, Z., & Zou, K. (2020). An Empirical Research on Users' Willingness to Use Mobile E-Health Information Service Based on the Extended UTAUT Model. *Library*, 11, 45–46.

Jiang, S., Xie, H., Bei, W., Xu, Y., Sun, X., Xie, Z., & Lu, W. (2021). Current situation and prospect of internet medicine development. *Shanghai Journal of Preventive Medicine*, 33(8), 664–671.

Li, N. (2018). Research on Internet Medicine Based on Innovation Diffusion Theory. *Today's MassMedia*, 5, 80–82.

Li, L., & Wang, Q. (2020). Development of internet-based medical markets. *Modern Hospitals*, 20(11), 1649–1655.

Limayem, M., and Hirt, S. G. 2003. "Force of Habit and Information Systems Usage: Theory and Initial Validation," *Journal of the AIS (4:1)*, pp. 65-97

Liu, W., Guo, Y., & Bao, Y. (2010). Patients' Trust Concept Dimensions and Attributes. *Chinese Medical Ethics*, 23(1), 25–27.

Liu, S., Li, G., Liu, N., & Hongwei, W. (2021). The Impact of Patient Satisfaction on Patient Loyalty with the Mediating Effect of Patient Trust. *Inquiry (United States)*, 58. https://doi.org/10.1177/00469580211007221

Liu, Y., & FAN, P. (2016). Empirical study on user acceptance of IoT application based on UTAUT theory. *Journal of Nanjing University of Posts and Telecommunications (Social Science)*, 18(1), 39–48. https://doi.org/10.14132/j.cnki.nysk.2016.01.007

Lu, N., Xu, W., Du, W., Wang, Y., & Li, Y. (2020). Medical Insurance Payment Policy and Enlightenment of American Internet Medical Service. *Health Economics Research*, 37(10), 37–41. https://doi.org/10.14055/j.cnki.33-1056/f.2020.10.010

Lv, W. (2021). Analysis on the influencing factors of users' usage intention and user behavior patterns in online medical community under COVID-19. *IOP Conference Series: Earth and Environmental Science*, 692(3), 1–12. https://doi.org/10.1088/1755-1315/692/3/032112

Rubí, J. N. S., & Gondim, P. R. de L. (2020). Interoperable Internet of Medical Things platform for e-Health applications. *International Journal of Distributed Sensor Networks*, 16(1). https://doi.org/10.1177/1550147719889591

Shi, T. (2019). Research on Adoption Behavior of Academic Social Networking Sites Based on the UTAUT Model. *New Century Library*, 12, 46–52. https://doi.org/10.16810/j.cnki.1672-514X.2019.12.009

Sun, R., Zhang, S., Wang, T., Hu, J., Ruan, J., & Ruan, J. (2021). Willingness and influencing factors of pig farmers to adopt internet of things technology in food traceability. *Sustainability (Switzerland)*, 13(16). https://doi.org/10.3390/su13168861

Tamilmani, K., Rana, N. P., Wamba, S. F., & Dwivedi, R. (2021). The extended Unified Theory of Acceptance and Use of Technology (UTAUT2): A systematic literature review and theory evaluation. *International Journal of Information Management*, 57. https://doi.org/10.1016/j.ijinfomgt.2020.102269

Vargas, J. R. N. (2020). The COVID-19 pandemic. In Revista Facultad de Medicina (Vol. 68, Issue 1, pp. 7–8). *Universidad Nacional de Colombia*. https://doi.org/10.15446/revfacmed.v68n1.86482

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*: Management Information Systems, 27(3), 425–478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*: Management Information Systems, 36(1), 157–178. https://doi.org/10.2307/41410412

Wang, J., Li, G., Yuan, W., Zenghan, J., & Hu, C. (2022). Construction of Internet Hospital under COVID-19 Epidemic. *Chinese Journal of Social Medicine*, 39(1), 4–6.

Wang, Y., & Zhang, S. (2022). Research on the innovation development of "Internet+" health care industry. *China Collective Economy*, 29(02), 160–161.

Wei, D., Cao, X., Feng, X., & Gu, Y. (2021). Establish an integrated Hierarchical Medical System that combines hospitals and Internet medical treatment. *Chinese Hospitals*, 25(12), 24–26. https://doi.org/10.19660/j.issn.1671-0592.2021.12.08

Wen, Z., Hau, K.-T., & Chang, L. (2005). A comparison of moderator and mediator and their applications. *Acta Psychologica Sinica*, 37(2).

Yuan, J., Xiao, Y., Shi, Z., Liu, X., & Li, G. (2021). Analysis and thinking of telemedicine to better meet the needs of patients with chronic disease. *Chinese Hospitals*, 25(8), 44–47. https://doi.org/10.19660/j.issn.1671-0592.2021.8.14

Zhang, S., Ju, W., & Shen, T. (2020). The Development Prospect of Internet Medicine under the Epidemic Situation. *China Digital Medicine*, 9, 15-17,48. https://doi.org/10.3969/j.issn.1673-7571.2020.09.004

Zhou, K. (2018). Research on the Influencing Factors of Credibility of the Patients Based on Structural Equation Model. *Western Journal of Traditional Chinese Medicine*, 31(8), 44–47.

Zhou, W., Wang, Y., Wan, Q., Gong, W., Zhang, Y., Hou, L., & Shang, S. (2018). Path analysis of the impact of perceived service quality, patient satisfaction and patient trust on patients' behavior intention. *Chinese Journal of Health Statistics*, 35(2), 272–275.

Appendixes

Appendixes A-1

Scale

This questionnaire is used to investigate users' acceptance of Internet+ Medical technology under COVID-19. Please read each of the following sentences carefully and consider whether each of the following descriptions of the ideas in the sentences is consistent with your views.

1. Which of the following Internet+ Medical functions have you used?

□ search for medical information
□ remote consultation
□ electronic prescription
□ consult a doctor online
□ electronic health record / electronic medical record
□ disease risks assessment
□ appointment registration
□ purchase drugs or medical equipment online
□ purchase medical packages online (such as physical examination, medical beauty service, dental treatment, and health insurance)
□ scan code to pay medical expenses
□ make an appointment for door-to-door nursing service
□ search for the official website of the hospital and the introduction of doctors
□ monitor health data
□ other functions
□ I have never used Internet+ Medical technology

2. I find Internet+ Medical technology useful in my daily life.
3. Using Internet+ Medical technology can satisfy my medical healthcare needs.
4. Using Internet+ Medical technology can improve my health.
5. I can get a great medical experience in Internet+ Medical technology.
6. Learning how to use Internet+ Medical technology is easy for me.

7. My interaction with Internet+ Medical technology is clear and understandable.
8. I find Internet+ Medical technology easy to use.
9. It is easy for me to become skillful at using Internet+ Medical technology.
10. People who are important to me think that I should use Internet+ Medical technology.
11. People who influence my behavior think that I should use Internet+ Medical technology.
12. People whose opinions I value prefer that I use Internet+ Medical technology.
13. I have the resources necessary to use Internet+ Medical technology.
14. I have the knowledge necessary to use Internet+ Medical technology.
15. Internet+ Medical technology is compatible with other technologies I use.
16. I can get help from others when I have difficulties using Internet+ Medical technology.
17. Internet+ Medical technology is reasonably priced.
18. Internet+ Medical technology is a good value for the money.
19. At the current price, Internet+ Medical technology provides a good value.
20. The use of Internet+ Medical technology has become a habit for me.
21. I believe that Internet+ Medical technology has become an important tool in my life.
22. When I encounter health problems, I am used to using Internet+ Medical technology for treatment.
23. Using Internet+ Medical technology has become natural to me.
24. I intend to continue using Internet+ Medical technology in the future.
25. I will always try to use Internet+ Medical technology in my daily life.
26. I plan to continue to use Internet+ Medical technology frequently.
27. I believe that Internet+ Medical technology is trustworthy.
28. I do not doubt the honesty of Internet+ Medical technology.
29. I feel assured that legal and technological structures adequately protect me from problems with Internet+ Medical technology.
30. Even if not monitored, I would trust Internet+ Medical technology to do the job right.
31. Internet+ Medical technology has the ability to fulfill its task.

Note.

1. technology use: item 1; performance expectancy: item 2-5; effort expectancy: item 6-9; social influence: item 10-12; facilitating conditions: item 13-16; price value: item 17-19; habit: item 20-23; behavioral intention: item 24-26; trust: item 27-31

2. Measurement scale: item 2-31, 5-point Likert scale ranging from “1 = strongly disagree” to “5 = strongly agree”.

3. Sources: Venkatesh et al., 2012; Gefen et al., 2003; Limayem and Hirt (2003).

Appendixes A-2

关于互联网医疗的调查问卷（在线版）

非常感谢您抽空参与此次的调查，本调查用于研究新冠疫情时期患者对于互联网医疗服务技术的接受。本调查采取不记名形式，您的信息仅用于学术研究，个人信息将绝对保密。请您放心回答，谢谢!

1. 您使用过以下哪些互联网医疗功能？[多选题]

☐医疗资讯查询

☐远程会诊

☐电子处方

☐在线咨询医生

☐电子版健康档案/电子版病历

☐疾病风险数值评估

☐预约挂号

☐网上购买药品或医疗用品（如感冒药、口罩等）

☐线上购买医疗套餐（如体检、医美、口腔和医疗保险等）

☐扫码支付医疗费用

☐预约上门护理服务

☐查询医院官网及医生介绍

☐监控健康数据

☐我从没有使用过互联网医疗的产品与服务

其他功能 _____

2. 请判断句子中的陈述与您的自身观点的符合程度。

序号	题目	1 = 完全不同意— > 5 = 完全同意				
1	互联网医疗对我的日常生活有帮助	1	2	3	4	5
2	互联网医疗可以满足我的医疗健康需求	1	2	3	4	5
3	互联网医疗可以改善我的健康状况	1	2	3	4	5
4	我可以在互联网医疗中获得很好的体验	1	2	3	4	5
5	我可以轻松地学会使用互联网医疗	1	2	3	4	5
6	我接触到的互联网医疗的操作清晰易懂	1	2	3	4	5
7	我觉得互联网医疗很容易使用	1	2	3	4	5
8	我很快就能熟练地使用互联网医疗	1	2	3	4	5
9	对我很重要的人（如，亲戚、朋友、同事）认为我应该使用互联网医疗	1	2	3	4	5
10	那些影响我行为的人（如，亲戚、朋友、同事）认为我应该使用互联网医疗	1	2	3	4	5
11	我重视其观点的人（如，亲戚、朋友、同事）更倾向我使用互联网医疗	1	2	3	4	5
12	我重视其观点的人（如，亲戚、朋友、同事）更倾向我使用互联网医疗	1	2	3	4	5
13	我有使用互联网医疗所需的知识	1	2	3	4	5
14	互联网医疗与我使用的其他技术（如手机系统、其他软件）兼容	1	2	3	4	5
15	如果我使用互联网医疗时遇到困难，我可以从他人那里得到帮助	1	2	3	4	5
16	我认为互联网医疗的价格设置是合理的	1	2	3	4	5
17	互联网医疗是物有所值的	1	2	3	4	5
18	以目前的价格来说，我认为互联网医疗提供了很好的价值（性价比服务）	1	2	3	4	5
19	使用互联网医疗已成为我的习惯	1	2	3	4	5
20	互联网医疗已经成为我生活中的一个重要工具	1	2	3	4	5

21	当我遇到健康问题时，我习惯使用互联网医疗	1	2	3	4	5
22	使用互联网医疗对我来说是一件很自然的事情	1	2	3	4	5
23	我今后会继续使用互联网医疗	1	2	3	4	5
24	我会在日常生活中总是尝试使用互联网医疗	1	2	3	4	5
25	我将继续频繁地使用互联网医疗	1	2	3	4	5
26	我认为互联网医疗是值得信赖的	1	2	3	4	5
27	我认为互联网医疗提供的信息和服务是真实可靠的	1	2	3	4	5
28	我相信，法律和技术可以保护我免受互联网医疗问题的困扰	1	2	3	4	5
29	即使没有有关部门的监管，我也相信互联网医疗可以运营得好	1	2	3	4	5
30	互联网医疗有能力实现其提供的功能	1	2	3	4	5

Appendixes A-3

Rotated Component Matrix for Conceptual Model

item	Component
PE1 I find Internet+ Medical technology useful in my daily life.	.462
PE2 Using Internet+ Medical technology can satisfy my medical healthcare needs.	.724
PE3 Using Internet+ Medical technology can improve my health.	.770
PE4 I can get a great experience in Internet+ Medical technology.	.769
EE1 Learning how to use Internet+ Medical technology is easy for me.	.809
EE2 My interaction with Internet+ Medical technology is clear and understandable.	.809
EE3 I find Internet+ Medical technology easy to use.	.865
EE4 It is easy for me to become skillful at using Internet+ Medical technology.	.830
SI1 People who are important to me think that I should use Internet+ Medical technology.	.875
SI2 People who influence my behavior think that I should use Internet+ Medical technology.	.909
SI3 People whose opinions I value prefer that I use Internet+ Medical technology.	.836
FC1 I have the resources necessary to use Internet+ Medical technology.	.772
FC2 I have the knowledge necessary to use Internet+ Medical technology.	.818
FC3 Internet+ Medical technology is compatible with other technologies I use.	.870
FC4 I can get help from others when I have difficulties using Internet+ Medical technology.	.678
PV1 Internet+ Medical technology is reasonably priced.	.731
PV2 Internet+ Medical technology is a good value for the money.	.908
PV3 At the current price, Internet+ Medical technology provides a good value.	.805
HB1 The use of Internet+ Medical technology has become a habit for me.	.853
HB2 I believe that Internet+ Medical technology has become an important tool in my life.	.814
HB3 When I encounter health problems, I am used to using Internet+ Medical	.833

technology for treatment.	
HB4 Using Internet+ Medical technology has become natural to me.	.883
TR1 I believe that Internet+ Medical technology is trustworthy.	.802
TR2 I do not doubt the honesty of Internet+ Medical technology.	.809
TR3 I feel assured that legal and technological structures adequately protect me from problems on Internet+ Medical technology.	.742
TR4 Even if not monitored, I would trust Internet+ Medical technology to do the job right.	.681
TR5 Internet+ Medical technology has the ability to fulfill its task.	.722
BI1 I intend to continue using Internet+ Medical technology in the future.	.819
BI2 I will always try to use Internet+ Medical technology in my daily life.	.856
BI3 I plan to continue to use Internet+ Medical technology frequently.	.870