Assessment of Public Intention towards Online Medical Consultation using Unified Theory of Acceptance and Use of Technology

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DEDICATION

Dedicated to my loving husband, parents, siblings and respected teachers.

Faiza Khalid

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ABSTRACT

This research study delves into the intricate dynamics surrounding the adoption of Online Medical Consultation (OMC) in the context of Pakistan, utilizing the Unified Theory of Acceptance and Use of Technology (UTAUT) as the theoretical framework. Through an extensive literature review, five critical factors: perceived risk, perceived satisfaction, perceived cost, perceived trust, and self-efficacy were identified as having a substantial relationship with UTAUT across various information technology systems. This study added variables “Perceived Risk”, “Perceived Cost”, “Perceived Satisfaction” and studies their impact on users’ Behavioral Intention (BI) to use such system. Data was collected through random sampling from 978 respondents from Pakistan. Data was analysed through multi-regression analysis. Performance Expectancy proved to be the best predictor of users’ Behavioral Intention, followed by perceived satisfaction, perceived trust, effort expectancy, social influence, perceived cost and self-efficacy. While perceived risk has an insignificant negative effect upon behavioral intention. The study's outcomes improve our knowledge of the variables influencing users’ adoption of OMC.

Keywords: Online Medical Consultation (OMC), Pakistan, UTAUT, Behavioral intention, SPSS.

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Behavioral Intention	BI
Effort Expectancy	EE
OMC	OMC
Perceived Cost	PC
Performance Expectancy	PE
Perceived Risk	PR
Perceived Satisfaction	PS
Perceived Trust	PT
Self-Efficacy	SE
Social Influence	SI
Unified Theory of Acceptance and Use of Technology	UTAUT

CHAPTER 1: INTRODUCTION

This chapter contains the study's rationale, its defined problem, and its stated goals. In addition, the synopsis of the research is also presented.

1.1 Background of the research

Using medical and healthcare services remotely is known as online medical consultation, or OMC. OMC can involve offering follow-up care, education, and consultations in addition to remote diagnosis, treatment, and consultations. OMC is the term for the practice of conducting remote patient-doctor consultations via web-based platforms (Singh et al., 2018). It has a number of benefits, including reduced expenses, ease of use, accessibility, and enhanced privacy and communication (George & Duquenoy, 2008). Although modern technologies can help physicians diagnose patients more accurately when they're far away, they also raise new issues (Adenuga et al., 2017). Medical images and patient data are imported and integrated into consultation reports through online medical consultation systems, which facilitate multi-party consultation over a network. Scholarly publications have discussed the benefits and drawbacks of particular online medical consultation procedures. These services provide a range of interaction modalities for diverse medical consultation purposes, and they are available to users globally. Online medical consultation services are currently available in a variety of models, with varying features and geographic reach.

OMC can be used for a wide range of medical services, such as primary care, mental health care and specialist consultations. (Adenuga et al., 2017) have proposed telemedicine as a potential treatment for a variety of chronic medical conditions, including hypertension, obesity, diabetes, depression, and cancer. OMC can be delivered through various technologies, such as telephone, videoconferencing, and mobile health apps. It allows practitioners to remotely assess, diagnose and treat patients and enable patients to assess medical care from anywhere with an internet connection. Healthcare facilities may be able to provide care more comprehensively and affordably by telemedicine (Whitten et al., 2010). Uniqueness in e-health has been widely viewed as an opportunity for the public

health care system to greatly improve, cushioning the abundant supply and demand for medical treatment in both wealthy and developing countries (Ball & Lillis, 2001; Ludwick & Doucette, 2009). (Gu et al., 2021) mentioned that many developed countries like Germany, US and Canada invest in developing advanced eHealth systems. In developed countries doctors are more likely to use such systems (Hoque et al., 2016), while patients are dubious to use such systems (Hoque et al., 2017).

OMC can be particularly useful for providing access to care in rural or undeserved areas, for people with mobility issues and for those who have difficulty accessing in-person care due to the COVID-19 pandemic or other circumstances. OMC has seen a significant increase in usage during the COVID-19 pandemic. The pandemic has impacted healthcare utilization, leading to a decrease in face-to-face healthcare services and an increase in online consultations (Pan et al., 2023). The use of online health consultation has become more attractive due to its perceived benefits and ease of use, as well as dissatisfaction with offline services (S. Zhang & Ma, 2023). Patients with asthma have also experienced a shift towards remote consultations, with an increase in the proportion of participants reporting remote consultations during the pandemic (Alexandre et al., 2023). Health professionals have demonstrated a favourable approach towards the use of social media for online consultations, indicating its usefulness for patient health and safety (Al-Mansouri & AL-Obaidi, 2022). Overall, the COVID-19 has accelerated the OMC adoption as an alternative to traditional physical healthcare services.

OMC has played a significant role in Pakistan during the COVID-19 pandemic. A study conducted during the peak of the pandemic found that a large number of health consultants reported satisfaction with teleconsultation services and expressed a willingness to continue providing telehealth even after the pandemic (Zahoor et al., 2023). Telehealth initiatives in Pakistan have included teleconsultation and follow-ups, online vaccine registration, information dissemination, high-risk subset tracking, virtual Health Care Worker and medical student training, and tele-psychological counseling (Jabeen & Rabbani, 2023).

There are prospects for OMC to serve as a long-term remedy for the significant disparities in healthcare delivery systems between urban and rural regions of developing nations, such as Pakistan. Given the current state of Pakistan's enhanced telecommunications network, there are numerous chances to expand and fortify OMC projects and interventions aimed at enhancing healthcare system results (Kamal et al., 2018). Country report by (Malik, 2007) shows that Elixir Technologies in Pakistan initiated the concept of OMC in 1998 namely TelMedPak. Pakistan has its 64% population in rural areas (Kamal et al., 2020). According to (Ujan et al., 2019) rural people have to spend much money for transportation for their medical treatments. (Flores et al., 2021) says that in developing countries there is always a lack of facilities and specialists in many areas, especially rural areas. Practice of OMC can bridge this gap by connecting specialists all over the country, using internet and communication technologies (X. Zhang & Zaman, 2020). People residing in various remote regions, telemedicine provides a dependable means of receiving medical consultations, diagnosis, and training. (Kamal et al., 2018). All over the world, the OMC is improving medical facilities by providing easy access to physicians and has remarkable effects on the health care system (Esmaeilzadeh et al., 2010; Jin & Chen, 2015; Rho et al., 2014). The growth of the Internet and technological advancements like mobile devices have made it possible for telehealth to be used broadly and more affordably(Dorsey & Topol, 2016).

Adoption of technology in developing nations present particular challenges because they face issues like the digital divide and cultural beliefs that are much less common in developed nations (Bawack & Kala Kamdjoug, 2018a). Technology adoption is defined by (Davis et al., 1989) as the implementation of hardware and software technologies to ease and simplify the processes which leads to productivity and cost reduction. Computer and information technologies are now far more prevalent in today's organisations. Information technology plays a critical role in increasing the effectiveness and efficiency of the staff in the healthcare domain, which in turn improves patient satisfaction and the quality of healthcare services (Rahimi et al., 2018). There is always a need for assessing the acceptance of any technology among users (Schwarz & Chin, 2007). The process of technology acceptance is essential to its successful implementation, and user acceptance of technology is one of the most important indicators of successful implementation and

ongoing use of information technology (Garavand et al., 2022). The capabilities of cutting-edge technology are not the only thing that limit the possibilities of IT applications; customer approval is frequently the primary determinant of this. For healthcare IT solutions to be successful, it is therefore imperative that the capacity to recognise, anticipate, and manage user approval (Aggelidis & Chatzoglou, 2009). Various information technologies and applications regarding healthcare industry have been investigated the acceptability over time (AlQudah et al., 2021). Many factors affect the acceptance and adoption of technologies. This study aims to assess the factors affecting the Behavioral Intentions (BI) of people by developing a research model by using UTAUT as main theoretical framework. This model is focused to study the impact of different factors on patients' Behavioral Intention (BI). Data was collected by questionnaire-based survey and results are analyzed by regression analysis.

This study adds to the current body of knowledge by introducing novel aspects in the exploration of public acceptance of OMC within the framework of the UTAUT. Primary focus lies on the application of the UTAUT framework to the specific context of OMC. While UTAUT has been widely employed in technology acceptance studies, its application to the unique challenges and opportunities presented by OMC has room for exploration.

This study aims to identify determinants within the UTAUT framework that are particularly pertinent to OMC adoption. By delving into the intricacies of performance expectancy, effort expectancy, social influence, and facilitating conditions specific to OMC, the study endeavors to reveal drivers and barriers that are not studied for OMC in Pakistan context. Also, it aims at how UTAUT constructs vary across different demographic and socioeconomic groups. By dissecting the influence of age, living environment, income, and other factors on the acceptance of OMC technology. The study offers practical implications for healthcare stakeholders. By understanding the specific determinants of OMC acceptance, technology developers can tailor systems to enhance public engagement and maximize the benefits of OMC. The findings have the potential to inform the evolution of healthcare policies, the design of OMC platforms, and the development of educational initiatives aimed at promoting digital health literacy.

1.2 Research Rationale

OMC has advantages, but it won't become a meaningful health service until people start using it. Despite its known benefits, it will not be a useful medical service until users begin using it. As a result, how end customers feel about accepting OMC will play a significant role. Therefore, the overall perception of end customers regarding their acceptance of OMC will be crucial, to promote OMC's uptake. Analysing the elements influencing consumers' perceptions is important in the early stages of promoting the use of telemedicine services. Thus, this study creates a research model with the UTAUT serving as the primary theoretical foundation. Using an online questionnaire-based survey, the study methodology focuses on examining the main drivers and barriers of OMC from the viewpoint of a developing nation. The proposed research model's empirical validation is based on the research findings and data analysis using multiple regression analysis.

1.3 Research Objective

There are many limitations of computerizing the health care system, by systematic review of many studies regarding OMC. Many systems have failed due to limitations, mainly due to low acceptance by people. Healthcare companies are looking to cut costs and increase efficiency, which is why telemedicine programmes are growing significantly (Kohnke et al., 2014). There is a dire need to study the factors that have significant effect on user's perception and behavior regarding usage of a particular technology. Many studies have been undertaken around the world to investigate the adoption and usability of OMC. Many variables and factors have been found that affect the intentions and behavior of practitioners and patients towards OMC. This research aims to study the additional factors influencing the behavior of patients towards use of OMC. Therefore, objectives of this study are as follows:

- New variables Perceived Risk, Perceived Trust, Perceived Cost, Self-Efficacy as studied in (Al-Saedi et al., 2020) in context of M-Payments.
- Perceived Satisfaction by (Ghani et al., 2017) for Internet banking are added to UTAUT model to predict their influence upon Behavioral Intention.

- The model has focused on assessing the factors affecting the behavior of Pakistanis affecting the use of OMC, based on online questionnaire-based surveys.

Research findings are made on the basis of research findings and data analysis through multiple regression analysis.

1.4 Research Problem

In the era of OMC, where technology plays a pivotal role in reshaping healthcare delivery, a fundamental research problem emerges: understanding the intricate interplay of factors influencing public acceptance of OMC technology. At the core of this research lies the investigation of whether the UTAUT framework, which integrates various determinants such as performance expectancy, effort expectancy, social influence, and facilitating conditions, can effectively predict the public's willingness to embrace OMC.

The multifaceted nature of this research problem necessitates an exploration of how these UTAUT constructs manifest within the OMC context, identifying whether certain factors hold more weight than others in influencing technology adoption. Furthermore, the research aims to uncover any variations across diverse demographic and socioeconomic groups, recognizing that the adoption landscape may not be uniform.

By addressing this research problem, this study aims to provide insights that extend beyond theoretical frameworks, offering practical guidance for healthcare providers, policymakers, and technology developers. Ultimately, the research seeks to enhance our understanding of the dynamics shaping technology acceptance in the OMC ecosystem, facilitating the development of tailored strategies to foster greater public engagement and improved healthcare access through OMC.

1.4.1 Problem Statement

OMC has numerous benefits along with significant challenges regarding perception about this technology such as, information confidentiality, cost of consultation, patient satisfaction and system efficiency which are required to be addressed especially in a

densely populated country like Pakistan. Failure to address these challenges may affect the penetration of OMC which will eventually bring technological and economic disruption.

This research investigates the applicability of the UTAUT in predicting the public's willingness to embrace OMC technology and aims to identify the unique drivers and inhibitors within the UTAUT framework that influence technology acceptance in the context of OMC.

1.4.1 Definition of Terms

Table 1.1 contains the definitions of mostly used terms in the thesis.

Table 1.1: Terms and their definitions

Terms	Definition
OMC	OMC is a virtual healthcare service that include the electronic exchange of health and medical data between participants and remote locations (Bashshur et al., 2000). It is referred as telemedicine, telehealth, eHealth, telemonitoring, telecare etc.
Unified Theory of Acceptance and Use of Technology (UTAUT)	Technology acceptance paradigm known as UTAUT was created by (Venkatesh et al., 2003). UTAUT is meant to explain users' intents to use an information system as well as their subsequent behavior.
Effort Expectancy (EE)	EE refers to the patient's ease of use of the system (Venkatesh et al., 2003).
Performance Expectancy (PE)	PE is found to have strongest impact on BI by (Venkatesh et al., 2016), it refers to the users' perception of improvement of job performance through the use of technology (Venkatesh et al., 2003).

Social Influence (SI)	SI refers to the users' perception of what others think about him/her to be an IT user (Rho et al., 2015).
Behavioral Intention (BI)	The extent to which the user indicates that they intend to use telemedicine services in their behavior (Rho et al., 2015).
Perceived Cost (PC)	PC can be defined as the extent to which a person believes that employing technology is more expensive than alternative techniques (Tiwari et al., 2020).
Perceived Risk (PR)	PR can be classified as Technology Risk and Providers Risk and defined as degree of users' perceived uncertainty about technology and the provider (Rho et al., 2015).
Perceived Satisfaction (PS)	Perceived patients' Satisfaction is defined as multi-dimensional variable with four dimensions: Health benefits, Patient-centered care, Monetary benefits and Non-monetary benefits, by (Mason et al., 2022a).
Perceived Trust (PT)	Perceived Trust is reliance on a technology service by its users in both online and offline contexts (Rahman & Hoque, 2018).
Self-Efficacy (SE)	SE is defined as a person's belief in their ability to perform a specific task with the desired outcome (Bandura, 1997).

1.5 Thesis Structure

This section offers an overview of the OMC context and highlights prior research. It delves into a comprehensive literature review on OMC in Section 2, synthesizing past studies to inform the current investigation. Section 3 elucidates the development of the research model, outlining the theoretical framework guiding the study. Additionally, this

section details the research methodology, including the methods and instruments employed for data collection and analysis.

Section 4 presents the research findings, providing insights derived from the data collected. These findings are then thoroughly discussed in Section 5, where their implications and significance are examined in detail. Furthermore, Section 5 also illuminates the academic contributions and practical implications of the study, shedding light on its potential impact on the field of Online Medical Consultation. It also addresses the limitations of the study in a transparent and rigorous manner, enhancing the project's credibility and ensuring openness about its scope and constraints.

Overall, this section serves as a foundational component of the study, offering a comprehensive overview of the OMC context, previous research, and the methodology employed. Through a meticulous examination of existing literature and the development of a robust research model, the study aims to contribute meaningfully to the understanding of OMC and its implications for healthcare delivery. Additionally, by acknowledging and addressing potential limitations, the study strives to uphold transparency and rigor in its findings, thereby enhancing the credibility and reliability of its conclusions.

CHAPTER 2: LITERATURE REVIEW

This chapter contains the literature assessment of studied factors. It defines the theoretical direction of the theories that support this research and will be utilized to understand the results.

2.1 Evaluation of the existing body of knowledge

In numerous OMC-related studies, the Unified Theory of Acceptance and Use of Technology (UTAUT) has been used. The degree of user acceptance and the variables affecting the deployment of an online patient registration system in a hospital were examined by(Tugiman et al., 2023). To better understand the elements that determine the acceptability of video consultations, including the COVID-19 epidemic, (Alexandre et al., 2023) developed an extended acceptance model. Extending the UTAUT model with perceived risk and trust, (Dash & Sahoo, 2022) investigated the factors influencing patients' willingness to seek digital health advice. (Kim, 2023) looked into what factors affected nurses' intentions to use digital healthcare, and she discovered that perceived risk, facilitating conditions, and performance expectancy all had a big influence. Using the UTAUT model, (Owusu Kwateng et al., 2023) investigated how healthcare professionals used telemedicine, with behavioral intention being influenced by performance expectancy, habit, and hedonic motivation. In recent years, OMC has drawn a lot of attention, especially in relation to patient satisfaction. Research has investigated the variables; performance expectancy, effort expectancy, trust, and social influence that affect patients' propensity to seek out digital health advice (Tan et al., 2023). Research has shown that doctors' knowledge sharing and the informational and emotional support they offer are related to patient satisfaction in outpatient medical centres (Dash & Sahoo, 2022).

Overall, patient satisfaction with OMC has been reported to be high, but it is important to note that a significant proportion of patients still prefer in-person visits, particularly outside of the pandemic situation (Kurniawan et al., 2021; Siddiqui, 2021). OMC have been put in place during the COVID-19 pandemic in an effort to stop the virus from spreading. Overall, patients and clinicians have reported high levels of satisfaction

with remote consultations (Byrne et al., 2022; Feiertag et al., 2022). Patients and clinicians have both emphasized the benefits of adhering to social distancing and convenience, with patients expressing that they were able to discuss all of their concerns during remote consultations (Ogawa et al., 2021).

However, outside of the pandemic setting, a significant proportion of patients and clinicians still prefer face-to-face consultations. Clinicians have also mentioned the inability to physically examine patients as a disadvantage of remote consultation. Despite high satisfaction rates, it is important to note that nearly half of the patients would have preferred an in-person visit. In the future, telemedicine can be incorporated as an alternative to in-person visits, while still offering the option for face-to-face consultations. OMC in Pakistan started in 1998 when Elixir Technologies partnered with Holy Family Hospital Rawalpindi. Subsequently, in 2006, an OMC initiative was launched in Sakurdu with support from Stanford University and the Physician Association of North. In 2007, the United States and Pakistan collaborated on the "Pakistan Telemedicine" project to upgrade medical facilities at Spoke Hospital and Holy Family Hospital. Various medical fields were covered, and a satellite-based telemedicine project was initiated by SUPARCO. Other successful projects, such as "Telesehat," "Jaroka," and "Sehat-first," also contributed to providing medical consultations to more than 2000 patients (Kamal et al., 2020).

The potential of OMC, along with recent significant advances in information and communication technology (ICT), has opened up new options for addressing Pakistan's rural population and improving their access to medical treatment. Particularly in Pakistan's rural areas, telemedicine services offer a bright future in tackling the severe lack of access to manage a number of health-related issues (Alajmi et al., 2013).

According to recent medical study, OMC can be an efficient way to increase the accessibility of existing healthcare facilities, particularly for individuals living in distant areas (Ahmed & Sattar, 2018). Despite its known benefits, OMC will not be a useful medical service until people begin using it. As a result, how end customers feel about accepting OMC will play a significant role.

The goal of a systematic review by (Qureshi et al., 2014) was to offer an overview of the current literature, identifying hurdles and opportunities for the integration of e-health technology in public health hospitals. The study's findings presented an overview of the various features of e-health systems, including how they are used and implemented in developing countries.

The study by (Naseem et al., 2014) demonstrated that, via efficient monitoring, electronic health technology can be a significant asset in the management of numerous infectious diseases. The use of e-health would help eradicate diseases in Pakistan and improve access and productivity for the country's general public health system. The study's major purpose was to determine how and why clinicians decide to use an e-health application in an outpatient setting.

The study by (Bhutto et al., 2010) concluded that health informatics, adequate conceptual approach and suitable model or project in significant healthcare institutions can assist healthcare facilities in Pakistan in providing better healthcare, because without well-managed records, institutions would not be able to train the best physicians with IT skills, support research and development, or make the entire healthcare system effective. This will benefit both the doctors and the patients, who can mutually improve the performance of health management.

2.2 Theoretical framework

The characteristics and values connected to a technology's adoption, implementation, management, and efficacy have become a growing focus in information technology study during the last three decades (Leong, 2003). In the past few decades, numerous studies have been conducted using various theoretical philosophies in an effort to anticipate, explain, and even improve users' acceptance of information systems at work (Aggelidis & Chatzoglou, 2009). Explaining how people use technology and why they want to use it has become one of the most crucial subjects in the software engineering area, which is a part of computer sciences. Understanding why people embrace or reject new technologies (Momani et al., 2017). Technology adoption, according to (Davis et al., 1989),

is the application of hardware and software in a company to boost output, gain a competitive edge, speed up processing, and provide easy access to information. Many theories and models have been developed to assess the needs, usage and behavior of people regarding technology, these include Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Decomposed Theory of Planned Behavior (DTPB), Technology Acceptance Model (TAM), TAM2, Combination of TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Motivational Model (MM), Social Cognitive Theory (SCT) (Momani et al., 2017). These theories and models are intended to convey the concept of how people can understand and accept new technology, as well as how they can use it (Momani et al., 2017). According to (Momani et al., 2017), theories should be more comprehensive and less difficult in order to facilitate research into acceptance behavior. Many factors influence the acceptability of new technologies. Many research have examined these variables and aspects, but there is always a need to evaluate new factors for a technology (Momani et al., 2017).

2.2.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified model UTAUT, was developed by (Venkatesh et al., 2003), in which four constructs (Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Conditions (FC)) moderated by Age, gender, experience and voluntariness of use, directly determine Behavioral Intention. Numerous studies have revealed that these factors significantly influence how well technology is accepted and used. Generally speaking, the UTAUT model offers a framework for comprehending and forecasting users' behavior, intentions and levels of technology acceptance across a range of domains. A model called UTAUT is used to assess how well technology is accepted and used in different situations.

UTAUT model incorporated the key components of eight earlier models: Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model (MM), Theory of Planned Behavior (TPB), Combined Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB), Model of PC utilization (MPCU), Innovation Diffusion Theory (IDT) and Social Cognitive Theory (SCT) (Kohnke et al., 2014). The

UTAUT model, despite its flaws, is a crucial idea since it combined eight significant ideas and was put to the test on a large real-world data set (Im et al., 2008).

Researchers performing empirical investigations of user intention and behavior have frequently used UTAUT as a theoretical lens in technology adoption and diffusion research since its introduction, UTAUT is widely used in different sectors to determine technology adoption intentions with different control factors depending upon user groups (Williams et al., 2015).

Study of different systematic reviews show that TAM and UTAUT are the two models that are widely used in OMC context (Rouidi et al., 2022). The UTAUT is regarded as the most applicable and often utilised model among the theories and models discussed above in studies on technology adoption of healthcare systems (Bennani & Oumlil, 2013). The core notion of the UTAUT is Behavioral Intention (BI), many researchers examine the intention to use technology rather than actual technology utilization in their studies (Ben Arfi et al., 2021). BI can be defined in several contexts, but it always refers to the extent to which a technology is intended to be used (Venkatesh et al., 2003). There are many variables studied by many researchers along with the original UTAUT variables, which differ according to different regions these variables also have significant impact on BI (Ben Arfi et al., 2021).

Many studies have expanded UTAUT by adding different variables. Some are as follows:

- The UTAUT model was expanded by (Al-Saedi et al., 2020) to account for Oman's adoption of M-payments. The factors of perceived trust, cost, self-efficacy, performance expectancy, effort expectancy, and social influence were found to have an impact on the adoption of mobile payments. The best predictor of intention to use M-payment, according to the results, is performance expectancy. Other important factors in M-payment adoption include perceived risk, trust, cost, and self-efficacy. Decision-makers can build an effective and secure M-payment infrastructure with the help of this study.

- The UTAUT model was translated, adjusted, and verified in a Portuguese university population to evaluate adherence to a COVID-19 mobile application (Araújo et al., 2023). An investigation validates the UTAUT model used in the COVID-19 app, good reliability is shown by the Portuguese version of the model.
- The UTAUT2 model, an expansion of the UTAUT model, was covered by (Farsi, 2023). The UTAUT2 model is used to predict students' acceptance and use of virtual reality technology. The integration of learning value architecture and UTAUT2 allowed for a novel perspective on the predictions of student behavior intentions towards and use of VRS.
- Using UTAUT, the acceptance and intention to use e-grocery is examined (Ponte & Sergi, 2023). The Italian consumers of a major grocery chain made up the population that was surveyed. According to the study, the best indicator of behavior intention when making online food purchases is Performance Expectancy.
- A research was conducted on students' acceptance and usage of Moodle using the UTAUT model (Hsu, 2013). It was discovered that behavioral intention acted as a mediator to facilitate the use of Moodle and that performance expectancy, effort expectancy, and social influence were important variables. The findings showed that the UTAUT model's variables are significantly positively correlated. Additionally, the four constructs' influence diminishes with increasing time involvement, but behavioral intention maintains its influence.
- Factors impacting Pakistan's adoption of digital payments were studied by (Khurshid, 2020). The results of the study showed that behavioral intention predicts user behavior and that performance expectancy, grievance redressal, and facilitating conditions also predict behavioral intention.
- The UTAUT model was expanded by (Muhammad et al., 2023) by adding Islamic religiosity to the structure. The study looked at the variables affecting Pakistan's adoption of mobile payments. Results showed that important variables in predicting mobile payment usage and behavior include performance expectation, social influence, effort expectation, and facilitating conditions. There is a correlation between behavioral intentions and Islamic religiosity.

- In order to assess the uptake, utilization, and recommendation of neobanking services in India, (Rajesh & Bhatnagr, 2023) presented the UTAUT-3 model, a conceptual model grounded in behavioral theories. The results indicate that the adoption of neobanking is influenced by performance expectancy, effort expectancy, perceived privacy risk, and perceived performance risk.
- Factors influencing the behavioral intention to use contactless financial services are examined in a study by (Chen et al., 2023). It was discovered that critical variables included social influence, perceived benefit, perceived risk, and trust.
- The UTAUT 2 model was modified by (Arora et al., 2023) to analyse users' behavioral intentions towards e-wallets. The impact of three constructs—perceived risk, perceived trust, and perceived COVID threat—as well as the known components of the UTAUT 2 model are examined. The findings show that behavioral intentions towards e-wallet adoption are significantly influenced by effort expectancy, performance expectancy, social influence, facilitating conditions, price value, habit, trust, and perceived COVID threat. Perceived risk and hedonic motivation did not significantly affect behavioral intentions towards e-wallets.
- During the COVID-19 pandemic in Bangladesh, (Sultana et al., 2023) examined the factors that affected students' willingness to accept online learning. It found that the variables that significantly affect students' behavioral intention (BI) to adopt online learning are performance expectation (PE), social influence (SI), self-management of learning (SML), technology anxiety (TA), and complexity (COM). On the other hand, it was discovered that there was little correlation between Effort Expectancy, Facilitating Condition, Perceived Cost, Relative Advantage, and Resistance to Change.
- In order to determine which aspects of technology acceptance influence generation MZ's use of luxury fashion platforms, (Jeong, 2022) employed UTAUT. They also introduced Internet self-efficacy and technology readiness as new exogenous and moderating variables.
- A study by (Choudhry & Iqbal, 2023), based on extensive data collection from medical professionals and patients throughout Pakistan, mostly indicate the

beneficial effects of the examined variables. Telemedicine can be the most effective way to provide the healthcare system with rapid accessibility and long-term sustainability yet developing nations like Pakistan still face significant challenges in implementing it. After more investigation, the researcher discovers a statistically significant correlation between sociodemographic, socioeconomic, and healthcare service characteristics.

- A study by (Limna et al., 2023) suggest that increasing users' perceptions of the usage of telemedicine, for example, can help healthcare practitioners take performance expectancy into account. It is also crucial to take effort expectancy into account, make sure that telemedicine is user-friendly. Furthermore, social influence can be established by friends, family, and healthcare influencers, which raises the inclination to adopt telemedicine. In order to satisfy the requirements and expectations of people or patients who want to use telemedicine.

Some studies regarding OMC using UTAUT are enlisted in **Error! Reference source not found.**.

Table 2.1: Studies using UTAUT in context of healthcare technologies.

Item	**Year**	**Country**	**Technology/ Platform**	**Model**
1. (Choudhry & Iqbal, 2023)	2023	Pakistan	E-health, Telemedicine, Healthcare delivery	UTAUT
2. (Limna et al., 2023)	2023	Thailand	Telemedicine	UTAUT
3. (CHRISTIAN et al., 2023)	2023	Indonesia	E-Healthcare	UTAUT

4. (Alviani et al., 2023a)	2023	Indonesia	Telemedicine	UTAUT2
5. (Alomari & Soh, 2023)	2023	Saudi Arabia	Medical Internet of Things, eHealth	UTAUT-HS
6. (Alviani et al., 2023b)	2023	Indonesia	Telemedicine	UTAUT2
7. (Siripipatthanakul et al., 2023)	2022	Thailand	Telemedicine	TPB & UTAUT
8. (Baudier et al., 2023a)	2022	France	Digital healthcare	UTAUT2
9. (Gu et al., 2021)	2021	Pakistan	e-Health Technology	UTAUT
10. (Shiferaw et al., 2021)	2021	Ethiopia	Telemedicine	extended UTAUT
11. (Dash & Sahoo, 2021)	2021	India	E-consultation	UTAUT2
12. (Napitupulu, 2021)	2021	Indonesia	Telehealth	extended UTAUT
13. (Ben Arfi et al., 2021)	2021	France	IoT healthcare devices	modified UTAUT

14. (Arfi et al., 2020)	2021	France	eHealthcare	extended UTAUT
15. (Byun & Park, 2021)	2021	Korea, China and Veitnam	Telemedicine	UTAUT2
16. (Arfi et al., 2020)	2020	France	eHealthcare	UTAUT
17. (Rahi et al., 2021)	2020	Pakistan	Telemedicine health services	UTAUT, PMT, DeLone & McLean IS Model
18. (Yamin & Alyoubi, 2020)	2020	Saudi Arabia	Telemedicine, WSN	UTAUT & TTF
19. (Venugopal et al., 2019)	2019	India	Electronic Health Records & Telemedicine	UTAUT
20. (Alam et al., 2019)	2019	Bangladesh	mHealth	UTAUT
21. (Shiferaw & Mehari, 2019)	2019	Ethiopia	Electronic Medical Record (EMR)	modified UTAUT

22. (Garavand et al., 2019)	2019	Iran	Mobile Health Applications	UTAUT
23. (Khan et al., 2018)	2018	Pakistan	E-Prescribing	extended UTAUT
24. (Li et al., 2013)	2013	Australia	eHealth	UTAUT
25.(Tetteh Ami-Narh & Williams, 2012)	2012	Africa	eHealth	UTAUT

2.3 Research Gap

OMC holds significant promise as a healthcare service, presenting several advantages. However, for it to truly become a meaningful and widely adopted health service, certain critical factors must be addressed. Telemedicine can be the most effective way to provide the healthcare system with rapid accessibility and long-term sustainability yet developing nations like Pakistan still face significant challenges in implementing it (Choudhry & Iqbal, 2023). The key pillars for the success of OMC include affordability, efficiency, and ensuring user satisfaction. These elements play a pivotal role in shaping people's perceptions and are particularly crucial in the early stages of promoting the use of OMC.

Numerous studies in the existing literature have explored the acceptance of online health services. Telemedicine adoption hinges on perceived ease, performance benefits, and social influence, ensuring user-friendly accessibility to meet patient needs (Limna et al., 2023). Nevertheless, there is still a gap in understanding the specific relationship between various factors and the Behavioral Intention to use OMC. In particular, the interplay between Perceived Risk, Perceived Cost, Perceived Trust, Self-efficacy, Perceived Satisfaction, Performance Expectancy, Effort Expectancy, and Social Influence has not been thoroughly examined using the UTAUT.

Addressing the issue of affordability is paramount. Potential users must perceive OMC as a cost-effective alternative to traditional healthcare services. Perceived Cost is a crucial factor influencing individuals' willingness to engage with online health services. By delving into this aspect, practitioners and researchers can gain insights into the financial considerations that potential users weigh when deciding whether to adopt OMC.

Efficiency is another critical dimension that needs attention. Users are likely to embrace OMC if it offers streamlined and time-efficient solutions. Factors such as Performance Expectancy and Effort Expectancy, as defined by the UTAUT model, become integral in understanding how users assess the ease of use and the expected performance outcomes of OMC.

Building and maintaining trust is pivotal for any healthcare service, and OMC is no exception. Trust have a substantial impact on behavioral intention to use telemedics (Alviani et al., 2023).Perceived Trust plays a vital role in shaping users' confidence in the online consultation process. Addressing concerns related to data security, privacy, and the competence of online healthcare professionals is essential to establish and enhance trust among potential users.

User satisfaction is a key determinant of the success of any service, and OMC is no different. Information satisfaction and system satisfaction have great impact on users' behavioral intention (Tetteh Ami-Narh & Williams, 2012).Perceived Satisfaction, when it comes to the online healthcare experience, is a crucial factor influencing users' intentions to continue using OMC services. Investigating the aspects that contribute to or hinder user satisfaction is essential in refining and optimizing the OMC model.

Moreover, the role of individual factors such as Self-efficacy and Social Influence cannot be understated. Focus on Social Influence by mHealth service providers is crucial for mHealth system adoption (Garavand et al., 2019). Understanding how individuals perceive their own ability to use OMC and how social factors influence their decision-making process can provide useful insights on OMC promotion and adoption methods.

In conclusion, a detailed analysis of Perceived Risk, Perceived Cost, Perceived Trust, Self-efficacy, Perceived Satisfaction, Performance Expectancy, Effort Expectancy, and Social Influence in the context of OMC is essential. Utilizing the UTAUT framework can offer a comprehensive understanding of the dynamics at play, facilitating the development of strategies to address these factors and promote the widespread acceptance and use of OMC as a meaningful health service.

CHAPTER 3: METHODOLOGY

This chapter will cover the methodology, kind of research, sampling strategies, and overall study design. In addition, it lists the hypotheses and theoretical model developed for the current study.

3.1 Research paradigm

This study employs a quantitative research approach to comprehensively investigate the perceptions and experiences of OMC users in Pakistan. Data and mathematical models are used in quantitative research, and the findings are analysed, reported, and interpreted. Quantitative methods are particularly well-suited for this research as they allow for the systematic measurement and analysis of variables associated with the extended UTAUT model.

By utilizing a questionnaire survey to collect data from respondents, the study ensures a structured and standardized approach to data collection, enabling quantitative analysis and statistical testing of hypotheses. This approach offers several advantages, including the ability to generalize findings to a larger population, identify patterns or trends across respondents, and establish statistical relationships between variables. Figure 3.1 visually represents the research model, with the dependent variable "Behavioral Intention" at its core, providing a clear framework for understanding the relationships between various factors influencing OMC adoption in the Pakistani context.

Several questions were used to estimate the nine components of the study model. Participants were asked to rate their level of agreement with each statement using a Likert scale that ranged from "1: strongly disagree" to "5: strongly agree."

Every validation stem from previously established theories in the literature, with some adjustments made to fit the current research context. Every variable within the model was analyzed from the perspective of OMC. The constructs are quantified in Appendix A.

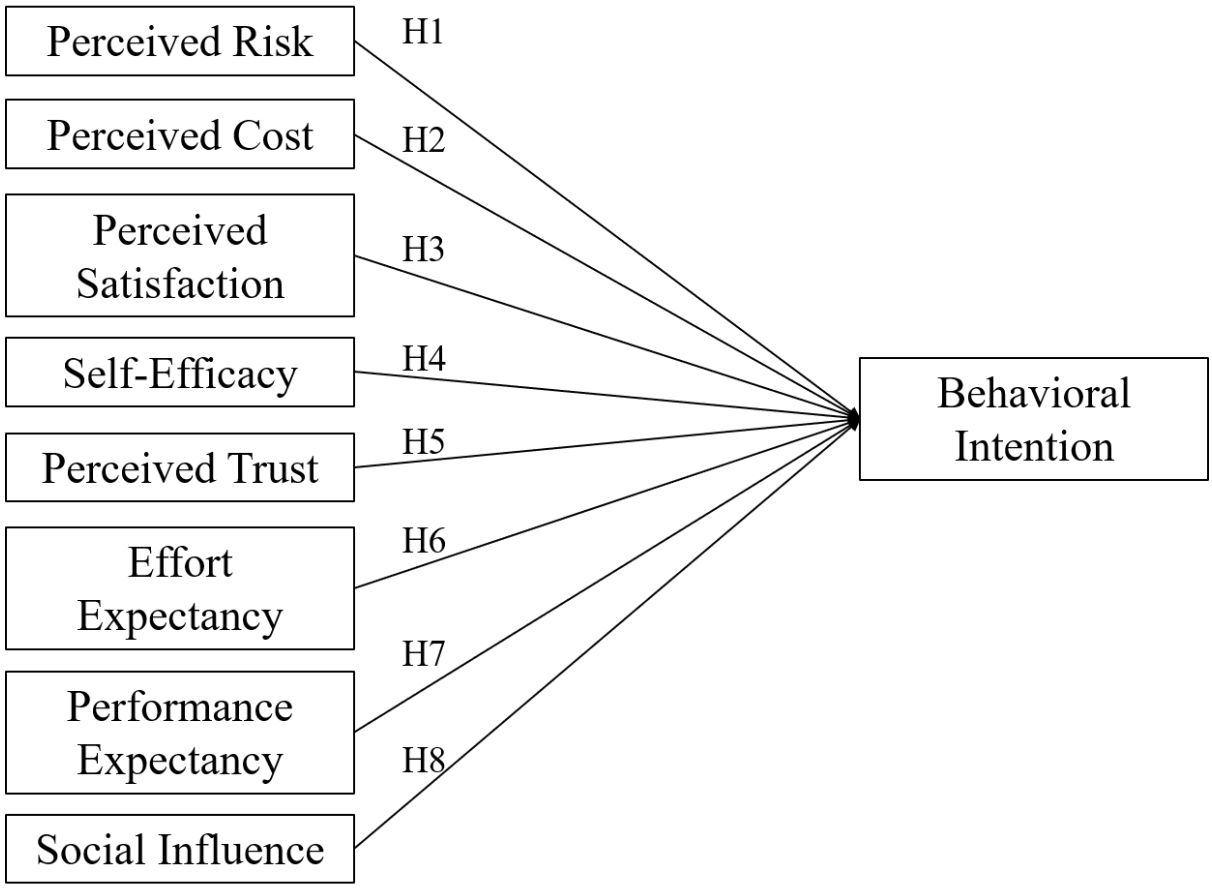

Figure 3.1: Theoretical Model

3.2 Research Questions

Following research questions were formulated after thorough study:

1. To what extent perceived risk impacts OMC acceptance?
2. To what extent perceived cost impacts the accepting OMC?
3. To what extent perceived satisfaction impacts OMC acceptance?
4. To what extent self-efficacy impacts OMC adoption?
5. To what extent perceived trust impacts OMC acceptance?
6. To what extent effort expectancy impacts OMC acceptance?
7. To what extent performance expectancy impacts OMC acceptance?
8. To what extent social influence impacts the accepting OMC?

3.3 Research Hypotheses

The UTAUT is used as the theoretical framework in this study in order to create a comprehensive theoretical model that includes all of the significant factors influencing consumers' intention and acceptance of OMC in Pakistan. Many factors, including perceived risk, perceived trust, perceived cost, and self-efficacy, were found to be significant in influencing OMC adoption after a thorough analysis of pertinent research. By including these crucial factors, this study aims to broaden the UTAUT model and create a comprehensive model that can be used to evaluate OMC adoption in a range of contexts. The proposed theoretical model delineates that perceived risk, cost, satisfaction, self-efficacy, trust, effort expectancy, performance expectancy, and social influence collectively shape users' behavioral intentions towards OMC, as illustrated in Figure *3.1*. This comprehensive model aims to provide a robust framework for evaluating OMC adoption, offering valuable insights for researchers and practitioners in the field.

3.3.1 Perceived Risk (PR)

Prior research suggests that perceived risk plays a crucial function in moulding people's behavioral intentions towards online services. In the context of OMC, perceived risk refers to the perceived potential negative outcomes or uncertainties associated with seeking medical consultation online. Six categories of risk that have been identified by studies are: opportunity/time, safety, psychological, financial, social, and performance (Cunningham, 1967). According to (Im et al., 2008) people's trust in their decisions is impacted by Perceived Risk, their study showed that effect of perceived usefulness on Behavioral Intention is attenuated with higher Perceived risk. It is hypothesized that individuals who perceive higher levels of risk in OMC may exhibit a lower intention to engage in OMC due to concerns regarding the accuracy of diagnoses, privacy and security of personal health information, or the absence of physical interaction with healthcare professionals.

H1: *Perceived Risk has a negative impact on Behavioral Intention towards OMC.*

3.3.2 Perceived Cost (PC)

Cost considerations are vital in determining individuals' intention to adopt and utilize online services. In the case of OMC, perceived cost encompasses both monetary expenses, such as consultation fees or internet charges, as well as non-monetary costs, such as time and effort required for accessing and utilizing the service. The degree to which consumers think that utilizing technology will cost them is known as perceived cost (Luarn & Lin, 2005). Perceived cost is found to have negative impact on behavioral intention (Al-Saedi et al., 2020). This hypothesis posits that individuals perceiving OMC as costly may exhibit a lower intention to engage in OMCs, as the perceived cost may outweigh the perceived benefits of convenience and accessibility.

H2: *Perceived Cost has a negative impact on Behavioral Intention towards OMC.*

3.3.3 Perceived Satisfaction (PS)

Perceived satisfaction relates to a person's subjective assessment of their previous experiences or expectations of satisfaction derived from using OMC. It is crucial to take into account user satisfaction and the effect telemedicine will have on the healthcare system as a whole both before and after a service is introduced (G. N. Alhassan et al., 2022). Gaining more insight into the patient satisfaction construct can help provide better medical care and better health for patients, it is important to explore the factors that moderate this multi-dimensional construct in order to gain a deeper understanding of telemedicine patient satisfaction (Mason et al., 2022b). It is anticipated that individuals who perceive higher levels of satisfaction with previous OMC encounters or anticipate satisfaction from future utilization will demonstrate a higher intention to engage in OMC. Positive experiences, such as effective diagnosis, personalized care, and efficient communication with healthcare professionals, are projected to contribute to the perceived satisfaction and subsequent intention to continue using OMC.

H3: *Perceived Satisfaction has a positive impact on Behavioral Intention towards OMC.*

3.3.4 Self-efficacy (SE)

Self-efficacy refers to an person's belief in their ability to perform a specific behavior. In the IT field, the concept of self-efficacy has become more significant recently. People's thoughts, feelings, motivations, and behaviors are influenced by their self-efficacy beliefs, can have a major impact on people's intentions to use technology and actual conduct (Kohnke et al., 2014). In the context of OMC, self-efficacy refers to a person's belief in their capacity to navigate online platforms, effectively convey their health issues, and make informed healthcare decisions. According to (Venkatesh & Davis, 1996) Self-efficacy is an important predictor of new system acceptability since higher levels of self-efficacy have been associated to increased system utilization. It is hypothesized that individuals with higher levels of self-efficacy in utilizing OMC will exhibit a stronger intention to engage in OMCs, as they feel more competent and comfortable in leveraging the technology and virtual healthcare environment.

H4: *Self-Efficacy has a positive impact on Behavioral Intention towards OMC.*

3.3.5 Perceived Trust (PT)

Trust is important in all healthcare interactions, including OMC. Perceived trust is an individual's belief in the reliability, credibility, and competence of healthcare professionals, as well as the security of their personal health information in an online setting. According to (Semiz & Semiz, 2021) trust has a major impact on a person's behavioral intention to use OMC. Hope and confidence between a patient and a doctor through telemedicine, which is predicated on the knowledge and dependability of experts, constitute trust in telemedicine (Yulaikah & Artanti, 2022). Since telemedicine technology primarily deals with the sharing of health-related information between patients, we think that building positive relationships with this technology requires a foundation of trust (Rahman & Hoque, 2018). This means that trust affects patients' views of the system and their readiness to use OMC to receive treatment via digital technology. This hypothesis suggests that individuals who perceive higher levels of trust in OMC will demonstrate a higher intention to engage in OMCs, as trust serves as a foundation for building a strong patient-provider relationship and mitigating concerns related to the remote nature of OMC.

H5: *Perceived Trust has a positive impact on Behavioral Intention towards OMC.*

3.3.6 Effort Expectancy (EE)

Effort expectancy represents a person's perception of the ease and convenience of using OMC. It encompasses factors such as user-friendliness of the online platform, simplicity of the registration process, and ease of navigating through the consultation process. (Napitupulu et al., 2021) analysed that Effort Expectancy has a critical role on users' BI. According to, (De Veer et al., 2015) effort expectancy have significant impact on Behavioral Intention, elderly people or the ones who don't use internet often need easy-to-use applications and special instructions for application usage. According to this hypothesis, people who perceive OMC to be simple and convenient are more likely to want to participate in them, because perceived ease of use lowers barriers and improves the overall user experience.

H6: *Effort Expectancy has a positive impact on Behavioral Intention towards OMC.*

3.3.7 Performance Expectancy (PE)

Performance expectancy refers to an individual's expectation of the benefits and positive outcomes that can be attained through using OMC. Performance expectancy is defined as how beneficial and convenient virtual doctor appointments are for people's daily routines (Schmitz et al., 2022). Performance-Expectancy measures how much a person believes that by saving time, utilising telemedicine would improve his or her productivity and health (Baudier et al., 2020). It encompasses anticipated advantages such as improved access to healthcare, reduced waiting times, and convenient communication with healthcare professionals. The analysis by (Mancilla et al., 2022) emphasised the significance of Performance Expectancy at the time of telemedicine adoption. i.e. it must be made sure that the individual believes that telemedicine will generally improve their quality of life, leading to the Intention to Use these platforms in the majority of cases. It is hypothesized that individuals who perceive higher levels of performance expectancy in OMC will exhibit a higher intention to engage in OMCs, as the perceived benefits and positive outcomes outweigh any potential drawbacks or uncertainties.

H7: *Performance Expectancy has a positive impact on Behavioral Intention towards OMC.*

3.3.8 Social Influence (SI)

Social influence is defined as the impact of external factors on an individual's decision-making process, such as opinions, recommendations, or norms. According to (Cimperman et al., 2016) social influence is shown in various studies as a volatile variable to predict behavioral intention, as their result show that elderly users' behavioral intention has no significant effect by social influence. According to (Bawack & Kala Kamdjoug, 2018b) social influence has significant effect as people were more likely to adopt OMC if it is made mandatory, and used frequently by others around. It is anticipated that individuals who perceive positive social influences, such as recommendations from family, friends, or healthcare professionals, regarding the utilization of OMC will demonstrate a higher intention to engage in OMCs. Social influence acts as a source of reassurance and validation, reinforcing the perceived benefits and credibility of OMC.

H8: *Social Influence has a positive impact on Behavioral Intention towards OMC.*

3.4 Research Settings

The target population for this study comprises individuals in Pakistan who perceive the potential of utilizing OMC. Online questionnaires were distributed through various social media platforms, including Facebook, LinkedIn, and WhatsApp, in order to collect data. Social media is being considered because it has the potential to reach a larger number of users who may have embraced telehealth applications.

3.4.1 Sampling Technique

To gather insights from this population, a random sampling technique is employed. Random sampling involves selecting participants from the population in a purely random manner, ensuring that each individual in the population has an equal chance of being selected. This method helps minimize bias and increase the likelihood of obtaining a sample that accurately reflects the population's characteristics. While the sample may not

be fully representative of the entire population due to constraints in resources and time, random sampling ensures that the collected data are statistically valid and reliable. Thus, the findings derived from the sample provide valuable insights into the perceptions and intentions of individuals considering the adoption of OMC in Pakistan.

3.4.2 Data Collection

Online questionnaires were distributed through various social media platforms, including Facebook, LinkedIn, and WhatsApp, in order to collect data. Social media was being considered because it has the potential to reach a larger number of users who may have embraced telehealth applications. Random sampling was selected as the sample technique for this investigation. Google Forms was used in the design and distribution of the instruments, and 978 respondents completed the survey. The survey is divided into ten sections, which include respondents' demographic information, nine variables, and 28 items assessed using the extended UTAUT model.

3.5 Research Methods

This study's statistical analysis was carried out using SPSSv25, with Regression Analysis being used to assess formulated hypotheses. A two-stage analytical approach is used, beginning with the assessment of the measurement model (reliability of the variables) and continuing with the assessment of the structural model (testing the hypotheses).

3.5.1 Reliability

The study's items were evaluated using Cronbach's alpha, a dependable internal consistency metric. For accurate readings, the Cronbach's alpha estimate must be positive and generally higher than 0.70 in order to demonstrate the findings' validity and reliability. As a result, a minimum requirement of 0.70 was selected to assess the dependability of scales.

3.5.2 Hypothesis testing

In hypothesis testing regression analysis is used to assess the relationship between multiple independent variables and a single dependent variable. In the linear multiple regression model, the independent variables are hypothesized collectively to have a significant impact on the dependent variable. Through statistical analysis, this study aims to determine the strength and direction of these relationships, assessing the predictive power of the model. The results provide the insights into the extent to which the independent variables explain variance in the dependent variable, validating or rejecting the formulated hypotheses.

3.6 Limitations of the research design

It is important to recognize the limitations of the research design. The random sampling technique may introduce sampling bias, limiting the generalizability of the results. The study is based on self-reported data, which may be prone to social desirability or recall bias. The research design also makes the assumption that respondents accurately represent the entire population of OMC users in Pakistan, which may not be true. Furthermore, the study is limited to the English language, which may exclude non-English speaking participants.

CHAPTER 4: RESULTS & ANALYSIS

4.1 Data Analysis

The current study uses SPSS software to conduct regression analysis on the theoretical model of OMC. A two-step analytical approach is used. The first step is to assess the measurement model and ensure that the constructs are valid. The second stage focuses on evaluating the structural model and testing the hypotheses.

The measurement model describes how each construct in the theoretical model is measured. In contrast, the structural model shows how these constructs interact. Multi-regression analysis was chosen for this study because of its ability to examine both measurement and structural models simultaneously, resulting in more accurate estimates.

4.2 Demographics

This study was conducted among Pakistani general population. Age, gender, living environment, income and access to internet were included in study's descriptive statistics. Demographics are shown in Table 4.1**Error! Reference source not found.**.

Table 4.1: Demographics of the study

Features	Options	Frequencies	Percentages
Age	Teen	44	4.498978
	20 – 35	766	78.32311
	36 – 50	160	16.35992
	> 50	8	0.817996
Gender	Female	500	51.12474

	Male	468	47.85276
	Preferred not to say	10	1.022495
Living Environment	Rural	755	77.19836
	Urban	223	22.80164
	< 30k	239	24.43763
	30k - 60k	148	15.13292
Income	61k - 90k	151	15.43967
	91k - 120k	172	17.58691
	>120k	268	27.40286
Access to internet	Yes	978	100
	No	0	0

4.2.1 Age Statistics

The analysis reveals a predominant presence of individuals within the 20–35 age bracket, comprising 78.32% of participants, indicating a substantial proportion of young adults potentially interested in Online Medical Consultation (OMC) services. Notably, the 36–50 age group represents 16.35% of respondents, suggesting a considerable segment of middle-aged individuals who may also benefit from OMC accessibility. Teenage participation at 4.49% underscores the relevance of OMC in catering to diverse age demographics, while those over 50 years constitute the smallest portion at 0.82%,

indicating a potential area for increased outreach and awareness campaigns targeting older populations.

4.2.2 Gender Statistics

The study demonstrates a balanced distribution of genders among participants, with 51.12% identifying as men and 47.85% as women, while a small percentage (1.02%) opted not to disclose. These findings underscore the universal relevance of OMC, emphasizing the importance of tailoring services and marketing efforts to cater to diverse gender identities and preferences, ensuring inclusivity and accessibility for all individuals seeking healthcare solutions.

4.2.3 Living Environment

The data highlights that 77.2% of participants reside in urban areas, indicating a substantial urban presence and suggesting a higher likelihood of familiarity with and access to technological advancements such as OMC platforms. However, with 22.8% of respondents hailing from rural areas, there exists an opportunity to bridge the urban-rural healthcare divide by promoting OMC as a convenient and accessible solution for individuals residing in remote or underserved regions.

4.2.4 Income Statistics

Income distribution reveals varying financial demographics among participants, with 27.4% reporting a monthly income exceeding 120k, indicating potential affordability for premium OMC services. Conversely, 24.44% report earnings below 30k, underscoring the importance of offering diverse pricing options or subsidized OMC services to ensure affordability and accessibility for individuals across income brackets. Strategies targeting middle-income earners (earning between 31k-120k) may be particularly effective in expanding OMC adoption.

4.2.5 Internet Access

Remarkably, 100% of participants report internet access, highlighting the ubiquitous nature of online connectivity among the study population. This underscores the

feasibility and viability of OMC as a healthcare solution, given the widespread availability of internet infrastructure. Leveraging this widespread connectivity, healthcare providers can enhance OMC outreach efforts, emphasizing the convenience and efficiency of accessing medical consultations and services remotely, regardless of geographical location.

These demographic details provide a comprehensive understanding of the research context and provide a solid basis for analysing the goals and implications of the study in the future.

4.2.6 Reason to use OMC

Respondents were also asked about their thought about reason to use OMC Figure 4.1 shows the results about public's reason to use OMC.

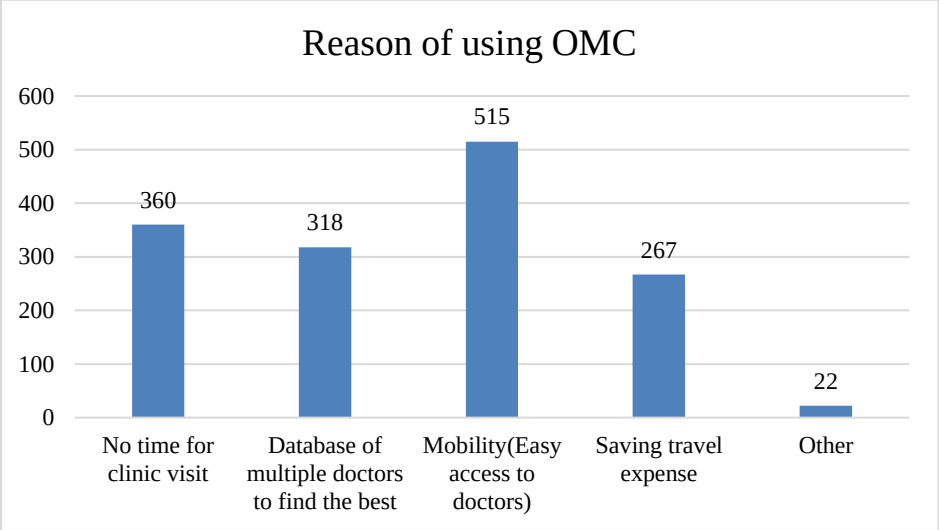

Figure 4.1: Reason of using OMC

Most people like to use OMC due to easy access to doctors, secondly people have no time for clinic visits and long waiting lists due to busy life schedules, thirdly people think that they can get in contact with a vast database of doctors all over the country by using OMC, lastly people think that they can save their travel expenses by using OMC. Hence, people have different reasons to use OMC and they would like to use such systems.

4.2.7 Preference of Consultation Category

In Figure 4.2, the preferences of consultation categories sought through OMC are depicted, offering insights into the specific healthcare needs and priorities of users. Among the categories, Nutrition emerges as the most sought-after consultation, indicating a significant demand for dietary guidance and nutritional advice through remote medical channels. Following closely is ENT (Ear, Nose, and Throat), underscoring the prevalence of ENT-related concerns among OMC users. Additionally, Dermatology and Psychology emerge as notable preferences, suggesting a growing interest in addressing skin-related issues and mental health concerns through virtual consultations. The sequential ranking of consultation categories provides valuable guidance for healthcare providers and OMC platforms in tailoring their services to align with user preferences and effectively address prevalent healthcare needs in the digital realm.

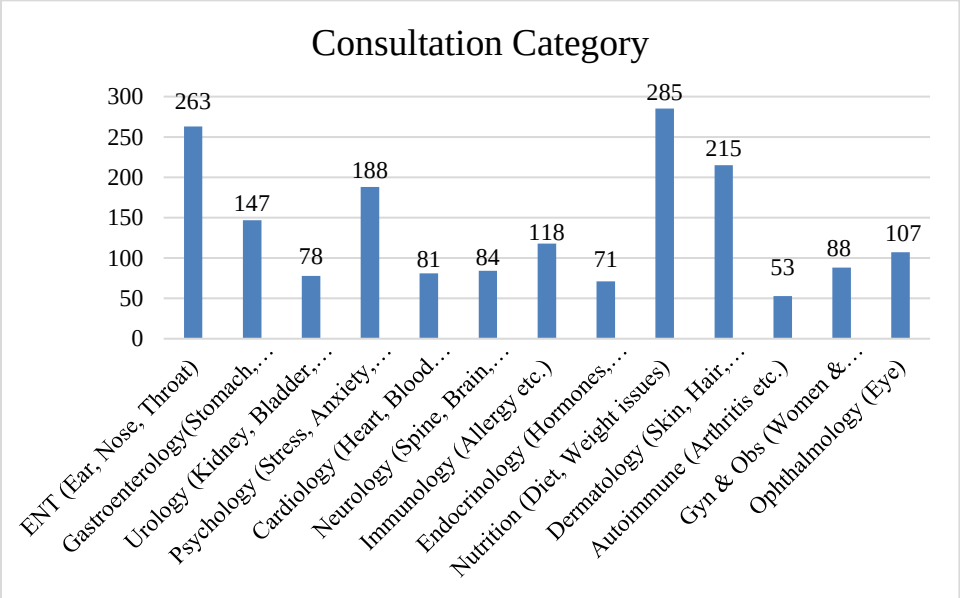

Figure 4.2: Consultation Category

4.3 Common Method Bias (CMB)

To ensure that the data collection process is free of common method bias (CMB), Harman's single-factor model with nine constructs (perceived risk, perceived cost, perceived satisfaction, self-efficacy, perceived trust, effort expectancy, performance

expectancy, social influence, and behavioral intention) was used (Podsakoff et al., 2003). The eight constructs were then grouped into a single factor. According to the analysis's findings, a single factor could explain 36.29% of the variance, which is less than 50% (Podsakoff et al., 2003). As a result, the data gathered do not indicate any CMB-related concerns.

4.4 Measurement model assessment (Reliability and validity)

The data's validity is determined by analysing the Kaiser Meyer-Olkin (KMO) and Bartlett's Test for Sphericity (BTS). The BTS has a significant estimate of 15597.286 and a KMO value of (0.901), indicating that the variables are homogeneous, meeting the requirement for exploratory factor analysis (EFA).

The assessment of the outer model (measurement model) should be validated before testing the hypotheses in the inner model (structural model). To ensure that the measures used are reliable and adequately provide the theoretical components, the measurement model must be examined.

The reliability of the data outlined in Table 4.2 undergo assessment through a reliability test. The combined Cronbach's alpha coefficient, computed at 0.811 for the established factors, signifies a robust measure of reliability. This coefficient reflects the internal consistency among the variables examined in the study, indicating the extent to which they collectively measure the intended constructs. Such a favorable reliability coefficient bolsters the confidence in the accuracy and consistency of the data, reinforcing the credibility of the findings derived from the analysis.

Table 4.2: Reliability test of each variable

Item	Mean	Std. Deviation	Variance	Cronbach α
PR	2.9363	.92301	0.85195	0.811
PC	3.1053	.74325	0.55242	

PS	3.4806	.68211	0.46527	
SE	3.7018	.74560	0.55592	
PT	3.5804	.72967	0.53242	
EE	3.6319	.73059	0.53376	
PE	3.7413	.68567	0.47014	
SI	3.3095	.82681	0.68361	
BI	3.6288	.68869	0.47429	

Table 4.3 shows that the Cronbach's Alpha values ranged from 0.698 to 0.879, all of which were greater than the internal consistency reliability test threshold of 0.7. Construct reliability was assessed using Cronbach's Alpha and Composite Reliability. Cronbach alpha for each construct in the study was found over the required limit of 0.70. Composite reliabilities ranged from 0.794 to 0.879, above the 0.70 benchmark. Hence, construct reliability was established for each construct in the study.

Table 4.3: Reliability Statistics for all items

Item	Mean	Std. Deviation	Variance	Cronbach α
PR1	2.9769	1.10577	1.22273	0.802
PR2	2.9583	1.12607	1.26803	
PR3	2.8472	1.03869	1.07888	
PC1	2.8565	1.01741	1.03512	0.698
PC2	2.6713	1.20012	1.44029	
PC3	3.7963	0.99542	0.99086	

PS1	3.3241	0.82776	0.68519	0.796
PS2	3.5093	0.79528	0.63247	
PS3	3.5741	0.81502	0.66426	
SE1	3.7269	0.82655	0.68318	0.806
SE2	3.6389	0.92970	0.86434	
SE3	3.7130	0.87392	0.76374	
PT1	3.5093	0.81834	0.66968	0.757
PT2	3.5370	0.94918	0.90094	
PT3	3.6898	0.90533	0.81962	
EE1	3.5463	0.96337	0.92808	0.786
EE2	3.6620	0.80212	0.64340	
EE3	3.6713	0.86175	0.74261	
PE1	3.6852	0.80288	0.64462	0.817
PE2	3.7546	0.79532	0.63253	
PE3	3.7546	0.82967	0.68835	
SI1	3.2685	0.88509	0.78338	0.879
SI2	3.2685	0.92114	0.84850	
SI3	3.3750	0.95631	0.91453	
BI1	3.7407	0.79966	0.63946	0.857

BI2	3.5741	0.85403	0.72937	
BI3	3.4259	0.89654	0.80378	
BI4	3.7315	0.76683	0.58803	

Table 4.4 presents the results of a correlation analysis, a crucial step in assessing discriminant validity among the variables. The correlation coefficients displayed in the table indicate the strength and direction of relationships between pairs of variables. A low and statistically non-significant correlation between variables suggests that they are measuring distinct aspects of the OMC phenomenon, affirming discriminant validity. The Pearson product correlation of PR upon BI is negative ($r = -0.082$, $p = 0.011$), hence H1 is not supported. The correlation between PS, SE, PT, EE, PE, SI and BI occurred moderately positive as well as statistically substantial ($r = 0.662, 0.504, 0.597, 0.628, 0.614, 0.529$ & $p < 0.001$). While PC and BI have low positive correlation ($r = 0.203$, $p < 0.001$).

Overall, the table ensures the robustness and accuracy of the OMC model by confirming that each variable contributes uniquely to the study.

Table 4.4: Correlation Analysis

	PR	**PC**	**PS**	**SE**	**PT**	**EE**	**PE**	**SI**	**BI**
PR	1								
PC	.362**	1							
PS	-.119**	.164**	1						
SE	-.003	.194**	.583**	1					
PT	-.223**	.078*	.693**	.474**	1				
EE	-.036	.156**	.671**	.553**	.630**	1			

PE	-.092**	.079*	.606**	.504**	.535**	.649**	1		
SI	-.033	.207**	.580**	.353**	.485**	.509**	.435**	1	
BI	-.082*	.203**	.662**	.504**	.597**	.628**	.614**	.529**	1
**** Correlation is significant at the 0.01 level (2-tailed)**									

4.5 Structural Model Assessment (Hypotheses testing and justifications)

The research methodology used in this study was multiple regression analysis to investigate the relationship between a dependent variable, behavioral intention to use OMC, and a group of independent variables. The use of multiple regression is consistent with the study's overall research objectives, emphasizing a simple modelling technique to extract meaningful insights from the collected data. To conduct the regression analysis, IBM SPSS was used to rigorously test the hypotheses.

The results of the hypothesis testing are presented in , which serves as the structural model assessment.

Table 4.5: Regression Analysis

Hypothesized path	**β (coefficient value)**	**(t-statistic)**	**Confidence Interval**		**Conclusion**
			Lower Bound	**Upper Bound**	
PR → BI (H1)	-.029	-1.203	-.056	.013	Not Supported
PC → BI (H2)	.090	3.811	.040	.126	Supported

PS → BI (H3)	.202	5.616	.133	.275	Supported
SE → BI (H4)	.064	2.311	.009	.109	Supported
PT → BI (H5)	.140	4.397	.073	.191	Supported
EE → BI (H6)	.139	4.171	.070	.193	Supported
PE → BI (H7)	.227	7.649	.169	.286	Supported
SI → BI (H8)	.132	4.906	.066	.154	Supported

The findings indicate that users' behavioral intention to use OMC is negatively impacted by perceived risk, although this impact is deemed insignificant. Consequently, Hypothesis 1 (H1) is not supported, with a beta coefficient (β) of -0.029 and a t-value (t) of -1.203.

Furthermore, the findings show that perceived cost has a significant negative impact on the behavioral intention of OMC users to use the system. Hypothesis 2 (H2) is supported, with a beta coefficient (β) of 0.090 and a t-value (t) of 3.81.

Furthermore, the analysis reveals several positive and significant influences on users' behavioral intentions to use OMC. Perceived satisfaction, self-efficacy, perceived trust, effort expectancy, performance expectancy, and social influence are all positive predictors of OMC use intention. Hypotheses 3-8 (H3, H4, H5, H6, H7, and H8) are supported, with respective beta coefficients and t-values: H3 ($\beta = 0.202$, $t = 5.616$), H4 ($\beta = 0.064$, $t = 2.311$), H5 ($\beta = 0.140$, $t = 4.397$), H6 ($\beta = 0.139$, $t = 4.171$), H7 ($\beta = 0.227$, $t = 7.649$), and H8 ($\beta = 0.132$, $t = 4.906$).

In conclusion, the comprehensive data analysis provides valuable insights into the impact of various factors on users' behavioral intentions towards OMC, which is consistent with the study's hypotheses and overarching research objectives. The use of multiple regression and statistical testing techniques in IBM SPSS improves the findings' reliability

and robustness, allowing for a more in-depth understanding of the factors influencing OMC service acceptance and usage.

4.6 Discussion

This research significantly contributes to our comprehension of the intricate dynamics influencing the adoption of OMC in the specific context of Pakistan. The study, anchored in the extended Unified Theory of Acceptance and Use of Technology (UTAUT) model, meticulously explores the roles played by various factors, including perceived trust, perceived satisfaction, perceived cost, self-efficacy, performance expectancy, effort expectancy, and social influence, in shaping the decision-making process of individuals regarding OMC adoption.

The ensuing subsections of this study delve into a more detailed examination and nuanced discussion of the observed results. Each of the identified factors is scrutinized for its distinct impact on users' behavioral intentions in the realm of OMC adoption in Pakistan. By leveraging the extended UTAUT model, the research aims to unravel the specific nuances and interplay of these variables, shedding light on their individual and collective contributions to the overall landscape of OMC acceptance within the Pakistani healthcare context.

Through a comprehensive analysis, this study not only enhances our theoretical understanding of technology adoption in the healthcare sector but also provides practical insights that can inform policymakers, healthcare providers, and technology developers about the critical determinants influencing OMC adoption. The detailed discussions in the subsequent sections aim to enrich the academic discourse on the subject and offer actionable implications for stakeholders involved in the evolution and implementation of online health services in Pakistan.

4.6.1 The Impact of Perceived Risk on Behavioral Intention

The findings suggest that perceived risk exerts a negative influence on users' intention to engage with OMC, albeit in a marginal manner. This nuanced observation aligns with recent studies by (Kim, 2023) and (Jang, 2023), emphasizing the notion that

perceived risk plays a somewhat negligible role in shaping users' behavioral intentions towards OMC adoption.

However, it is noteworthy that our results stand in contrast to earlier research conducted by (Dash & Sahoo, 2022) and (Chopdar, 2022), who reported a positive correlation between the likelihood of using OMC systems and users' perception of risk. This discrepancy prompts a crucial exploration of the factors contributing to the divergent findings across studies. The incongruence underscores the complexity of users' attitudes and responses towards perceived risk in the specific context of OMC adoption.

4.6.2 The Impact of Perceived Cost on Behavioral Intention

Building upon the foundations laid by prior research, specifically the findings presented by (Ben Arfi et al., 2021), the current study delves into the intricate relationship between perceived cost and the behavioral intention to use OMC. Consistent with previous research, our results underscore a significant negative impact of perceived cost on users' willingness to engage with OMC. This suggests that as the perceived costs associated with device usage and internet fees rise, users' behavioral intentions experience a corresponding decline.

The observed negative impact of perceived cost can be rationalized by considering the financial implications on potential users. As costs, both direct and indirect, become more pronounced, users may be deterred from embracing OMC services, reflecting a crucial consideration in the context of healthcare accessibility and equity. The study posits that this decline in behavioral intention may be attributed to users' concerns about the affordability and accessibility of OMC, particularly in regions where financial constraints are significant.

4.6.3 The Impact of Perceived Satisfaction on Behavioral Intention

The findings of the study unveil a noteworthy correlation, indicating that the behavioral intention to use the OMC system is significantly and positively influenced by Perceived Satisfaction. This pivotal revelation underscores the critical role that user satisfaction plays in shaping the dynamics of product or service usage over time. The

significance of satisfaction extends beyond mere user experience; it becomes a driving force that not only boosts user engagement but also has far-reaching implications for profitability and overall business performance. Study conducted by (G. Alhassan et al., 2022), shed light on the broader implications of high user satisfaction. The aforementioned study not only emphasizes the positive correlation between user satisfaction and the increased usage of telehealth services but also establishes a connection with potential positive health outcomes. Such outcomes, intertwined with user satisfaction, create a symbiotic relationship that not only benefits the users but also contributes to the overall success and effectiveness of telehealth services.

4.6.4 The Impact of Self-Efficacy on Behavioral Intention

Turning our attention to the impact of self-efficacy on the behavioral intention to use OMC, our study unravels a noteworthy and positively significant association. The results illuminate that users' belief in their own ability to effectively navigate and utilize OMC systems exerts a favorable influence on their intentions to embrace such digital healthcare solutions. This discovery resonates harmoniously with the findings of earlier research conducted by (Fathurahman et al., 2022) and (Baudier et al., 2023b), both of which underscored the pivotal role of self-efficacy in shaping users' likelihood of adopting OMC systems. Essentially, the more users perceive themselves as capable of accomplishing tasks within the OMC framework, the more inclined they are towards adopting and integrating these systems into their healthcare practices.

This congruence with prior research underscores the robustness and consistency of the observed phenomenon across diverse contexts. The notion that users are more predisposed to adopt OMC systems when they exhibit a high level of self-efficacy implies that the perceived ease of use and proficiency of these systems play a critical role in influencing users' behavioral intentions. As such, developers of OMC applications in Pakistan should recognize the intrinsic value of fostering and enhancing users' self-efficacy through the design and functionality of their platforms.

4.6.5 The Impact of Perceived Trust on Behavioral Intention

Delving into the dynamics of users' behavioral intentions regarding OMC, our study brings forth a pivotal revelation: perceived trust emerges as a significant positive influencer. The findings underscore that as users perceive OMC systems to be more trustworthy, their behavioral intentions to engage with these digital healthcare platforms experience a notable and positive upswing. This discovery resonates harmoniously with earlier research, specifically studies conducted by (Yu et al., 2021) and (Alviani et al., 2023a), both of which reported a similar correlation between heightened system trustworthiness and increased positive behavioral intentions to use OMC systems.

The consistent alignment of our results with prior research reinforces the robustness and universality of the observed relationship between perceived trust and behavioral intention in the context of OMC adoption. Users, it appears, are more inclined to embrace and integrate OMC into their healthcare practices when they harbor a sense of trust in the reliability, security, and overall credibility of these digital consultation platforms. Recognizing the central role of perceived trust in shaping users' behavioral intentions, it becomes imperative for Pakistan's online consultation services to proactively cultivate and maintain trust in their OMC applications.

4.6.6 The Impact of Effort Expectancy on Behavioral Intention

The study's scrutiny into the determinants of behavioral intention to use OMC reveals a compelling facet: effort expectancy emerges as a significant and positive influencer. The results delineate that as users perceive OMC systems to be more user-friendly and effortless to use, their behavioral intentions to adopt and engage with these digital healthcare platforms witness a noteworthy and positive surge. This discovery aligns seamlessly with the insights derived from earlier research, particularly studies conducted by (Dash & Sahoo, 2022), as well as the research by (Napitupulu et al., 2021). Collectively, these findings converge on a consistent conclusion: heightened ease of use is intricately linked to increased positive behavioral intentions to use OMC systems.

The congruence of our results with prior research underscores the enduring nature of the observed relationship between effort expectancy and behavioral intention in the context of OMC adoption. Users, it appears, are more likely to embrace and integrate OMC into their healthcare practices when the systems are perceived as straightforward and easy to navigate. This aligns with the broader concept that behavioral intentions are positively influenced by the perceived ease with which users can accomplish tasks within the OMC framework.

Recognizing the central role of effort expectancy in shaping users' behavioral intentions, it becomes paramount for developers of OMC applications in Pakistan to prioritize user-friendliness in their design and functionality. Hence, this user-centric approach is fundamental to fostering a healthcare ecosystem where users feel empowered, comfortable, and inclined to leverage digital platforms for their medical needs.

4.6.7 The Impact of Performance Expectancy on Behavioral Intention

The study's insightful exploration into the determinants of behavioral intention to use OMC brings forth a compelling revelation: performance expectancy stands out as a significantly positive influencer. The results illuminate that users' intentions to adopt and engage with OMC systems witness a substantial and positive impact when they perceive these platforms as delivering high levels of performance and efficiency. This finding resonates powerfully with earlier research by (Chopdar, 2022; Dash & Sahoo, 2022; Owusu Kwateng et al., 2023; Kim, 2023), collectively pointing to the consensus that performance expectancy plays a pivotal role as the most significant predictor of users' behavioral intentions to use OMC systems.

This consistent alignment with prior research underlines the robustness and critical importance of the observed relationship between performance expectancy and behavioral intention in the context of OMC adoption. The notion that users are more likely to embrace OMC systems when they anticipate higher levels of efficiency emphasizes the pivotal role that performance plays in shaping users' attitudes and intentions. The efficiency of consultations and the perceived effectiveness of OMC systems emerge as crucial factors influencing users' decisions to adopt these digital healthcare platforms. Therefore, user-

centric and performance-driven approach is instrumental in advancing the adoption and sustained usage of OMC systems within the evolving landscape of healthcare services in Pakistan.

4.6.8 The Impact of Social Influence on Behavioral Intention

The study's investigation into the factors influencing behavioral intention to use OMC unveils a compelling revelation: social influence emerges as a robust and significantly positive determinant. The results illuminate that users' intentions to adopt and engage with OMC systems experience a substantial positive impact when influenced by social factors. This finding resonates harmoniously with earlier research conducted by (Dash & Sahoo, 2022) and (Byun & Park, 2021), collectively reinforcing the notion that behavioral intentions to use OMC systems in Pakistan are positively shaped by social pressure and the opinions of significant peers.

This consistent alignment with prior research underscores the enduring and influential role of social influence in the context of OMC adoption. The idea that users' behavioral intentions are positively impacted by the opinions and pressures exerted by their social circles underscores the complex interplay between individual decision-making and social dynamics. Social influence becomes a pivotal factor in shaping users' attitudes and intentions, highlighting the interconnected nature of technology adoption within a societal context.

This community-driven and socially aware approach is instrumental in advancing the adoption and sustained usage of OMC systems within the evolving landscape of healthcare services in Pakistan.

CHAPTER 5: CONCLUSIONS AND FUTURE RESEARCH

5.1 Conclusion

OMC stands as a multifaceted approach, presenting an array of benefits and challenges in the delivery of remote healthcare services. While it undoubtedly enhances accessibility, convenience, and cost-effectiveness, the landscape of OMC is not without its hurdles. Technological intricacies, diagnostic limitations, data security concerns, and legal considerations form a complex tapestry that necessitates careful navigation. However, within these challenges lies the immense potential of OMC to revolutionize healthcare delivery. By harnessing emerging technologies and addressing existing healthcare disparities, OMC has the power to transcend obstacles, ultimately leading to improved patient outcomes and enhanced healthcare accessibility in the future.

This study serves as a cornerstone in advancing our understanding of the factors that shape the adoption of OMC in the specific context of Pakistan. A meticulous exploration through an extensive literature review unearthed five pivotal factors that exhibit a significant relationship with the Unified Theory of Acceptance and Use of Technology (UTAUT) across various information technology systems. These factors; perceived risk, perceived satisfaction, perceived cost, perceived trust, and self-efficacy serve as the theoretical framework guiding the investigation into OMC adoption dynamics.

The primary objective of this research is to bridge the existing research gap by delving into the intricate relationships between multiple factors and users' behavioral intention to use OMC. By employing a comprehensive quantitative research approach, the study embarks on unraveling the perceptions and experiences of OMC users in the Pakistani context. This nuanced exploration not only sheds light on the intricacies of OMC adoption but also lays the foundation for actionable insights that can inform strategies for the optimization of OMC services.

The results of this study illuminate a landscape where Pakistani users exhibit a notable willingness to embrace OMC. Within this landscape, Performance Expectancy emerges as a paramount influencer, standing out as the most influential factor shaping

users' intentions. This revelation underscores the pivotal role of perceived performance in the user's decision-making process regarding OMC adoption. The sequential order of impact, with Perceived Satisfaction, Social Influence, Perceived Trust, Effort Expectancy, Perceived Cost, and Self-Efficacy following, provides an understanding of the hierarchy of factors that intricately influence OMC adoption dynamics in the Pakistani context.

An intriguing revelation surfaces as the study identifies Perceived Risk as the least influential factor in shaping users' intentions, signaling a profound level of confidence among users in the information security and system efficiency provided by OMC. This confidence not only underscores the evolving trust in digital healthcare solutions but also emphasizes the need for decision-makers to focus on fortifying and communicating the reliability of OMC.

Despite the significant contributions made by this study, it is essential to acknowledge two limitations that open avenues for intriguing possibilities in future research. Firstly, while the extended UTAUT model aptly explains Pakistan's adoption of OMCs, replicating this study across diverse nations could further bolster the model's applicability and unveil region-specific nuances. Secondly, the dynamic nature of technology and healthcare practices implies that this study's findings might not fully encapsulate the evolving landscape. This opens the door for continuous research that tracks the trajectory of OMC adoption over time, ensuring relevance and applicability in an ever-changing digital healthcare environment.

In essence, this study not only deepens our comprehension of OMC adoption but also lays the groundwork for future investigations. By unraveling the complexities, highlighting influential factors, and acknowledging potential avenues for further exploration, this research becomes a pivotal guide for stakeholders, policymakers, and researchers navigating the intricate landscape of OMC adoption in Pakistan and beyond.

5.2 Contributions

This research makes a substantial contribution by applying the UTAUT framework to the OMC setting, offering insights into OMC-specific determinants, demographic variations, and practical implications. The contextual adaptation of UTAUT enriches its applicability in the unique intersection of healthcare and technology, enhancing our understanding of technology acceptance in the OMC landscape.

Furthermore, the research contributes to the broader discourse on the integration of technology in contemporary healthcare landscapes. By situating OMC within this larger context, the study engages in discussions about the evolving nature of patient-doctor interactions and the transformative impact of virtual platforms on healthcare delivery paradigms.

5.2.1 Theoretical contribution

This study reveals OMC-specific variables by using the UTAUT paradigm to OMC, greatly enhancing scholarly debate. It investigates demographic differences empirically and offers complex insights into the adoption of technology. The study's application implications provide stakeholders with evidence-based tactics to improve OMC acceptability, bridging theory and practice. It highlights how important digital health literacy is when making decisions about healthcare. Theoretical understanding is advanced by contributions to current scholarly conversations regarding policy considerations and the preparedness of the healthcare system. The study also has ramifications for telehealth innovation, encouraging continued technological advancements that meet user demands and expectations in the dynamic field of digital healthcare.

This study makes significant academic contributions by extending the existing UTAUT to comprehend the adoption of OMC, by integrating Perceived Risk, Perceived Cost, and Perceived Satisfaction into the UTAUT framework, the research contributes to a more complete understanding of the factors that influence OMC adoption. This extension of UTAUT provides a robust theoretical foundation for future studies in the realm of digital health adoption, particularly in the context of OMC services.

5.2.2 Practical contribution

This research has practical consequences for policy makers, healthcare practitioners, technological innovators, and the general public. Insights can help healthcare providers optimize their digital connections by informing training programs and customised service delivery. The results can be used by policymakers to develop programs and regulatory frameworks that support fair access to OMCs. Technology developers can align platforms with user preferences by following guidelines for user-centric design and innovation. The general population gains from initiatives that improve digital health literacy and make informed decisions. All things considered, the research helps healthcare systems allocate resources efficiently while building responsiveness and resilience to health concerns. The overall goal is to make it easier for OMC technology to be fairly and successfully included in modern healthcare procedures.

From a practical standpoint, this research offers actionable insights with implications for various stakeholders, including healthcare providers, policymakers, and technology developers. The findings guide the optimization of digital connections in healthcare, informing training programs, regulatory frameworks, and user-centric design. Policymakers can use these insights to develop strategies that promote the efficient and secure execution of OMC consultations, ensuring the convenience and satisfaction of users. Healthcare practitioners can adapt their practices to align with the identified influential factors, and technology developers can enhance OMC applications to address users' specific needs and concerns.

5.3 Research Limitations

The present study examines the influence of eight variables on Behavioral Intention in the context of OMC using the UTAUT framework. While this study contributes valuable insights, it is essential to acknowledge its limitations to this research: the model's simplicity may oversimplify the complex nature of user behavior in the OMC context; data collection through an online form introduces potential response bias, as participants self-select, limiting the generalizability of findings; the cross-sectional design makes it difficult to establish causal relationships; the study may not fully capture the dynamic evolution of technology and healthcare practices; furthermore, the sample, drawn from online

participants, may not be fully representative, potentially excluding perspectives of those with limited digital access. The use of random sampling for data collection may pose a limitation, as it might not capture the diversity of perspectives within the OMC user population. A purposive sampling approach, targeting practitioners and patients separately, could provide richer insights into the research problem. Additionally, the study primarily focuses on the Pakistani context, and the generalizability of findings to other cultural contexts may require further investigation. These limitations should be considered when interpreting the results and designing future research.

5.4 Future Implications

The data from this study makes a number of significant advances in theory and practice. The UTAUT model has been effectively expanded and utilised in this work in a new location and context, namely OMC, with regard to theoretical ramifications. The UTAUT has also been expanded to include the characteristics that may have noteworthy outcomes in the existing OMC research (Perceived Risk, Perceived Satisfaction and Perceived Cost). When seen as a whole, the empirical results show that the suggested theoretical model can be more successful at describing behavioral intention both generally and especially in the context of OMC.

This study documents some new variables influencing the adoption of OMC in Pakistan. This would improve decision-makers' comprehension of how these influences shaped Pakistan's OMC infrastructure. By taking these variables into consideration while creating such applications, the research conducted here will also increase the creators of OMC applications' understanding. To preserve the positive aim of using OMC, OMC developers should focus on developing OMC applications that can run on a variety of devices, complete tasks in the least amount of time, are user-friendly, simple to use, and socially responsible. Hospital decision-makers should also arrange awareness campaigns to inform OMC users about the risks that may develop during communication via OMC if it is used incorrectly. Furthermore, OMC service providers must ensure that the OMC channels can communicate swiftly and securely in a variety of settings.

This study's findings open up various research avenues and practical implications:

1. Cross-Cultural Studies: Future research should explore cultural variations in the adoption of OMC by conducting cross-cultural studies. This would provide more understanding of how cultural factors influence perceptions and intentions across different regions.

2. Longitudinal Studies: Longitudinal studies can track the evolving perceptions and behaviors of OMC users over time. This approach would offer insights into the sustainability of OMC adoption and potential changes in user attitudes as the technology matures.

3. Usability and User Experience: Further investigation into the usability and user experience of OMC applications is warranted. Understanding the specific features and design elements that enhance user satisfaction and efficiency can guide developers in creating more user-friendly platforms.

4. Policy and Regulatory Frameworks: Future research could delve into the development of effective policy and regulatory frameworks to support the growth of OMC. This includes addressing issues related to data privacy, cybersecurity, and ensuring a conducive environment for the seamless integration of OMC into the healthcare ecosystem.

5. Hybrid Healthcare Models: Given the evolving nature of healthcare, exploring hybrid models that integrate both traditional and OMC services could be an interesting area of research. Understanding how users perceive and navigate these hybrid models can inform the development of integrated and patient-centric healthcare delivery systems.

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APPENDIX I – DATA QUESTIONNAIRE

Construct	Corresponding Items
Perceived Risk (PR)	PR1: I wouldn't feel protected when providing personal information through the OMC.
	PR2: I wouldn't feel comfortable about the use of OMC because other people might be able to access my data.
	PR3: There is a high chance that something wrong would occur when using OMC.
Perceived Trust (PT)	PT1: OMC is trustworthy.
	PT2: I believe that all patient's data is confidential.
	PT3: I would expect the OMC to be reliable.
Perceived Satisfaction (PS)	PS1: I perceive a high level of satisfaction with OMC.
	PS2: OMC will provide me a pleasant experience.
	PS3: OMC will provide satisfactory experience.
Self-Efficacy (SE)	SE1: I will prefer OMC if I had the built-in guide for assistance.
	SE2: I will go for OMC if someone showed me how to use it.
	SE3: I will adopt OMC if it would be experienced by others.
Effort Expectancy (EE)	EE1: OMC is easy to use as compared to In-person medical consultation.
	EE2: My interaction with OMC is clear and understandable.

	EE3: It is easy for me to become skillful at using OMC.
Performance Expectancy (PE)	PE1: OMC improves my daily life because I am satisfied with the availability of doctors right away.
	PE2: OMC helps me to accomplish tasks more quickly.
	PE3: OMC improves my productivity because I can focus on my tasks other than being worried to take time for face-to-face consultation.
Social Influence (SI)	SI1: People in my life strongly believe that I should use the OMC.
	SI2: People who influence my behavior suggest OMC to me.
	SI3: People whose opinions I value, prefer that I use the OMC.
Behavioral Intention (BI)	BI1: I intend to use the OMC in the future.
	BI2: I expect that I will use the OMC in my daily life.
	BI3: I expect to use the OMC frequently.
	BI4: I have a positive intention to adopt OMC.