

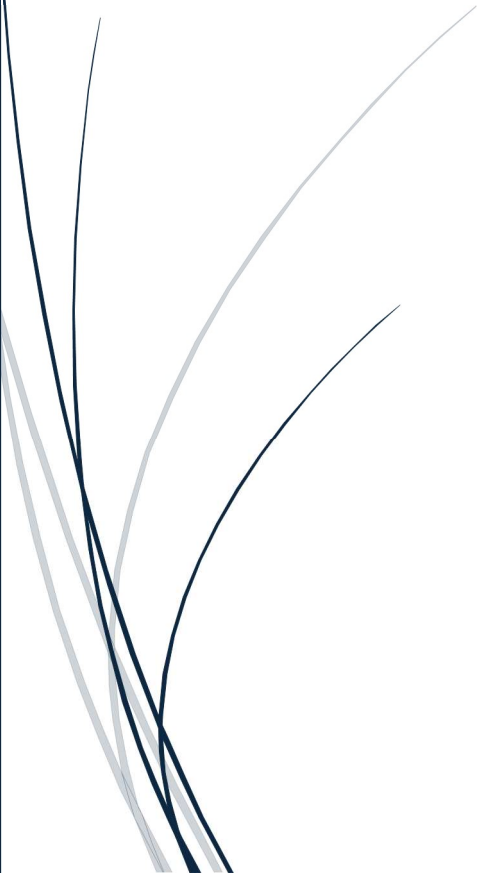
MBA Dissertation

# Study on adoption of Telemedicine in Post- COVID-19 Hong Kong: Analyzing Resident Perspectives and Influencing Factors

UWTSD - Master of Business Administration

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## Abstract

The COVID-19 pandemic accelerated the adoption of telemedicine globally, including in Hong Kong, where healthcare systems faced unprecedented challenges. This study explores the factors influencing telemedicine adoption in post-COVID-19 Hong Kong, focusing on cost, convenience, quality of service (QoS), and safety. Using a mixed-methods approach, quantitative data from 130 respondents were analyzed to assess public perceptions and drivers of telemedicine acceptance. The findings reveal that cost is the most significant factor influencing adoption, reflecting the financial sensitivity of Hong Kong residents. Convenience emerged as another critical driver, highlighting the importance of time-saving solutions in a fast-paced urban environment. QoS also plays a pivotal role, emphasizing the need for reliable and effective virtual healthcare services. Interestingly, safety concerns were found to have a relatively minor impact on adoption decisions, possibly due to Hong Kong residents' familiarity with secure digital platforms.

Despite its potential to alleviate pressure on Hong Kong's healthcare system, telemedicine remains underutilized, with limited public awareness and trust serving as key barriers. The study contributes actionable insights for policymakers, healthcare providers, and technology developers to enhance telemedicine accessibility and integration. Recommendations include introducing subsidies, improving service quality and user experience, and leveraging advanced technologies to address adoption barriers. This research provides a foundation for optimizing telemedicine services in Hong Kong and offers valuable implications for its sustainable integration into global healthcare systems.

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Date 2025-4-20

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# 1 Introduction

The COVID-19 pandemic has significantly influenced healthcare systems worldwide, leading to major transformations. Among these, the swift integration of telemedicine has stood out as a key development. By utilizing digital and communication technologies to offer remote medical care, telemedicine has proven to be a safe and efficient solution during the crisis. This dissertation will evaluate the continued use and integration of telemedicine in the post-pandemic period, using the Hospital Authority as a focal case study.

Telemedicine, which involves providing healthcare services through telecommunication technologies, has attracted widespread global interest. As technology continues to evolve and the need for accessible healthcare increases, telemedicine emerges as a viable approach to overcoming challenges in healthcare delivery. This research proposal seeks to investigate the key factors influencing the adoption of telemedicine in Hong Kong, focusing on the obstacles and supportive elements that affect its implementation.

## 1.1 Background

Telemedicine is defined as the use of electronic information and communications technologies to provide and support healthcare services when distance separates the participants. (Roberts, 1997)

Telemedicine has developed over a long period, originating in the 19th century and evolving alongside communication technologies. One of its earliest applications was during the American Civil War, where the telegraph was used to relay medical reports and casualty updates remotely (Zundel, 1996). With the advancement of communication tools, telemedicine expanded through the use of telephones and radios to enable remote consultations and diagnoses. By the mid-1900s, television began to serve educational and clinical purposes in medicine, and the term “telemedicine” was officially introduced in the 1970s (Murphy and Bird, 1974, 1974b). The emergence of the internet in the late 1990s marked a turning point, allowing for real-time video consultations and digital health records, which significantly advanced telemedicine’s role in healthcare (Jagarapu & Savani, 2021).

Prior to the COVID-19 outbreak, telemedicine adoption remained sluggish due to a combination of regulatory, technical, and societal hurdles (Isabalija et al., 2011). These challenges led to uneven implementation, with its use largely confined to specialties like radiology and mental health. Although interest in virtual healthcare was growing—evident from a 2019 poll in which 85% of respondents showed interest in telehealth but only 17% had access—telemedicine faced underuse due to concerns about care quality and hesitation among healthcare professionals to embrace new technologies (Zundel, 1996; Hincapié et al., 2020).

However, the COVID-19 pandemic dramatically accelerated the adoption of telemedicine. Social distancing requirements prompted healthcare providers to rapidly shift to telehealth platforms, ensuring continuity of care while minimizing infection risks. Policy reforms played a critical role, easing previous restrictions, expanding reimbursement eligibility, and permitting cross-border healthcare delivery (Brunet et al., 2021; Nittari et al., 2020). This led to a dramatic increase in telehealth use—rising 78-fold between February and April 2020 (Bestsenny et al., 2021). The pandemic not only demonstrated telemedicine’s effectiveness, but also increased its acceptance among healthcare professionals and patients. Consequently, telemedicine has become a fundamental part of healthcare systems, with expectations of continued growth due to its proven advantages in improving access and efficiency (Bashshur et al., 2020).

## 1.2 Research Drivers

Hong Kong's telemedicine development before COVID-19 was slow, originally telemedicine is constrained by the Medical Council of Hong Kong's Ethical Guidelines on the Practice of Telemedicine, which limited virtual consultations to pre-existing doctor-patient relationships (Hong Kong Economic Times, 2022). Adoption remained low, with only 9.6% of the population using telemedicine services by 2018, reflecting limited awareness and accessibility (HKSAR, 2021). Infrastructure relied on non-specialized tools like WhatsApp and WeChat rather than dedicated platforms, contrasting sharply with mainland China's proactive "internet-plus healthcare" policies under its "Healthy China 2030" blueprint (HKSAR, 2021). Early initiatives, such as Queen Elizabeth Hospital's 2020 pilot telemedicine program for neurosurgery, emerged shortly before the pandemic but lacked scalability (Hung et al., 2023). Public skepticism persisted, particularly among older adults hesitant about digital tools, with studies emphasizing the need for government subsidies to incentivize adoption. These barriers progress until pandemic pressures catalyzed reforms.

The COVID-19 pandemic acted as a major turning point for the widespread adoption of telemedicine. According to Ahmed (2020), healthcare systems swiftly transitioned to telehealth services during the early stages of the outbreak. This rapid shift led to a dramatic surge in usage, with Bestsennyy (2021) noting a 78-fold increase in telehealth engagement between February and April 2020. Beyond accelerating uptake, the pandemic highlighted telemedicine's vital role in ensuring continuous healthcare delivery during emergencies (Bashshur et al., 2020).

In Hong Kong, the battle with COVID-19 reached its most critical point during the fifth wave in early 2022, marking an unprecedented public health crisis that overwhelmed the city's healthcare system. While the first four waves (January 2020 to late 2021) were relatively contained with approximately 12,000 cases total (Wong et al., 2022), the Omicron-driven fifth wave devastated the city with over 1.2 million cases and 9,318 deaths by May 2022 (Wong et al., 2022). Critical wards had reached 130% capacity, with patients treated in makeshift outdoor facilities and corridors (Ma and Ma, 2023). The elderly, accounting for 96% of deaths, were particularly vulnerable (Smith et al., 2022).

During the fifth wave, 24.9% of healthcare workers became infected, which was significantly higher than the 16.2% infection rate in the general population, highlighted the urgent need for alternative care methods (Wong et al., 2022b). Telemedicine became critical, enabling remote consultations and care for patients unable to access overwhelmed hospitals. Platforms like Gleneagles' free online consultations provided timely support to COVID-19 patients and those with chronic conditions, easing the strain on physical facilities (Gleneagles Hospital Hong Kong, 2022). Telemedicine also addressed elderly care needs, with programs enhancing mental health and bridging care gaps.

The swift rise of telemedicine amid the COVID-19 pandemic has emphasized several advantages, such as improved convenience, greater accessibility, and minimized travel requirements. Nonetheless, obstacles remain, including technological issues, communication challenges, and disparities in access (Mirasghari et al., 2024). These ongoing issues highlight the importance of further research to understand the factors that drive public willingness to adopt telemedicine.

## **Healthcare Challenges in Hong Kong**

The necessity to adopt telemedicine boosted the critical challenges faced by the healthcare industry. Hong Kong is facing a significant shortage of healthcare workers, particularly doctors and nurses, which has put immense pressure on the city's healthcare system.

According to recent projections, there will be a shortage of 1,570 doctors and 180 dentists by 2030 (South China Morning Post, 2024). The situation is even more dire for nurses, with an estimated shortfall of 8,700 nurses in general clinic services by 2030 (Sun and Sun, 2024). This shortage is attributed to various factors, including an aging population, increased demand for healthcare services, and healthcare professionals leaving for better opportunities abroad (Vyas and Vyas, 2024).

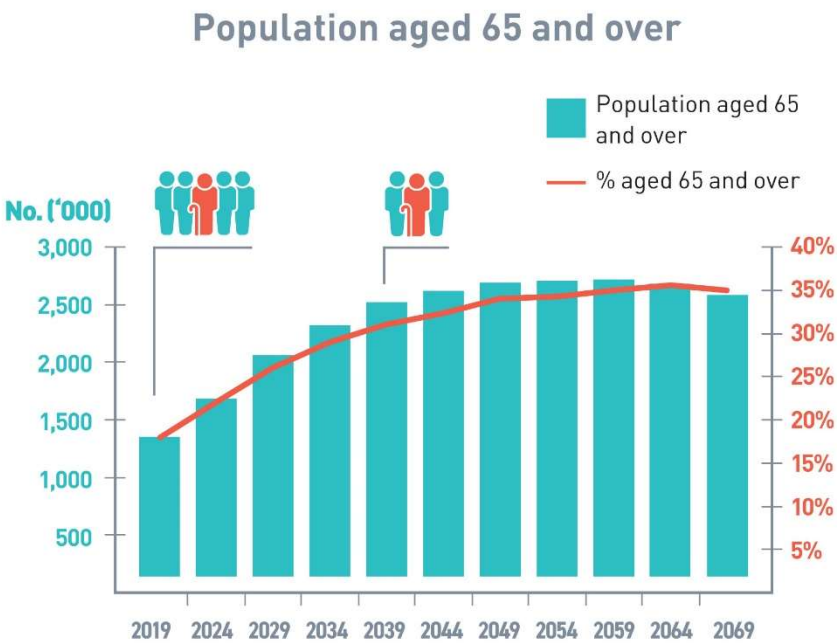
The shortage is particularly evident in the public healthcare sector, where only 42% of the city's 16,000 doctors work in public hospitals (Hoi-Ying and Hoi-Ying, 2024). The lack of healthcare workers has resulted in longer wait times, increased workload for existing staff, and potential compromises in the quality of care (Bejer, 2025).

To address this issue, the Hong Kong government has implemented various measures, including increasing the number of medical training places and recruiting non-locally trained doctors (Health Bureau, HKSAR, 2024). However, these efforts have not been sufficient to meet the growing demand for healthcare services. In response to this challenge, there has been a growing interest in telemedicine as a potential solution to bridge the gap in healthcare delivery (Choi et al., 2023).

Telemedicine allows patients to receive medical consultations and services remotely, reducing the need for in-person visits and alleviating the strain on healthcare facilities. As Hong Kong continues to grapple with its healthcare worker shortage, telemedicine is likely to play an increasingly important role in ensuring adequate healthcare delivery to its population.

In addition to the shortage of healthcare professionals, Hong Kong’s healthcare system is further strained by its rapidly aging population, as previously noted. Projections indicate that by 2039, the elderly population will reach 2.52 million, accounting for 31% of the total population. This demographic shift, coupled with an increasing burden of chronic illnesses, is placing extraordinary pressure on the healthcare infrastructure (Health Bureau, HKSAR, 2024).

Chart 1.1: Projection of population of 65 ages and above, from year 2019 to 2069

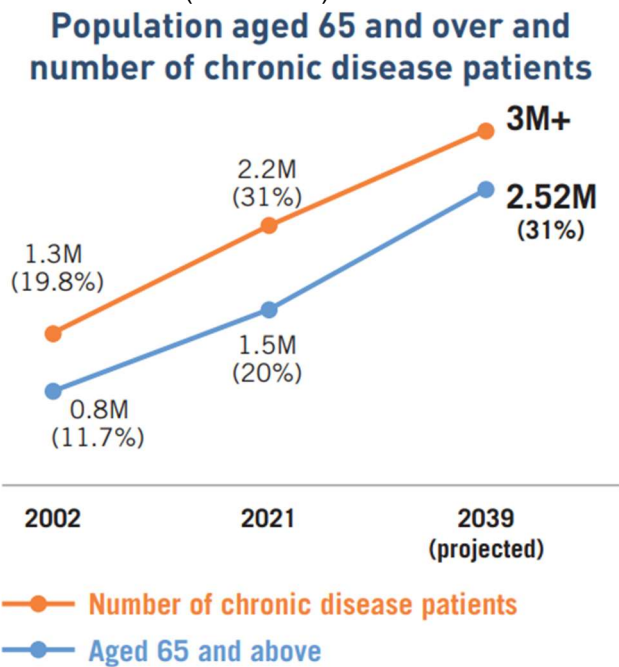


Source: Census and Statistics Department (C&SD) (Chan and Census and Statistics Department, 2020)

As outlined in the Primary Healthcare Blueprint (Health Bureau, HKSAR, 2022), the growing prevalence of chronic diseases adds further strain to Hong Kong’s healthcare system. Currently, around 31% of the population, approximately 2.2 million individuals— are affected by chronic health conditions. The Hospital Authority anticipates that this number will rise to 3 million within the next decade, with a significant portion remaining undiagnosed or unmanaged—potentially twice the number of known cases.

Telemedicine presents a valuable solution to these challenges by enabling consistent monitoring of chronic illnesses, facilitating early identification of complications, enhancing medication adherence, and delivering ongoing health education. This approach not only ensures continuous care for patients but also alleviates pressure on traditional healthcare facilities.

Chart 1.2: Trends and Projections of Elderly Population and Chronic Disease Patients (2002-2039)



Source: Primary Healthcare Blueprint (Health Bureau, HKSAR, 2022)

### 1.3 Research Objectives

The primary aim of this research is to evaluate the factors influencing Hong Kong residents' willingness to use telemedicine services in the post-COVID-19 era, with a focus on cost, convenience, safety, and quality of care / service. This study seeks to understand how these crucial elements affect public acceptance and adoption of telehealth services, and to explore ways to optimize these factors for improved telemedicine integration in Hong Kong's healthcare system.

The objectives of this study are:

1. **To assess the level of awareness and understanding of telemedicine among Hong Kong residents in the post-COVID-19 period.**  
This objective aims to evaluate the current knowledge and familiarity of Hong Kong residents with telemedicine services, providing a baseline for understanding the public's readiness to adopt telemedicine.
2. **To identify the key factors influencing Hong Kong residents' willingness to use telemedicine services.**  
This objective focuses on uncovering the primary drivers and barriers affecting residents' decisions to use telemedicine, including perceived convenience, cost-effectiveness, quality of care / service and safety concerns. It will investigate how these factors shape public perceptions and acceptance of telemedicine.
3. **To explore the perceived benefits and concerns of Hong Kong residents regarding the long-term integration of telemedicine into the healthcare system.**  
This objective examines residents' views on potential long-term impacts of increased telemedicine use, including benefits like improved healthcare access and efficiency, as well as concerns about quality of care / service and data privacy.
4. **To suggest strategies and recommendations to enhance the acceptance and integration of telemedicine among Hong Kong residents.**  
Based on the findings, this objective will propose actionable strategies to improve telemedicine acceptance and integration, including policy recommendations, technological improvements, and public education initiatives.

## 1.4 Research Questions

These research questions are designed to comprehensively address the study's objectives by exploring various aspects of telemedicine adoption in Hong Kong. They aim to establish a baseline of knowledge, identify key influencing factors, understand demographic influences, explore perceived benefits and concerns, examine the impact of the COVID-19 pandemic, and develop strategies for improvement.

Therefore, the following research questions have been formulated to guide this study:

1. What is the current level of awareness and understanding of telemedicine among Hong Kong residents in the post-COVID-19 era?
2. What are the key factors influencing Hong Kong residents' willingness to use telemedicine services, with a focus on cost, convenience, safety, and quality of care / services?
3. What are the perceived benefits and concerns of Hong Kong residents regarding the long-term integration of telemedicine into the healthcare system?
4. What strategies and recommendations can be proposed to enhance the acceptance and integration of telemedicine among Hong Kong residents?

The interrelation between these research questions creates a comprehensive framework for understanding telemedicine adoption in Hong Kong. The first question establishes a baseline of awareness and understanding, which is crucial for interpreting the subsequent questions. Studies have shown that awareness and understanding significantly influence the adoption of new healthcare technologies (Tan et al., 2024). By assessing the current level of knowledge, the study can identify gaps that may need to be addressed through public education initiatives.

The research questions delve into the key factors influencing willingness to use telemedicine services. Cost, convenience, safety, and quality of care / services have been identified as critical factors in healthcare service adoption (Doraiswamy et al., 2020). Understanding these influences is essential for developing targeted interventions and improvements in telemedicine services. The questions also leading to the exploration of the perceived benefits and concerns regarding the long-term integration of telemedicine into the healthcare system. This is important as public perceptions can significantly influence the acceptance and successful implementation of telemedicine services (Bjarnadóttir et al., 2024).

Furthermore, the research aims to develop practical solutions for improving telemedicine acceptance and integration in Hong Kong's healthcare system. Previous research has shown that strategies such as improving technological infrastructure, providing training for healthcare providers, and implementing supportive policies can significantly enhance telemedicine adoption (Choi et al., 2023). These research questions also take into account the unique context of Hong Kong's healthcare system. Moreover, the questions implicitly

consider the role of government support in promoting telemedicine use. Studies have shown that government initiatives, such as subsidies and reduction of insurance reimbursement restrictions, have been key factors in increasing the use of telemedicine in other countries (HKSAR, 2022).

By exploring factors influencing willingness to use telemedicine services, the study can inform potential government strategies to enhance telemedicine adoption in Hong Kong. In conclusion, this comprehensive approach will yield insights that can significantly contribute to the successful integration of telemedicine into Hong Kong's healthcare system, ultimately improving healthcare access and quality for its residents.

## 1.5 Value & Contribution of Research

This study on telemedicine adoption in Hong Kong offers significant value and contributes to both academic knowledge and practical applications in healthcare delivery. Academically, it addresses critical gaps in understanding telemedicine adoption in urban Asian healthcare systems, particularly in the post-COVID-19 era. The research provides nuanced insights into how cultural, technological, and systemic factors interact to shape healthcare preferences, contributing to the growing body of literature on this topic. Practically, the findings can guide policymakers in developing evidence-based strategies to promote telemedicine adoption, inform healthcare system optimization efforts, and improve telemedicine services to meet the needs and expectations of Hong Kong residents.

The research directly addresses critical healthcare challenges facing Hong Kong, including healthcare worker shortages and an aging population, by exploring telemedicine as a potential solution. It contributes to efforts to alleviate pressure on the healthcare system and informs strategies to leverage telemedicine in managing the healthcare needs of Hong Kong's rapidly aging population. Moreover, the study lays the groundwork for future research, including longitudinal studies on long-term impacts of telemedicine adoption, comparative analyses across Asian urban centers, and investigations into emerging technologies in telemedicine. By providing a comprehensive understanding of telemedicine adoption in Hong Kong, this research offers valuable insights that can shape the future of healthcare delivery, improve patient outcomes, and enhance overall healthcare system efficiency.

## 1.6 Chapter Structure

The dissertation is structured as follows:

### 1. Chapter 1: Introduction

- Presents the research background, objectives, research questions, and potential contributions
- Provides an overview of telemedicine and its relevance in Hong Kong's healthcare context

## 2. Chapter 2: Literature Review

- Reviews relevant literature on factors affecting the acceptance of telemedicine
- Examines theoretical frameworks related to technology adoption in healthcare
- Identifies gaps in current research and positions this study within the existing body of knowledge

## 3. Chapter 3: Research Methodology

- Outlines the research design and approach
- Presents the conceptual framework and hypotheses
- Describes data collection methods, including questionnaire design and sampling strategy
- Discusses ethical considerations and limitations of the study

## 4. Chapter 4: Data Analysis and Results

- Presents the analysis of questionnaire results using appropriate statistical methods
- Reports findings related to each hypothesis and research question
- Includes relevant tables, charts, and figures to illustrate key results

## 5. Chapter 5: Discussion and Conclusion

- Interprets and discusses the significance of the results in relation to existing literature
- Addresses the research questions and evaluates the hypotheses
- Presents theoretical and practical implications of the findings

## 6. Chapter 6: Conclusion and recommendations

- Concluding with a summary of key contributions, limitations, and recommendations for future research
- Provide recommendations regarding the result found and discussion

## 2 Literature Review

### 2.1 Factors affecting the acceptance of telemedicine

The adoption of telemedicine services is influenced by a complex interplay of factors that shape public perception and willingness to engage with this evolving healthcare delivery model. This section examines the key determinants that affect the acceptance of telemedicine from public opinion. Drawing from a diverse body of research, we explore how each element contributes to the overall acceptance and utilization of telemedicine services.

#### 2.1.1 Acceptance of telemedicine

While initial acceptance was driven by necessity, showing significantly higher acceptance rates during severe outbreaks compared to normal circumstances (Vyas and Butakhieo, 2020), the post-pandemic period presents questions about its sustained acceptance in a post-pandemic context (Mirasghari, 2024).

From the public's perspective, a cross-sectional survey found that more than half of the general Hong Kong population is willing to use teleconsultation in primary care, indicating a moderate level of acceptance (Tse et al., 2024). However, specific demographic factors play a significant role in shaping this acceptance. For instance, younger individuals and those with higher education levels are more likely to accept telemedicine. In a urogynaecology study, younger age and higher education were associated with a more positive perception of telemedicine (Chung and Wong, 2022). Among older adults, the acceptance of telemedicine varies significantly depending on the context. During a severe outbreak, 81.7% would accept telemedicine, but this drops to 39.4% after the pandemic (Choi et al., 2023).

To further explore the public's acceptance of telemedicine, we examine their willingness to adopt and consistently use these services. This investigation is grounded in technology adoption theories, which are often structured through frameworks like the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The TAM suggests that the primary drivers of technology adoption are perceived usefulness (PU) and perceived ease of use (PEOU) (Davis, 1989). Building on this, UTAUT introduces additional factors such as social influence, facilitating conditions, and moderators like age and experience (Venkatesh et al., 2003).

The acceptance of telemedicine is shaped by several key factors that align with the theoretical frameworks of TAM and UTAUT. Cost is a significant determinant, as telemedicine reduces travel expenses and lost work hours for patients while lowering operational costs for providers (Pierce and Stevermer, 2020). Additionally, the cost-effectiveness of telemedicine can be enhanced by reducing the need for hospitalizations and emergency department visits, which are often more expensive than telemedicine

consultations (Hollander and Carr, 2020). However, affordability concerns, such as high out-of-pocket expenses or insufficient insurance coverage, can hinder adoption.

Quality of care / service and safety are also critical determinants of telemedicine acceptance. Quality of care / service is a vital factor; while telemedicine has shown comparable outcomes to in-person care for chronic conditions (Mabeza et al., 2022), concerns about diagnostic accuracy and the lack of physical examinations may affect perceptions of its effectiveness. Safety concerns, including data security and clinical risks like misdiagnoses, also influence trust in telemedicine systems (Wang et al., 2023).

To illustrate the interrelations between the factors of cost, convenience, quality of care / service, and safety with the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), the following table provides a concise overview:

Table 2.1: Table of variable factors regarding to TAM and UTAT

| Factor | TAM                                                                                                                                                  | UTAUT                                                                                                                                                       |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cost   | <b>Perceived Usefulness:</b> Cost savings can enhance perceived usefulness by reducing financial burdens and increasing accessibility (Davis, 1989). | <b>Performance Expectancy:</b> Lower costs can improve performance expectancy by making healthcare more affordable and accessible (Venkatesh et al., 2003). |

| Factor                           | TAM                                                                                                                                                                                            | UTAUT                                                                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Convenience</b>               | <b>Perceived Ease of Use:</b> Convenience enhances perceived ease of use by reducing barriers such as travel time and waiting times (An et al., 2021).                                         | <b>Effort Expectancy:</b> Convenience aligns with effort expectancy by making telemedicine services easier to access and use (Anawade et al., 2024).                                     |
| <b>Quality of Care / Service</b> | <b>Perceived Usefulness:</b> High-quality care increases perceived usefulness by providing effective treatment and improving health outcomes (Ezeamii et al., 2024).                           | <b>Performance Expectancy:</b> Quality of care / service impacts performance expectancy by ensuring that telemedicine services meet healthcare needs effectively (Ezeamii et al., 2024). |
| <b>Safety</b>                    | <b>Perceived Ease of Use:</b> Safety concerns can affect perceived ease of use if users worry about data security or clinical risks, making the system less appealing (Mohammed et al., 2023). | <b>Facilitating Conditions:</b> Safety is linked to facilitating conditions, as robust security measures and patient safety support the use of telemedicine (Schürmann et al., 2025).    |

Together, these factors significantly shape telemedicine acceptance in Hong Kong's healthcare landscape, highlighting the need for a comprehensive approach that addresses both technological and social aspects of telemedicine adoption. In the following sections, each of these factors will be discussed in detail to provide a deeper understanding of their roles in telemedicine adoption.

### 2.1.2 Cost

#### Hong Kong's Healthcare System Cost Structure

Hong Kong's healthcare system is characterized by a dual structure comprising heavily subsidized public services and expensive private care. The public sector, managed by the Hospital Authority, provides approximately 90% of inpatient services and a significant portion of outpatient services, while the private sector caters to around 30% of outpatient needs (Schoeb, 2016). The public sector managed by the HA offering heavily subsidized outpatient consultations costing HK\$50 and inpatient stays at HK\$100/day, the services are financially accessible but often come with prolonged waiting times due to high demand (Hospital Authority, 2024). Time becomes a currency in Hong Kong's public

healthcare system, where patients often endure lengthy waiting lists, with specialist wait times exceeding 100 weeks for non-urgent cases (Health Bureau, HKSAR, 2022). In contrast, private healthcare offers immediacy but at significantly higher costs, with outpatient consultations often costing 3–5 times more than public counterparts. For instance, private hospitals charge between HKD 320 to HKD 800 for general outpatient consultations, while specialist consultations can range from HKD 1,200 to HKD 3,500 depending on the hospital (Bowtie Team, 2022).

The financial burden is intensified by Hong Kong's aging population, with 31% of total population by 2039 (Census and Statistics Department, Hong Kong Special Administrative Region, 2023), increasing demand for chronic disease management. Out-of-pocket healthcare expenditures already account for 44% of total health spending, far exceeding the global average of 18% (WHO, 2020). Such costs disproportionately affect vulnerable groups, including the elderly and low-income families, who face trade-offs between healthcare and other essentials.

The compounding pressures of Hong Kong's dual-system inefficiencies, aging demographics, and escalating out-of-pocket costs create a critical need for innovative solutions.

With the studies of cost-effective telemedicine, studies have shown that with the cost-performance of telemedicine increases, the adoption intention increases (Vidal-Silva et al., 2024). For Hong Kong, this strategy presents an opportunity to alleviate the burden on the public healthcare system and provide more affordable healthcare options to residents. The COVID-19 pandemic has accelerated the adoption of telemedicine globally, including in Hong Kong. Telemedicine enables remote consultation, diagnosis, and treatment through digital platforms, reducing the need for physical visits to healthcare facilities.

During the COVID-19 pandemic, public hospitals conducted over 45,000 telehealth sessions by 2022 (Ting and Ting, 2022). Studies have demonstrated its cost-saving potential with the adoption of telemedicine:

- **Lower Consultation Costs:** Telemedicine reduces overhead costs for providers (e.g., clinic space, administrative staff), enabling lower fees for patients. A meta-analysis by Snoswell et al. (2021), found telehealth services reduced healthcare costs by 20–30% in high-income countries. And during COVID-19, telemedicine adoption in China surged by 58% among low-income groups, who associated its lower consultation fees (60–80% cheaper than private clinics) with improved access to quality care. This cost-performance feature increases the acceptance of telemedicine by the public (Lin et al., 2024).
- **Indirect economic benefits:** Telemedicine eliminates travel expenses and lost wages from clinic visits. In rural mainland China, telemedicine saved patients an average of USD 50 per visit in transportation and accommodation costs (Du et al., 2022). While Hong Kong's urban density reduces travel distances, time savings

remain significant. One of the examples in Hong Kong can be listed that Gleneagles Hospital's teleconsultation service reduced travel and wait times for 9,000 elderly patients, lowering indirect costs (Hong Kong Business Magazine, 2022).

- **Chronic Disease Management:** Review has underscored telemedicine's cost-effectiveness in chronic disease management, aligning with global and local findings. Research from De La Torre-Díez et al. (2014) shown that among the 79% of studies demonstrating cost savings in chronic care applications, like hypertension and diabetes management showed consistent reductions in expenses through avoided complications and hospitalizations. For the situation in Hong Kong, HA's pilot telemonitoring program for diabetic patients cut emergency visits by 18%, saving HKD 2.4 million (USD 307,000) annually (Chan et al., 2023).

In addition to the cost-effectiveness of telemedicine, financial incentives and subsidies are significant factors influencing the intention to adopt these services. According to Choi et al. (2023), government-funded subsidies have emerged as the strongest predictor of telemedicine use among Hong Kong's aging population, with the expectation of financial support increasing the likelihood of adoption by sixfold. These targeted subsidies not only enhance accessibility but also align with the cost-conscious preferences of older adults, who prioritize affordability and value for money in their healthcare choices. This underscores that cost remains a crucial consideration for the public when selecting telemedicine options.

In conclusion, in light of Hong Kong's dual healthcare system—characterized by heavily subsidized but overburdened public services and expensive private care—telemedicine emerges as a cost-effective solution addressing critical healthcare challenges. The escalating financial burden on vulnerable groups, including the elderly and low-income families, is intensified by long waiting times in the public sector and prohibitive costs in the private sector. Telemedicine mitigates these issues by offering lower consultation costs due to reduced overheads, as evidenced by Snoswell et al. (2021), who found a 20–30% reduction in healthcare costs through telehealth services in high-income countries. Additionally, indirect economic benefits such as savings on travel expenses and lost wages further enhance its attractiveness. In Hong Kong, initiatives like Gleneagles Hospital's teleconsultation service, which reduced travel and wait times for 9,000 elderly patients, exemplify telemedicine's potential to alleviate financial and accessibility barriers (Hong Kong Business Magazine, 2022). Furthermore, telemedicine's effectiveness in chronic disease management offers substantial cost savings by reducing emergency visits and hospitalizations, as demonstrated by the Hospital Authority's pilot telemonitoring program that saved HKD 2.4 million annually.

The cost-effectiveness of telemedicine significantly influences the public's intention to adopt these services through the lenses of perceived usefulness and performance expectancy. According to the Technology Acceptance Model (TAM), perceived usefulness is a key determinant of technology adoption (Davis, 1989). In the context of telemedicine,

the substantial cost savings and financial incentives enhance its perceived usefulness among potential users, particularly those burdened by high out-of-pocket healthcare expenditures. Similarly, the Unified Theory of Acceptance and Use of Technology (UTAUT) highlights performance expectancy as a critical factor influencing adoption intentions (Venkatesh et al., 2003). The ability of telemedicine to provide high-quality healthcare services at reduced costs meets the performance expectations of users seeking value for money. Studies by Vidal-Silva et al. (2024) demonstrate that as the cost-performance ratio of telemedicine improves, so does the adoption intention. Furthermore, government-funded subsidies reported by Choi et al. (2023) amplify these effects by lowering financial barriers, thereby increasing the likelihood of adoption by sixfold among the aging population. This alignment of financial benefits with users' expectations and perceived value underscores the pivotal role that cost factors play in shaping the adoption of telemedicine. By enhancing perceived usefulness and meeting performance expectations, telemedicine not only offers a viable solution to Hong Kong's healthcare challenges but also motivates the public to embrace this innovative approach to healthcare delivery.

### 2.1.3 Convenience

Convenience serves as one of the critical drivers of adoption of telemedicine, particularly in the post-COVID-19 era, the shift toward virtual care was accelerated by COVID-19, which highlighted the need for accessible, time-efficient healthcare solutions. Telemedicine eliminates geographical barriers, reduces time spent traveling to clinics, and enables flexible scheduling, making healthcare more accessible for busy professionals, caregivers, and individuals with mobility challenges (Zahidah and Al-Haimi, 2023). During the COVID-19 pandemic, convenience became a critical driver for adoption, as patients prioritized minimizing exposure to infectious diseases while maintaining continuity of care (Raghavendra et al., 2024). In finding the relationship with the intention of adoption, multiple research studies have been conducted.

Studies show convenience directly correlates with adoption intent. During COVID-19, 61% of telemedicine users reported high satisfaction with remote services, citing avoidance of clinic exposure and streamlined workflows (Hung et al., 2023). Post-pandemic, 52% of Hong Kong public expressed willingness to use teleconsultation for primary care, particularly younger professionals valuing time savings (Tse et al., 2024).

Convenience in telemedicine encompasses time savings, reduced travel, and flexible access to care. In Hong Kong, where urban density and an aging population strain traditional service, telemedicine addresses three key barriers:

#### 1. Accessibility

##### **Overcoming Geographical Barriers**

Although numerous hospitals are distributed across various districts in Hong Kong, ensuring good accessibility, several challenges persist for the elderly or patients with mobility issues. Furthermore, many retirees now prefer living in the Greater Bay Area, presenting additional hurdles due to the long travel distance required for in-person consultations at hospitals in Hong Kong. In this context, telemedicine enables patients to consult healthcare professionals remotely, eliminating the need to travel to medical facilities. This is especially beneficial for the elderly and individuals with mobility issues (Zhou et al., 2021). A survey conducted by Choi et al. (2023) found 73% of elderly patients prioritized telemedicine for avoiding travel, especially those with mobility issues. Similarly, HA's KEC Clinical Psychology telehealth clinic reported 90% patient satisfaction due to saving time to visit the hospital (Leung et al., 2023).

The geographical advantages also demonstrated by patients can connect with specialized healthcare providers who may not be available locally, broadening treatment options without geographical limitations (Dorsey & Topol, 2020).

## 2. Time Efficiency:

The advantages of telemedicine enhance time efficiency and play a crucial role in shaping individuals' and organizations' intentions to adopt telemedicine. By streamlining processes, reducing travel time, and enabling quicker consultations.

### **Reduced Travel and Waiting Time**

Telemedicine aids in diminishing the time spent on travel and waiting. According to a study by Paquette and Lin (2019), patients who chose telemedicine appointments over traditional in-person consultations saved an average of 31.2 miles in travel distance, 39 minutes of travel time, and \$4.26 in gas and parking expenses for each visit. This utilization of telemedicine lessens the travel inconvenience for surgical patients, enhancing convenience without sacrificing the quality of care provided.

For the reduction of waiting time, a systematic review of 53 studies involving 270,388 patients found that telemedicine reduced outpatient wait times by a weighted mean of 25.4 days (Capodici et al., 2025). The reduction of waiting times is due to streamlined referrals, virtual consultations and pre-visit screening. Research from Polinski et al (2015) found 56% of telehealth users in a CVS MinuteClinic cited shorter wait times as their primary motivation, and 95% reported high satisfaction with the convenience of virtual visits, which leads to say convenience did increase the satisfaction of telemedicine due to convenience.

## 3. Flexibility

Telemedicine significantly enhances flexible scheduling for the public by eliminating geographical and time constraints. Patients can access care remotely, avoiding travel and fitting appointments into their schedules during off-hours, lunch breaks, or even between work commitments. For instance,

Telemedicine offers unparalleled scheduling flexibility by allowing patients to access healthcare services beyond traditional office hours, including evenings and weekends (Polinski et al., 2015). This extended availability is particularly beneficial for individuals with demanding work schedules or caregiving responsibilities who may find it challenging to attend in-person appointments during standard hours.

In conclusion, convenience is an important factor for the public's adoption of telemedicine, significantly enhancing patient satisfaction and perceived ease of use. Time savings from reduced travel and waiting times directly improve overall patient satisfaction, positively influencing attitudes toward telemedicine (Gajarawala and Pelkowski, 2020). The ability to access healthcare services remotely eliminates geographical and physical barriers, particularly benefiting the elderly, individuals with mobility challenges, and busy professionals. Studies have indicated that patients prioritize telemedicine for the convenience it offers; high satisfaction rates are reported due to time saved and the

reduced need to visit healthcare facilities, underscoring convenience as a crucial element in patient preferences.

Convenience also strengthens the perceived ease of use, a key determinant in the intention to adopt new technology as proposed by the Technology Acceptance Model (Davis, 1989). The flexibility inherent in telemedicine—such as flexible scheduling and virtual consultations beyond traditional office hours—accommodates individuals with demanding work schedules or caregiving responsibilities (Polinski et al., 2016). By aligning healthcare delivery with patients' lifestyles and preferences, telemedicine enhances user-friendliness and adaptability, further encouraging its adoption. As patients experience these conveniences, their satisfaction increases, fostering a positive attitude toward telemedicine and a greater likelihood of continued use. Emphasizing the convenience factors of telemedicine is therefore essential in promoting widespread acceptance and effectively addressing healthcare accessibility challenges.

#### 2.1.4 Quality of Care / Service

The World Health Organization (2024) defines quality of care as the degree to which health services enhance desired health outcomes and align with current professional standards. The adoption of telemedicine has been largely shaped by how it is perceived to impact this quality—a key factor influencing public acceptance. Telemedicine's quality is commonly evaluated across six essential dimensions established by the Institute of Medicine: safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity (Guetterman and Buis, 2024). Together, these domains help ensure that telemedicine delivers care that is responsive to patient needs and supports optimal health outcomes.

##### **Quality Assurance of telemedicine**

The adoption of telemedicine is intrinsically linked to its perceived and actual quality. Patients are more likely to embrace telehealth when they trust their clinical efficacy and safety. A study of 1,875 U.S. physicians found that telemedicine platforms integrated with electronic health records (EHRs) increased physician satisfaction by 32%, which correlated with higher patient engagement and care quality (Sengupta et al., 2024).

Hoque and Sorwar (2017) examined factors influencing the adoption of mobile telehealth services among the elderly in Bangladesh. The study highlighted that quality assurance leads to increased trust in telemedicine services, which is a crucial mediator in the relationship between service quality and adoption intention. In Hong Kong, clinics with accredited telehealth services reported a 40% increase in patient registrations, driven by positive feedback on consultation quality and reduced wait times (Ng and Ng, 2020). The accreditation not only ensured the quality of care / services but also boosted public confidence in choosing them.

## **Effectiveness of telemedicine**

The effectiveness of telemedicine is measured by its ability to achieve clinical outcomes comparable to in-person visits. In helping to manage chronic diseases, telemedicine shows promise in enhancing the quality of care by enabling continuous monitoring and timely interventions. Research by Zhang et al (2020) indicates that telemedicine can effectively reduce blood pressure and may improve diabetes control, especially for patients with poorly controlled diabetes. Additionally, patients report positive experiences with telemedicine, finding the systems easy to use and beneficial for managing their health. Besides, with incorporate with Remote patient monitoring (RPM), the quality-of-care increases from its ability to improve health outcomes, facilitate timely diagnoses, and reduce risks (Sasangohar et al., 2018). These findings suggest that healthcare providers could consider telemedicine to improve communication, interaction, and overall disease management for those with chronic diseases.

## **Patient-centeredness of telemedicine**

Patient-centered care is an approach that emphasizes respecting and responding to each patient's unique needs, preferences, and values, it reflected in telemedicine's flexibility, which allows consultations to occur in familiar environments, reducing stress and enhancing communication (Jayadevappa and Chhatre, 2011).

Studies consistently demonstrate that telemedicine meets or exceeds these benchmarks, particularly in chronic disease management and preventive care. For example, a cohort study of 526,874 primary care patients found that telemedicine exposure resulted in equivalent or superior performance in 13 out of 16 quality measures, including cancer screenings and diabetes testing, compared to office-only visits (Baughman et al., 2022). Telemedicine performed better because of the increased opportunity for intervention by increasing the encounter volume per patient, also better in process driven consulting.

Importantly, quality perceptions are reinforced when telemedicine addresses specific patient needs. In palliative care, a randomized trial of 1,250 advanced cancer patients found that telehealth consultations achieved equivalent quality-of-life outcomes to in-person care, with 90% of participants reporting confidence in their clinicians' decisions (Backman, 2024). Such evidence strengthens public confidence, creating a feedback loop where positive experiences drive further adoption.

In conclusion, quality of care involves safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity—directly influences perceived usefulness, a core TAM construct. Studies show telemedicine platforms integrated with electronic health records (EHRs) improve physician satisfaction by 32%, enhancing care coordination and patient engagement, which reinforces perceived reliability. Effectiveness is evident in chronic disease management, where telemedicine reduces blood pressure and improves diabetes control through continuous monitoring and timely interventions, while achieving clinical outcomes comparable to in-person care in 13 of 16 quality metrics, including

preventive screenings. Patient-centeredness, a key quality domain, is reinforced by telemedicine's flexibility, allowing consultations in comfortable environments and reducing stress, with 90% of advanced cancer patients reporting confidence in telehealth decisions. Satisfaction is further driven by reduced wait times and increased accessibility, as seen in Hong Kong clinics where accredited telemedicine services spurred a 40% rise in registrations. Trust, mediated by quality assurance, bridges service quality and adoption intent, particularly among elderly populations, creating a feedback loop where positive experiences—such as improved health outcomes and streamlined processes—strengthen perceived usefulness and ease of use. Together, these factors position telemedicine as not just a contingency solution but a sustainable care model, provided quality benchmarks and patient-centric design remain central to implementation.

### 2.1.5 Safety

Mentioned from the previous part, safety is one of the important elements that refers to the quality of telemedicine. Telemedicine introduces several safety concerns that demand careful attention to ensure effective and secure healthcare delivery. One major concern is the risk of patient privacy breaches and data security incidents, as transmitting sensitive health information over digital platforms can heighten the potential for cyberattacks and unauthorized access (Kruse et al., 2018). Additionally, the absence of physical examinations in virtual consultations may result in misdiagnoses or delayed diagnoses because certain conditions might not be adequately assessed without in-person evaluation (Dorsey and Topol, 2016). Furthermore, legal and regulatory challenges—including inconsistent telemedicine laws across different jurisdictions and uncertainties regarding malpractice liability—complicate the safe implementation of telemedicine services (Ohannessian, 2015). Addressing these safety concerns is crucial to fully realize the benefits of telemedicine while safeguarding patient well-being.

#### **Safety as a Factor in Telemedicine Acceptance**

##### **Regulation of Telemedicine**

The regulatory environment plays a crucial role in ensuring the safety of telemedicine services. In Hong Kong, telemedicine falls under the existing medical regulations, and the Medical Council of Hong Kong (MCHK) plays a pivotal role in this regulatory framework. The MCHK ensure healthcare professionals follow the code of conducts and guidelines to maintain patient safety during in person or remote consultations.

Globally, regulatory bodies are working to harmonize standards for telemedicine safety. The World Medical Association's Statement on the Ethics of Telemedicine provides a framework for ensuring safe and ethical practice across borders (WMA - The World Medical Association-WMA Statement on the Ethics of Telemedicine, 2022). Also, WHO published the "Telehealth quality of care tool", the document suggested several measures to ensure safety and quality in telemedicine, including measures in operational integrity,

psychological safety and governance and financial measures (World Health Organization et al., 2024). As these efforts continue, they are expected to significantly enhance the reliability and accessibility of telemedicine services worldwide.

### **Clinical Safety in Telemedicine**

It is a critical issue for telemedicine systems to deliver accurate diagnoses and appropriate treatments without compromising patient health. The absence of physical examinations in virtual consultations can limit diagnostic accuracy for certain conditions. Research has found that diagnostic accuracy can negatively impact trust. Patients have expressed fear about the potential for misdiagnosis due to the inability to perform physical examinations, which can lead to a decrease in public confidence in adopting telemedicine (Cataldo et al., 2020).

To address these concerns, healthcare providers and regulatory bodies are working to establish robust guidelines and protocols that ensure the safe and effective use of telemedicine. In Hong Kong, the Medical Council of Hong Kong (MCHK) issued the “Ethical Guidelines on Practice of Telemedicine” in 2019, emphasizing that telemedicine should only be used where it is clinically appropriate and safe to do so (The Medical Council of Hong Kong, 2019). For instance, pre-consultation preparations, such as collecting detailed medical histories or photographs, are essential for ensuring diagnostic accuracy (Pang, 2022). These guidelines instruct that doctors must carefully assess whether a virtual consultation is suitable for a patient's condition.

### **Data Security and Privacy**

Data security is another critical aspect of safety in telemedicine. Telemedicine platforms often utilize patient data to tailor medical advice, enhancing treatment effectiveness through personalization. Studies reveal that patients are often uncomfortable with telehealth providers conducting consultations from non-clinical settings due to perceived risks of data exposure (Andreadis et al., 2024). Addressing these concerns requires stricter enforcement of security standards and greater transparency about how patient data is handled. Therefore, patients need assurance that their sensitive medical information will be protected from unauthorized access or breaches. In Hong Kong, Personal Data (Privacy) Ordinance (Cap. 486) is instrumental in safeguarding patient information shared during virtual consultations (*Hong Kong e-Legislation*, 2013). This includes implementing encryption protocols, secure data storage systems, and multi-factor authentication mechanisms. In addition, the Office of the Privacy Commissioner for Personal Data (PCPD) has issued guidelines to healthcare providers and healthcare professionals to provide guidance to them to follow with (PCPD, 2016).

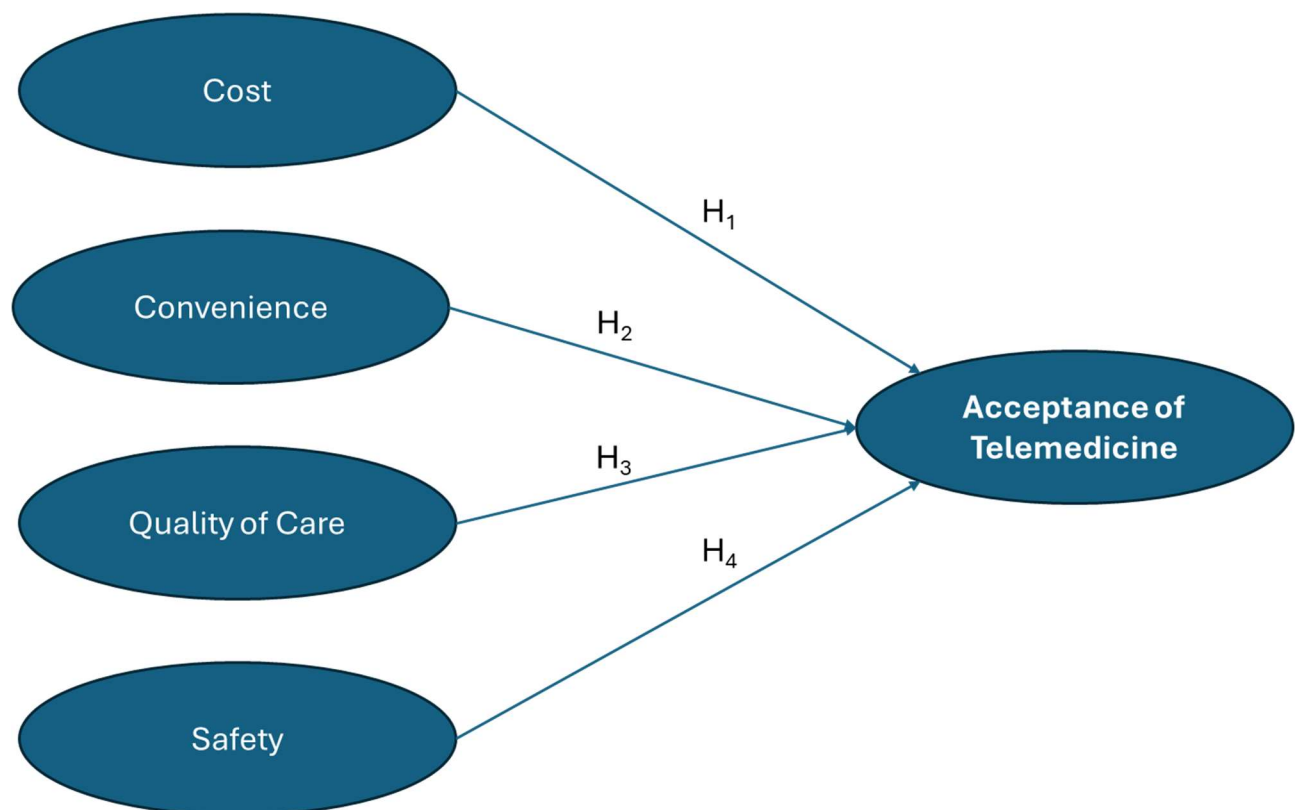
In conclusion, the safety of telemedicine is a critical factor in its public adoption. Safety concerns, such as data breaches and potential misdiagnoses due to the absence of physical examinations, can complicate the user experience and erode trust in telemedicine services. Effective regulatory frameworks and technological infrastructure are essential for mitigating these risks and ensuring that telemedicine is both accessible

and reliable. When patients feel confident in the security of their data and the quality of care received, they are more likely to be satisfied with telemedicine services. This satisfaction, in turn, can foster a smoother and more intuitive experience, encouraging wider adoption. By addressing safety concerns through robust data security measures and clear guidelines for appropriate use, healthcare providers can build trust and enhance the overall experience of telemedicine, ultimately promoting its broader acceptance.

## 2.2 Factors and Research Framework

This study discusses the factors influencing the acceptance of telemedicine, focusing on four key dimensions: cost, convenience, quality of care, and safety. These independent variables are hypothesized to significantly impact the dependent variable—telemedicine acceptance. By analyzing these relationships, the study aims to identify critical drivers and barriers to telemedicine adoption, providing actionable insights for optimizing healthcare delivery in the post-COVID-19 era. The relationship between the variables is illustrated below.

Chart 2.1: Research Model of the relationship of independent variables and dependent



## 3 Research Methodology

### 3.1 Research Method

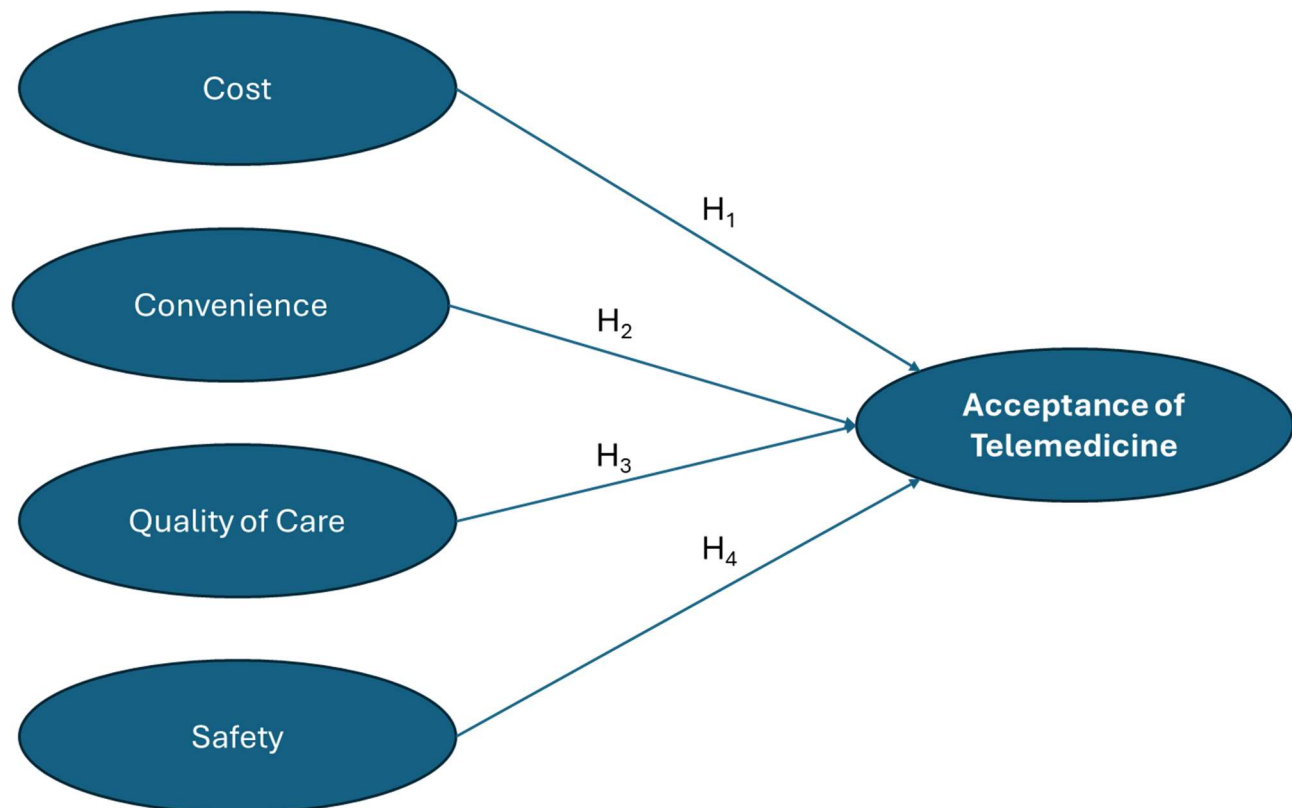
This study employs a mixed-methods research design, integrating **quantitative** and **qualitative** analyses to comprehensively investigate the factors influencing telemedicine adoption in post-COVID-19 Hong Kong (Tashakkori and Teddlie, 2010). This approach enables a holistic understanding of both measurable patterns and contextual insights, ensuring that the study captures the multifaceted nature of telemedicine acceptance among residents (Creswell and Plano Clark, 2007).

Quantitative research involves systematic collection and statistical analysis of numerical data to identify patterns, test hypotheses, and generalize results. In this study, structured questionnaires with closed-ended questions (e.g., Likert scales) will be distributed to a representative sample of Hong Kong residents. Key variables such as cost, convenience, perceived quality of care, and safety concerns will be quantified. Statistical tools (e.g., regression analysis, factor analysis) will assess the relative importance of these factors and their correlations with adoption intent (Hair et al., 2010).

For instance, the quantitative phase will measure the extent to which cost affects telemedicine adoption by analyzing responses to questions like: "How important is cost when deciding to use telemedicine services?" (Scale: 1-5, where 1 is "not important at all" and 5 is "very important"). This will help identify whether cost is a significant barrier or facilitator in the adoption process, aligning with previous studies that highlight cost as a critical factor in healthcare service adoption (Doraiswamy et al., 2020).

## 3.2 Research Framework

Chart 2.1: Research Model of the relationship of independent variables and dependent



## 3.3 Research Hypotheses

Based on the literature and the research framework, the study addresses the following hypotheses:

**H<sub>1</sub>: Cost has a significant impact on the acceptance of telemedicine.**

This hypothesis suggests that financial considerations play a crucial role in whether individuals choose to use telemedicine services.

**H<sub>2</sub>: Convenience positively influences the acceptance of telemedicine.**

This hypothesis posits that the ease and accessibility of telemedicine services contribute to their adoption.

**H<sub>3</sub>: Quality of care is positively associated with the acceptance of telemedicine.**

This hypothesis assumes that the perceived quality of care delivered via telemedicine impacts its acceptance among users.

**H<sub>4</sub>: Safety significantly affects the acceptance of telemedicine.**

This hypothesis suggests that concerns about safety and privacy influence whether individuals adopt telemedicine services.

### 3.4 Research Design

#### Code of Variables

The research design involves identifying the variables of interest, which are crucial for understanding the factors that influence telemedicine adoption in Hong Kong.

The research design involves identifying the variables of interest:

Table 3.1: Table of Independent and dependent variables

| Type                  | Variables                                          | Reference                                                                                                                                        |
|-----------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Independent Variables | Cost                                               | (Snoswell et al., 2020)<br>(De La Torre-Díez et al., 2014)<br>(Henderson et al., 2013)<br>(Atmojo et al., 2020)                                  |
|                       | Convenience                                        | (Parmanto et al., 2016)<br>(Hajesmaeel-Gohari and Bahaadinbeigy, 2021)<br>(AlShareef and AlWabel, 2024)<br>(Alanazi and Hader, 2022)             |
|                       | Quality of Care                                    | (Yip et al., 2003)<br>(Park et al., 2020)<br>(Hajesmaeel-Gohari and Bahaadinbeigy, 2021)<br>(Fieux et al., 2020)                                 |
|                       | Safety                                             | (Zhou et al., 2019)<br>(Park et al., 2020)                                                                                                       |
| Dependent Variable    | Telemedicine Adoption<br>(Telemedicine Acceptance) | (Tan et al., 2024)<br>(Valencia-Arias et al., 2024)<br>(Hajesmaeel-Gohari and Bahaadinbeigy, 2021)<br>(Lin et al., 2024)<br>(Husin et al., 2022) |

These variables are selected based on previous literature reviews that have shown their significance in telemedicine service adoption. For instance, cost and convenience are often cited as key factors in the adoption of new healthcare technologies. Quality of care and safety concerns are also paramount, as they directly impact patient trust and satisfaction with telemedicine services.

## Questionnaire Design

The survey questionnaire is systematically structured to evaluate how cost, convenience, quality of care, and safety influence telemedicine acceptance, grounded in the TAM and UTAUT. Questions employ Likert-scale measurements to assess participants' perceptions of these variables, analysing their impact on perceived usefulness (e.g., "Telemedicine improves my access to healthcare") and perceived ease of use (e.g., "Telemedicine platforms are easy to navigate") as defined by Davis (1989) and Venkatesh et al. (2003).

The questionnaire will begin by gathering demographic information from participants, such as age and educational level. It will then be divided into five main sections, each corresponding to a specific variable under study. Within each section, there will be five questions. For these questions, we'll use a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), enabling participants to express the extent to which they agree or disagree with various statements related to these factors. This approach provides a nuanced understanding of their perceptions (Joshi et al., 2015).

Specific sections address each dependent and independent variable:

- **Telemedicine Adoption:** This section focuses on understanding current general perception of public acceptance and willingness to use telemedicine services in Hong Kong. Questions assess openness to telemedicine for healthcare consultations, perceptions of its reliability and effectiveness, and intentions to use it for future healthcare needs. Additionally, the survey explores public support for integrating telemedicine into Hong Kong's healthcare system. These questions align with research emphasizing that perceived usefulness, reliability, and behavioral intention are critical determinants of technology adoption.
- **Cost:** Questions gauge affordability and value, exploring willingness to pay for telemedicine versus traditional in-person care. They consider financial burdens related to healthcare choices, addressing findings that cost-effectiveness significantly influences adoption. The questions will also consider the impact of potential cost savings with telemedicine such as reduced transportation costs.
- **Convenience:** Items focus on ease of access, time savings, reduced travel, and appointment flexibility, all factors shown to drive telemedicine adoption. The questions will address how convenience can be a factor for users when choosing between different healthcare options.
- **Quality of Care:** The section evaluates public perceptions of telemedicine's ability to deliver healthcare comparable to or better than in-person care. Questions focus on effectiveness, communication, and continuity of care for chronic conditions. The questions aim to explore whether telemedicine can provide accurate diagnoses, timely follow-ups, and access to qualified professionals, addressing key factors like patient-centeredness and trust.

- **Safety:** This section of the survey will evaluate public perceptions of telemedicine's ability to provide secure and reliable healthcare services. Questions focus on key safety concerns, including data privacy, diagnostic accuracy, and trust in virtual consultations. These aspects are critical, as studies have shown that fears of data breaches and misdiagnoses can significantly reduce public confidence in telemedicine.

Demographic data will be collected to analyze how age, education, and other factors moderate the relationship between the independent variables and telemedicine acceptance.

## Population and Sampling

The study is designed to ensure representativeness and reliability in understanding the factors influencing telemedicine adoption in Hong Kong. Participants will include adults aged 18 years or older who have either experienced or are aware of telemedicine services. The inclusion criteria require participants to have basic knowledge of telemedicine and provide informed consent prior to participation, ensuring ethical compliance.

As mentioned in the previous part, the collection of data would from questionnaire part. The sampling strategy combines random sampling to achieve representativeness, the survey is expected to include the public who experienced and not experienced telemedicine before. To determine the appropriate sample size, a statistical power analysis will be conducted to ensure sufficient data for robust hypothesis testing. To calculate the sample size of the questionnaire needed, Cochran's Formula can be used to calculate out the minimum sample size required (Cochran, 1963).

$$n = \frac{Z^2 p(1 - p)}{e^2}$$

Where:

- $n$  = required sample size
- $Z$  = z-value (e.g., 1.96 for 95% confidence level)
- $p$  = population proportion (commonly set at 0.5 to maximize variance)
- $e$  = margin of error (e.g., 0.05 for 5% margin)

Based on data from the HKSAR Census and Statistics Department (2025), there are approximately 6.62 million individuals aged 18 and above. With a confidence level of 95% and a margin of error of 10%, the required sample size is 97. To ensure robustness, a minimum of 100 responses is targeted, as prior research indicates that this threshold provides reliable insights in survey-based studies and is adequate for detecting medium effect sizes with acceptable statistical power (Cohen, 1992; VanVoorhis & Morgan, 2007). Additionally, VanVoorhis and Morgan (2007) recommend sample sizes of at least 100 for correlation and regression analyses, suggesting that our target sample size is sufficient for the statistical methods employed in this study.

### 3.5 Data Analysis Method

**Descriptive Statistics:** To analyze the survey data, descriptive statistics such as means, standard deviations, and frequency distributions will be employed. These statistical measures offer a clear summary of the data by highlighting central trends and the extent of variation, thereby revealing patterns in how respondents answered key variables (Field, 2017). In the survey, like responders' ages, education, the experiences with telemedicine will be grouped in the descriptive statistics for analysis.

**Inferential Statistics:** For the rest of the questions in the questionnaire, responders will be needed to fill in the Likert scale questions, inferential statistics will be used to analyze these answers. To ensure the hypotheses and relationships in the research framework are effectively investigated, the following inferential statistical methods will be employed to analyze the relationships between the variables:

- **Regression Analysis:** Regression analysis will be used to examine the strength and direction of relationships between independent variables and telemedicine adoption. This method is particularly effective for testing hypotheses about causal relationships and identifying which factors have the most significant influence on telemedicine acceptance. For example, regression can determine whether perceived safety has a stronger impact on adoption than cost or convenience. Multiple regression models will allow for the simultaneous analysis of all variables to assess their relative contributions (Cohen et al., 2014). This aligns with the study's objective of identifying critical drivers of telemedicine acceptance.
- **T-tests / ANOVA (Analysis of Variance):** Independent sample t-tests and ANOVA will be employed to investigate subgroup differences in telemedicine adoption. T-tests will compare the perceptions of telemedicine adoption between two demographic groups, such as younger versus older participants or individuals with prior telemedicine experience versus those without. This analysis will help identify whether specific subgroups perceive factors like safety or quality of care differently, providing insights into demographic variations in telemedicine acceptance (Kim, 2015).

ANOVA, on the other hand, will be used to compare mean differences across more than two groups, this will be used to compare the independent variables. This method will determine whether statistically significant differences exist in perceptions of telemedicine adoption and satisfaction levels among these groups. For example, ANOVA can reveal whether public prioritize safety more than cost compared to public users. Together, these statistical methods ensure a robust analysis of group-specific variations, contributing to a deeper understanding of how different demographics influence telemedicine adoption.

- **Reliability Test:** To assess the reliability of the research model, Cronbach's Alpha will be employed as the primary statistical measure. Cronbach's Alpha is widely used to evaluate the internal consistency of survey instruments, ensuring that the items within each construct reliably measure the same underlying concept (Field, 2017). A Cronbach's Alpha value of 0.7 or higher is generally considered acceptable for demonstrating reliability (Taber, 2017).

By employing these methods, the study ensures that the survey instrument is both reliable and valid for testing hypotheses about telemedicine adoption. The results from these analyses will provide a robust foundation for further inferential statistical tests, such as regression analysis, t-tests, and ANOVA.

## Software Tools

All statistical analyses will be performed using SPSS software due to its robust capabilities for conducting descriptive and inferential statistics efficiently. This ensures accuracy in hypothesis testing and facilitates clear reporting of results.

By employing these methods, the study will comprehensively analyze both overall trends and subgroup differences in adoption of telemedicine. The combination of regression analysis, t-tests, and ANOVA ensures that all hypotheses are rigorously tested while providing actionable insights into how key factors influence public acceptance. These findings will contribute to developing targeted strategies for optimizing telemedicine services in Hong Kong.

## 3.6 Ethical Considerations

This research involves public participation through questionnaires, making it essential to carefully address ethical considerations. Ensuring the ethical integrity of the study requires adherence to several key principles to protect participants' rights and maintain the credibility of the research process.

The following considerations will be addressed throughout the research:

- **Informed Consent:** All participants will provide informed consent, after receiving a detailed explanation of the study's purpose, procedures, risks, benefits, and their rights. Participation is voluntary, with the right to withdraw at any time.
- **Data Confidentiality and Anonymity:** Data security is critical. All data will be stored securely, accessible only to authorized personnel. Participants will be assigned unique codes if necessary and identifying information will be removed to ensure anonymity. Data will be analyzed at an aggregate level.

- **Right to Withdraw:** Participants have the right to withdraw from the study at any time, without penalty.
- **Data storage:** All data will be securely stored and access will be provided to authorized personnel only.
- **Disclosure:** All potential researcher conflicts of interest will be disclosed.

By addressing these ethical considerations, the study aims to uphold high standards of research ethics while fostering trust and transparency with participants.

### 3.7 Pre-test

A pilot study will be carried out using a small sample to refine the survey tools and verify their reliability and validity. This preliminary phase is essential for detecting potential problems in the questionnaire, such as ambiguous wording, unclear instructions, or technical issues with the survey platform. Participant feedback gathered during the pilot will help enhance the survey's clarity and overall functionality. Moreover, the pilot will facilitate an initial evaluation of internal consistency for each survey construct—such as cost, convenience, quality of care, and safety—through the use of Cronbach's Alpha, ensuring each set of items effectively measures its intended concept (Nunnally & Bernstein, 1994).

The pilot test will also provide an opportunity to evaluate the feasibility of the data collection process, including response rates and participant engagement. This phase helps to estimate the time required for survey completion and ensures that all questions are comprehensible to participants from diverse backgrounds. Insights gained from the pilot test will inform refinements to both the survey design and data collection strategy, enhancing the overall quality of the research instruments and increasing confidence in the study's ability to accurately capture factors influencing telemedicine adoption.

### 3.8 Research flow and Schedule

The research project is scheduled to take place covering all key phases—from initial planning and analysis, and final submission.

over a four-month period, preparation to data collection,

Table 3.2: Table of research phase of the study

| Phase                               | Duration   | Activities                                                                                             |
|-------------------------------------|------------|--------------------------------------------------------------------------------------------------------|
| Phase 1: Literature Review          | 1.5 months | Conduct comprehensive literature review and identify research gaps.                                    |
| Phase 2: Data Collection & Analysis | 1 month    | Administer surveys, conduct interviews. Analyse quantitative and qualitative data, integrate findings. |
| Phase 3: Reporting                  | 1 month    | Compile research findings, draft and finalize the research report.                                     |
| Phase 4: Finalize                   | 0.5 months | Final revisions submission                                                                             |

The timeline is designed to allocate adequate time to each stage of the project, while also providing flexibility to manage potential setbacks, such as delays in participant recruitment or scheduling issues that may arise during the research process.

## 4 Results analysis

To start the analysis, data was collected through the distribution of the questionnaires to the public using various online platforms, including social media and instant messaging groups. This approach was chosen to maximize outreach and ensure a diverse participant pool. A total of 130 valid responses were obtained. It is important to note that all questionnaire items were designed to be compulsory, thereby ensuring that each response was complete and contained no missing data. This comprehensive dataset provides a solid foundation for the subsequent analysis and interpretation of results.

### 4.1 Descriptive analysis

The initial section of the questionnaire required respondents to provide demographic information, including gender, age, education level, and prior experience with telemedicine services. These variables were essential for understanding the background of the participants and identifying any potential patterns or correlations in later stages of the analysis. A descriptive analysis was performed on the data to summarize the characteristics of the sample population.

Table 4.1.1: Statistics on the gender of the respondents

| What is your gender?<br>您的性別是？ |           |           |         |               |                    |
|--------------------------------|-----------|-----------|---------|---------------|--------------------|
|                                |           | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid                          | Female 女性 | 79        | 60.8    | 60.8          | 60.8               |
|                                | Male 男性   | 51        | 39.2    | 39.2          | 100.0              |
|                                | Total     | 130       | 100.0   | 100.0         |                    |

Table 4.1.2: Statistics on the age of the respondents

| What is your age? 您的年齡是多少？ |                  |           |         |               |                    |
|----------------------------|------------------|-----------|---------|---------------|--------------------|
|                            |                  | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid                      | 18-30            | 22        | 16.9    | 16.9          | 16.9               |
|                            | 30-40            | 26        | 20.0    | 20.0          | 36.9               |
|                            | 40-50            | 24        | 18.5    | 18.5          | 55.4               |
|                            | 50-60            | 21        | 16.2    | 16.2          | 71.5               |
|                            | 60 above (60歲以上) | 37        | 28.5    | 28.5          | 100.0              |
|                            | Total            | 130       | 100.0   | 100.0         |                    |

Table 4.1.3: Statistics on the educational level of the respondents

| <b>Education Level 教育程度</b> |                                      |           |         |               |                    |
|-----------------------------|--------------------------------------|-----------|---------|---------------|--------------------|
|                             |                                      | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid                       | Primary education 小學                 | 7         | 5.4     | 5.4           | 5.4                |
|                             | Secondary education 中學               | 29        | 22.3    | 22.3          | 27.7               |
|                             | Tertiary education or above<br>大學或以上 | 94        | 72.3    | 72.3          | 100.0              |
|                             | Total                                | 130       | 100.0   | 100.0         |                    |

Table 4.1.4: Statistics on the prior use of telemedicine services of the respondents

**Have you ever used telemedicine services? 您有使用遠程醫療服務的經驗嗎？**

|       |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | No    | 89        | 68.5    | 68.5          | 68.5               |
|       | Yes   | 41        | 31.5    | 31.5          | 100.0              |
|       | Total | 130       | 100.0   | 100.0         |                    |

## Gender Distribution

From Table 4.1.1, it shows among the 130 respondents, 60.8% were female (79 individuals), while 39.2% were male (51 individuals). This indicates a higher participation rate among females in the study, which may reflect gender-specific interest or accessibility in telemedicine adoption.

## Age Distribution

From Table 4.1.2, the age distribution of respondents highlights a diverse range of age groups, with the largest segment being individuals aged 60 and above, comprising 37 respondents (28.5%). This is followed by participants aged 30–40 (26 respondents, 20%) and those aged 40–50 (24 respondents, 18.5%). Respondents aged 18–30 accounted for 22 individuals (16.9%), while those aged 50–60 represented 21 individuals (16.2%). The significant representation of the older age groups (50–60 and 60 and above) may reflect the actual demographic distribution in Hong Kong, suggesting that the sample could be more representative of the general population. Consequently, the responses from these age groups may provide more accurate insights into the attitudes of Hong Kong residents toward telemedicine adoption. Aside from the older age groups, the distribution across the remaining age categories remains relatively balanced. This age

diversity ensures that the responses offer valuable perspectives on how telemedicine adoption varies across different generations.

### **Education Level**

From Table 4.1.3, the result shows that the majority (72.3%, 94 individuals) possess tertiary education or above, indicating a highly educated sample population. Secondary education was reported by 29 respondents (22.3%), while only 7 participants (5.4%) had primary education as their highest level of attainment. The dominance of respondents with tertiary education suggests that individuals with higher educational attainment may be more aware of telemedicine services or more inclined to participate in studies related to healthcare innovation. Education level is a critical factor influencing familiarity with technology and willingness to adopt new healthcare solutions, as those with higher education may have better access to information and resources about telemedicine benefits and functionalities.

### **Prior Use of Telemedicine Services**

From Table 4.1.4, when asked about prior experience with telemedicine services, majority of respondents (68.5%, 89 individuals) indicated that they had not used telemedicine before, while only 31.5% (41 individuals) reported having prior experience. These finding highlights that most participants are relatively new to telemedicine, which could reflect limited exposure or availability of such services in Hong Kong during the pandemic and its aftermath. The low percentage of prior users underscores the importance of addressing barriers to adoption, such as lack of awareness, trust in virtual consultations, or concerns about technological complexity.

To further understand the experience of telemedicine services from the public in detail, cross-tabulations were conducted against gender, age, and educational level.

Table 4.1.5: Cross-tabulation result (prior use of telemedicine services vs gender)

**What is your gender?**  
 您的性別是？ \* **Have you ever used telemedicine services?** 您有使用遠程醫療服務的經驗嗎？ **Crosstabulation**

Count

|                             |           | Have you ever used telemedicine services? 您有使用遠程醫療服務的經驗嗎？ |     | Total |
|-----------------------------|-----------|-----------------------------------------------------------|-----|-------|
|                             |           | No                                                        | Yes |       |
| What is your gender? 您的性別是？ | Female 女性 | 52                                                        | 27  | 79    |
|                             | Male 男性   | 37                                                        | 14  | 51    |
| Total                       |           | 89                                                        | 41  | 130   |

Table 4.1.6: Cross-tabulation result (prior use of telemedicine services vs age)

**What is your age? 您的年齡是多少？** \* **Have you ever used telemedicine services?** 您有使用遠程醫療服務的經驗嗎？ **Crosstabulation**

Count

|                            |                  | Have you ever used telemedicine services? 您有使用遠程醫療服務的經驗嗎？ |     | Total |
|----------------------------|------------------|-----------------------------------------------------------|-----|-------|
|                            |                  | No                                                        | Yes |       |
| What is your age? 您的年齡是多少？ | 18-30            | 13                                                        | 9   | 22    |
|                            | 30-40            | 16                                                        | 10  | 26    |
|                            | 40-50            | 18                                                        | 6   | 24    |
|                            | 50-60            | 18                                                        | 3   | 21    |
|                            | 60 above (60歲以上) | 24                                                        | 13  | 37    |
| Total                      |                  | 89                                                        | 41  | 130   |

Table 4.1.7: Cross-tabulation result (prior use of telemedicine services vs education level)

**Education Level 教育程度** \* **Have you ever used telemedicine services?** 您有使用遠程醫療服務的經驗嗎？ **Crosstabulation**

Count

|                      |                                   | Have you ever used telemedicine services? 您有使用遠程醫療服務的經驗嗎？ |     | Total |
|----------------------|-----------------------------------|-----------------------------------------------------------|-----|-------|
|                      |                                   | No                                                        | Yes |       |
| Education Level 教育程度 | Primary education 小學              | 5                                                         | 2   | 7     |
|                      | Secondary education 中學            | 22                                                        | 7   | 29    |
|                      | Tertiary education or above 大學或以上 | 62                                                        | 32  | 94    |
| Total                |                                   | 89                                                        | 41  | 130   |

### **Gender vs. Prior Use of Telemedicine Services**

The cross-tabulation between gender and prior use of telemedicine services reveals differences in adoption rates between males and females. Among the 79 female respondents, 52 (65.8%) reported not having used telemedicine services, while 27 (34.2%) indicated prior usage. For male respondents, out of 51 individuals, 37 (72.5%) had not used telemedicine, and only 14 (27.5%) reported prior experience. The data reflects that more females participated in the survey, which naturally results in a higher absolute number of female telemedicine users.

### **Age vs. Prior Use of Telemedicine Services**

Age groups show varying levels of telemedicine usage. The age group 30–40 has the highest proportion of users (10 out of 26, or 38.5%), this could be attributed to their greater familiarity with technology and potentially higher health awareness compared to older or younger groups. The result followed by the 60 and above group (13 out of 37, or 35.1%), possibly due to their higher healthcare needs. Younger respondents aged 18–30 show lower usage rates (9 out of 22, or 40.9%), while those aged 40–50 and 50–60 exhibit similar patterns with lower adoption rates.

### **Education Level vs. Prior Use of Telemedicine Services**

Telemedicine usage is most prevalent among respondents with tertiary education or above, where 32 out of 94 (34%) have used such services. Those with secondary education show a lower adoption rate (7 out of 29, or 24.1%), while respondents with primary education have the lowest usage rate (2 out of 7, or 28.6%). This trend suggests that education influences awareness and understanding of telemedicine services, as well as confidence in using technology for healthcare purposes. Conversely, those with lower education levels may face barriers such as limited access to technology or lack of familiarity with digital healthcare platforms.

## 4.2 Inferential Statistics

As outlined in Section 3.4, the questionnaire is structured into five distinct sections, each aligned with the study's **independent variable** (Telemedicine Adoption/Acceptance (TA)) and **dependent variables** (Cost, Convenience, Quality of Care, Safety).

To ensure the validity and reliability of the measurement scales, reliability analysis (e.g., Cronbach's alpha) will assess the internal consistency of questions within each construct. Correlation analysis will examine relationships between variables, while regression analysis will test the hypothesized influence of Cost, Convenience, Quality of Service (QOS), and Safety on Telemedicine Adoption. These statistical methods collectively validate the coherence of the constructions and the predictive power of the model.

### 4.2.1 Reliability Analysis

The reliability statistics for the variables in the study were assessed using Cronbach's Alpha, which measures the internal consistency of items within a scale. A value closer to 1 indicates high reliability, while values below 0.7 typically suggest lower reliability (Taber, 2017).

Independent variable: Telemedicine Adoption (Telemedicine Acceptance) (TA)

Table 4.2.1.1: Cronbach's Alpha on TA

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .936                   | 5          |

This high Cronbach's Alpha value (0.936) indicates excellent internal consistency among the items measuring telemedicine adoption. The scale is highly reliable, suggesting that the questions effectively capture the concept of telemedicine acceptance without redundancy or inconsistency.

## Dependent Variables: Cost

Table 4.2.1.1: Cronbach's Alpha on Cost

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .916                   | 5          |

## Dependent Variables: Convenience

Table 4.2.1.2: Cronbach's Alpha on Convenience

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .943                   | 5          |

## Dependent Variables: Quality of Service

Table 4.2.1.3: Cronbach's Alpha on Quality of Service

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .916                   | 5          |

## Dependent Variables: Safety

Table 4.2.1.4: Cronbach's Alpha on Safety

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| .806                   | 3          |

Among the dependent variables: Cost, Convenience, Quality of Care, and Safety. The "Cost" variable demonstrates high internal consistency with a Cronbach's Alpha of 0.916, indicating that participants consistently view cost-related factors as significant in their decision-making process. Similarly, the "Quality of Service" variable shares the same reliability score (0.916), showing that participants perceive telemedicine as capable of delivering quality healthcare services reliably. These findings underscore the importance of both cost and perceived care quality in shaping attitudes toward telemedicine.

The "Convenience" variable stands out with the highest reliability score of 0.943, reflecting excellent internal consistency and highlighting its pivotal role in influencing

perceptions of telemedicine's ease of use and accessibility. The "Safety" variable, on the other hand, has a slightly lower Cronbach's Alpha of 0.806, which is still within acceptable levels but reflects moderate reliability due to the reduced number of items analyzed. Specifically, only three questions were included in the analysis because two safety-related questions were reverse-coded and excluded from the reliability test. Despite this limitation, safety-related concerns are adequately captured and remain relevant to participants' views on telemedicine adoption. Overall, these variables are reliable measures for understanding factors impacting telemedicine acceptance, with convenience emerging as the most influential factor.

All variables exhibit high reliability, with Cronbach's Alpha values above the commonly accepted threshold of 0.7, indicating strong internal consistency across scales used in the study.

These findings ensure confidence in the questionnaire design and validate its use for analyzing resident perspectives and influencing factors related to telemedicine adoption.

#### 4.2.2 Correlation Analysis

The correlation analysis examines the strength and direction of the relationships between variables in the study, providing insights into how one variable changes in relation to another. This analysis is critical for understanding dependent variable influence independent variable, Pearson Coefficient will be accessed for measures degree of correlation, it usually lies between -1 to 1 about their relationship (Cohen, 1988; Schober et al., 2018). For instance, a positive correlation would indicate that higher convenience is associated with increased acceptance rates, while a negative correlation might suggest that greater safety concerns reduce acceptance.

Furthermore, statistical significance will be evaluated using the p-value, which indicates the likelihood of the observed results occurring if the null hypothesis were true. A threshold of  $p < 0.05$  is typically applied to determine whether a result is statistically significant, suggesting the presence of a meaningful relationship (Sedgwick, 2012). Establishing significance is a crucial step prior to interpreting the direction and strength of the relationship.

Therefore, all dependent variables are tested against the independent variables to access their relationship.

Table 4.2.2.1: Correlations between TA with Cost

|              |                     | Correlations |              |
|--------------|---------------------|--------------|--------------|
|              |                     | TA Average   | Cost Average |
| TA Average   | Pearson Correlation | 1            | .747**       |
|              | Sig. (2-tailed)     |              | <.001        |
|              | N                   | 130          | 130          |
| Cost Average | Pearson Correlation | .747**       | 1            |
|              | Sig. (2-tailed)     | <.001        |              |
|              | N                   | 130          | 130          |

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

Table 4.2.2.1 presents the results of a Pearson correlation analysis between the average of "TA" and average of "Cost" variables, based on a sample size of 130 observations (N = 130). The Pearson correlation coefficient (r) is 0.747, indicating a strong positive relationship between the two variables. The significance level (Sig. 2-tailed) is reported as <0.001, which means the correlation is statistically significant at the 0.01 level ( $p < 0.01$ ). This implies that the observed relationship is unlikely to have occurred by chance.

Table 4.2.2.2: Correlations between TA with Convenience

|                     |                     | Correlations |                     |
|---------------------|---------------------|--------------|---------------------|
|                     |                     | TA Average   | Convenience Average |
| TA Average          | Pearson Correlation | 1            | .751**              |
|                     | Sig. (2-tailed)     |              | <.001               |
|                     | N                   | 130          | 130                 |
| Convenience Average | Pearson Correlation | .751**       | 1                   |
|                     | Sig. (2-tailed)     | <.001        |                     |
|                     | N                   | 130          | 130                 |

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

Table 4.2.2.2 presents the results of a Pearson correlation analysis between two variables: "TA Average" and "Convenience Average." The Pearson correlation coefficient (r) is 0.751, indicating a strong positive linear relationship between the two variables. The significance value (Sig. 2-tailed) is less than 0.001, which confirms that this correlation is statistically significant at the 0.01 level. The sample size for this analysis is 130 observations.

Table 4.2.2.3: Correlations between TA with QOS

|             |                     | TA Average | QOS Average |
|-------------|---------------------|------------|-------------|
| TA Average  | Pearson Correlation | 1          | .712**      |
|             | Sig. (2-tailed)     |            | <.001       |
|             | N                   | 130        | 130         |
| QOS Average | Pearson Correlation | .712**     | 1           |
|             | Sig. (2-tailed)     | <.001      |             |
|             | N                   | 130        | 130         |

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

Table 4.2.2.3 presents the results of a Pearson correlation analysis between two variables: "TA Average" and "QOS Average," based on a sample size of 130 observations. The Pearson correlation coefficient between the two variables is 0.712, indicating a strong positive linear relationship. The significance level (Sig. 2-tailed) for this correlation is less than 0.001, which is highly significant and suggests that the observed relationship is unlikely to be due to random chance.

Table 4.2.2.4: Correlations between TA with Safety

|                |                     | TA Average | Safety Average |
|----------------|---------------------|------------|----------------|
| TA Average     | Pearson Correlation | 1          | .659**         |
|                | Sig. (2-tailed)     |            | <.001          |
|                | N                   | 130        | 130            |
| Safety Average | Pearson Correlation | .659**     | 1              |
|                | Sig. (2-tailed)     | <.001      |                |
|                | N                   | 130        | 130            |

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

The table presents the results of a Pearson correlation analysis between two variables: "TA Average" and "Safety Average," based on a sample size of 130 (N = 130). The Pearson correlation coefficient between these two variables is 0.659, indicating a moderately strong positive relationship. The p-value (Sig. 2-tailed) is less than 0.001, which indicates that this correlation is statistically significant at the 0.01 level.

In summary, the data suggests a meaningful and strong association between TA with Cost, Convenience, Quality of Service, and moderately strong relations with Safety. The p-value of less than 0.05 among the dependent variables imply these relationships indeed exist.

### 4.2.3 Regression Analysis

Regression analysis was conducted between independent and dependent variables. A stepwise regression approach was employed across two iterative modeling phases to identify the most significant predictors while ensuring statistical consistency through measures by monitoring  $R^2$  values, ANOVA significance tests, standardized coefficients, and residual diagnostics.

#### Round 1

Table 4.2.3.1: Model Summary of Regress Analysis TA vs Cost, Convenience, QOS, Safety

| Model Summary <sup>b</sup> |                   |          |                   |                            |
|----------------------------|-------------------|----------|-------------------|----------------------------|
| Model                      | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1                          | .794 <sup>a</sup> | .631     | .619              | .52055                     |

a. Predictors: (Constant), Safety Average, Cost Average, QOS Average, Convenience Average

b. Dependent Variable: TA Average

In Table 4.2.3.1, the R Square is .631 which indicates the model could explain 63.1% of the variance in the dependent variable.

Table 4.2.3.2: ANOVA table of TA vs Cost, Convenience, QOS, Safety variables

| ANOVA <sup>a</sup> |            |                |     |             |        |                    |
|--------------------|------------|----------------|-----|-------------|--------|--------------------|
| Model              |            | Sum of Squares | df  | Mean Square | F      | Sig.               |
| 1                  | Regression | 57.926         | 4   | 14.481      | 53.443 | <.001 <sup>b</sup> |
|                    | Residual   | 33.871         | 125 | .271        |        |                    |
|                    | Total      | 91.797         | 129 |             |        |                    |

a. Dependent Variable: TA Average

b. Predictors: (Constant), Safety Average, Cost Average, QOS Average, Convenience Average

From Table 4.2.3.2, it shows the value of significant test is less than 0.05, indicate the regression model is overall significant in this case.

Table 4.2.3.3: Coefficients table of TA vs Cost, Convenience, QOS, Safety variables

**Coefficients<sup>a</sup>**

| Model |                     | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. | Collinearity Statistics |       |
|-------|---------------------|-----------------------------|------------|---------------------------|-------|------|-------------------------|-------|
|       |                     | B                           | Std. Error | Beta                      |       |      | Tolerance               | VIF   |
| 1     | (Constant)          | .148                        | .252       |                           | .589  | .557 |                         |       |
|       | Cost Average        | .352                        | .107       | .342                      | 3.280 | .001 | .272                    | 3.673 |
|       | Convenience Average | .251                        | .130       | .234                      | 1.931 | .056 | .200                    | 4.993 |
|       | QOS Average         | .253                        | .116       | .227                      | 2.187 | .031 | .275                    | 3.642 |
|       | Safety Average      | .064                        | .104       | .058                      | .619  | .537 | .334                    | 2.990 |

a. Dependent Variable: TA Average

From the Coefficients table (Table 4.2.3.3), “Cost” shows as a significant independent variable since its Sig. is less than 0.05. However, “Convenience”, “QOS” and “Safety” are insignificant according to the Sig. The model will re-run again by removing the most insignificant factor, which is the “Safety” variable.

**Round 2**

Table 4.2.3.4: Model Summary of Regress Analysis TA vs Cost, Convenience, QOS

**Model Summary<sup>b</sup>**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .794 <sup>a</sup> | .630     | .621              | .51927                     |

a. Predictors: (Constant), QOS Average, Cost Average, Convenience Average

b. Dependent Variable: TA Average

Table 4.2.3.5: ANOVA table of TA vs Cost, Convenience, QOS

**ANOVA<sup>a</sup>**

| Model |            | Sum of Squares | df  | Mean Square | F      | Sig.               |
|-------|------------|----------------|-----|-------------|--------|--------------------|
| 1     | Regression | 57.822         | 3   | 19.274      | 71.479 | <.001 <sup>b</sup> |
|       | Residual   | 33.975         | 126 | .270        |        |                    |
|       | Total      | 91.797         | 129 |             |        |                    |

a. Dependent Variable: TA Average

b. Predictors: (Constant), QOS Average, Cost Average, Convenience Average

Table 4.2.3.6: Coefficients table of TA vs Cost, Convenience, QOS

| Coefficients <sup>a</sup> |                     |                             |            |                           |       |       |                         |       |
|---------------------------|---------------------|-----------------------------|------------|---------------------------|-------|-------|-------------------------|-------|
| Model                     |                     | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig.  | Collinearity Statistics |       |
|                           |                     | B                           | Std. Error | Beta                      |       |       | Tolerance               | VIF   |
| 1                         | (Constant)          | .185                        | .244       |                           | .760  | .449  |                         |       |
|                           | Cost Average        | .366                        | .105       | .354                      | 3.484 | <.001 | .284                    | 3.525 |
|                           | Convenience Average | .263                        | .128       | .246                      | 2.057 | .042  | .205                    | 4.874 |
|                           | QOS Average         | .283                        | .105       | .253                      | 2.685 | .008  | .330                    | 3.026 |

a. Dependent Variable: TA Average

In the second modelling iteration, the **Safety Average** variable was removed to streamline the model while retaining strong explanatory power ( $R = 0.794$ , adjusted  $R^2 = 0.630$ ; Table 4.2.3.4). This simplification did not compromise predictive performance, as confirmed by ANOVA results ( $p < 0.001$ ; Table 4.2.3.5).

After removing the statistically insignificant "Safety" variable ( $p \geq 0.05$  in prior iterations), both remaining factors demonstrated strong individual significance ( $p < 0.05$ ), confirming their dominance in telemedicine adoption decisions.

After confirming the factors that are dominant in telemedicine adoption, the data are further assessed to check the collinearity, residuals and scattering of data.

Table 4.2.3.7 Table of Collinearity Diagnostics

| Collinearity Diagnostics <sup>a</sup> |           |            |                 |                      |              |                     |             |
|---------------------------------------|-----------|------------|-----------------|----------------------|--------------|---------------------|-------------|
| Model                                 | Dimension | Eigenvalue | Condition Index | Variance Proportions |              |                     |             |
|                                       |           |            |                 | (Constant)           | Cost Average | Convenience Average | QOS Average |
| 1                                     | 1         | 3.956      | 1.000           | .00                  | .00          | .00                 | .00         |
|                                       | 2         | .027       | 12.032          | .93                  | .07          | .03                 | .01         |
|                                       | 3         | .011       | 19.008          | .06                  | .48          | .00                 | .65         |
|                                       | 4         | .006       | 26.668          | .00                  | .45          | .97                 | .34         |

a. Dependent Variable: TA Average

To further assess multicollinearity among the predictors in the regression model, Variance Inflation Factor (VIF) values from Table 4.2.3.6 were examined alongside the Condition Index and variance proportions from the collinearity diagnostics (Table 4.2.3.7). As shown in the coefficients table, the VIF values for the predictors range from 3.026 (QoS) to 4.874 (Convenience). While VIF values above 5 are typically considered indicative of problematic multicollinearity (Kutner, 2005), all values in this model remain below the conservative threshold of 5, suggesting that multicollinearity is present but not severe to invalidate the model. The corresponding tolerance values, which are the reciprocal of

VIF—range from 0.205 to 0.330, indicating moderate shared variance among predictors but not at a critical level.

When these findings are interpreted alongside the Condition Index values, as shown in Table 4.2.3.7. The Condition Index values from each dimension are 1.000, 12.032, 19.008 and 26.668, with the highest value slightly close the common threshold of 30 that typically signals serious multicollinearity (Belsley et al., 1980). While the presence of a Condition Index above 15, particularly in dimension 3 (19.008) and 4 (26.668), may suggest potential collinearity concerns, these values must be interpreted alongside the Variance Proportions (Belsley et al., 1980).

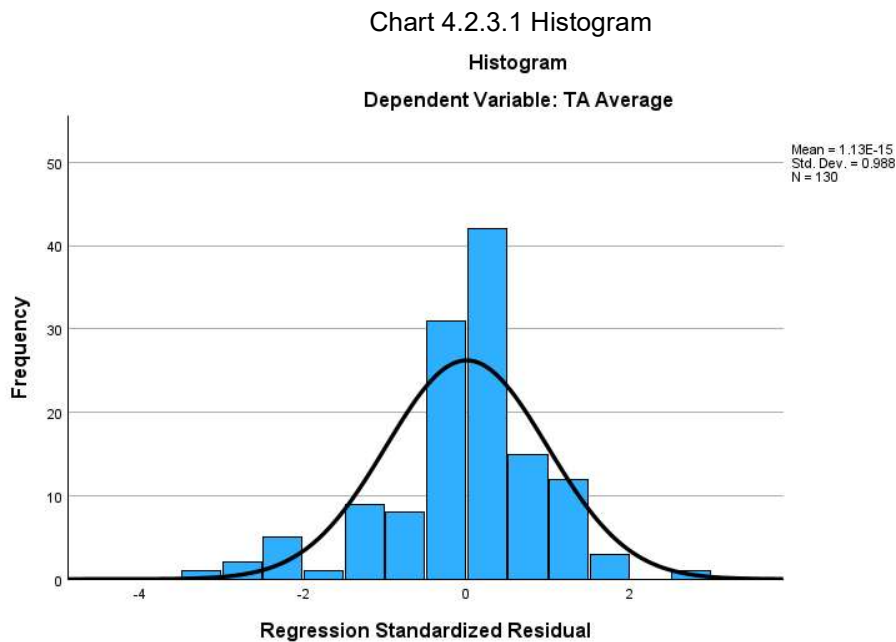
In dimension 4, a high proportion of variance is observed in variable “Convenience” (0.97), with moderate proportions for “Cost” (0.45) and “QoS” (0.34). According to standard guidelines, multicollinearity becomes more problematic when two or more variables exhibit high variance proportions (typically above 0.50) on the same dimension with a high Condition Index (Kutner, 2005). In this case, although variable “Convenience” has a high variance proportion in dimension 4, the corresponding values for “Cost” and “QoS” “remain below or at borderline levels, indicating that severe multicollinearity is not confirmed.

Furthermore, the “Cost” and “QoS” predictors are more evenly distributed across dimensions, with QoS showing its highest variance proportion (0.65) in dimension 3, where other predictors do not simultaneously load heavily. This distribution supports the fact that, while some degree of multicollinearity may exist, particularly involving the Convenience variable, it does not reach a level that threatens the statistical validity of the model. Therefore, the overall multicollinearity in the model is not considered severe, and the predictors can be retained for further analysis.

Table 4.2.3.8 Table of Residuals Statistics

| <b>Residuals Statistics<sup>a</sup></b> |          |         |        |                |     |
|-----------------------------------------|----------|---------|--------|----------------|-----|
|                                         | Minimum  | Maximum | Mean   | Std. Deviation | N   |
| Predicted Value                         | 1.0975   | 4.7462  | 3.6354 | .66950         | 130 |
| Residual                                | -1.76870 | 1.40691 | .00000 | .51320         | 130 |
| Std. Predicted Value                    | -3.791   | 1.659   | .000   | 1.000          | 130 |
| Std. Residual                           | -3.406   | 2.709   | .000   | .988           | 130 |

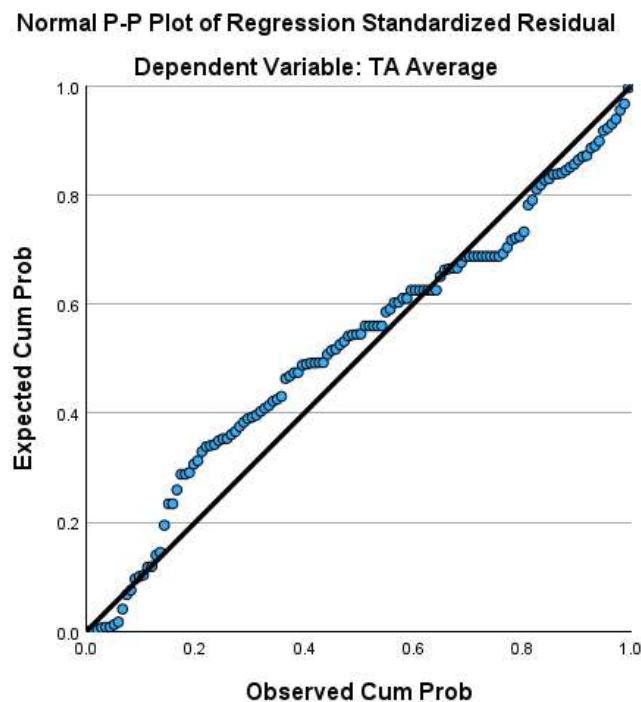
a. Dependent Variable: TA Average



The residuals statistics (Table 4.2.3.8) indicate that the standardized residuals range from -3.406 to +2.709, with a mean of 0.000 and a standard deviation close to 1.000, which aligns with the expected properties of standardized residuals in a well-fitted linear regression model (Field, 2013). The histogram of standardized residuals (Chart 4.2.3.1) further supports the assumption of normality, displaying a bell-shaped distribution that is symmetrically centered around zero. While minor deviations from the ideal normal curve are present, they are not substantial enough to raise concerns about non-normality of residuals, especially given the sample size ( $N = 130$ ).

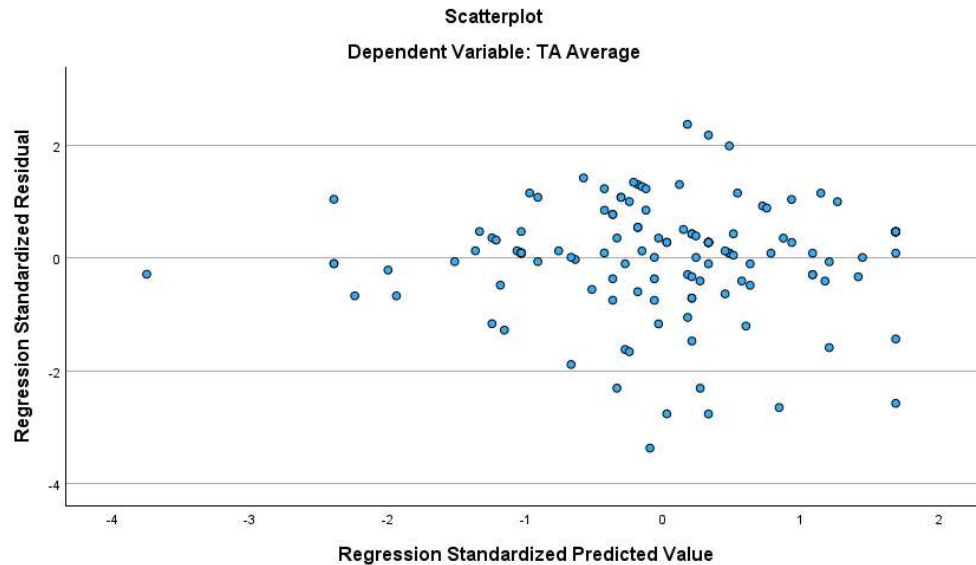
Additionally, the histogram of standardized residuals (Chart 4.2.3.1) reveals an approximately normal distribution, centered around zero, supporting the assumption of residual normality. Although minor deviations from a perfect bell curve are observed, these are not uncommon in social science data and are generally acceptable when the sample size is sufficiently large (Osborne & Waters, 2002).

Chart 4.2.3.2 Normal P-P Plot of regression Standardized Residual



In Chart 4.2.3.2, it shows that the residuals closely follow the diagonal line, indicating that the observed residual distribution approximates a normal distribution. According to Hair et al. (2019), when points in a P–P plot cluster around the diagonal, the assumption of normality can be reasonably assumed. Minor deviations at the tails are expected and do not necessarily invalidate the model.

Chart 4.2.3.2 Scatterplot



The scatterplot (Chart 4.2.3.2) presents a random pattern of residuals dispersed around the zero line, with no visible curvature, funneling, or clustering. This randomness supports the assumption of homoscedasticity, which implies that the variance of residuals remains constant across all levels of the predicted values (Tabachnick and Fidell, 1983). Homoscedasticity is critical for the reliability of standard error estimates and the validity of inferential tests in regression modeling (Cohen et al., 2014). The absence of systematic structure or influential outliers in the scatterplot suggests that the model is both stable and generalizable in capturing the relationship between predictors (Cost, Convenience, and QoS) and adoption of telemedicine. These diagnostics confirm that the regression model satisfies the key assumptions of linearity, normality, and equal variance, thereby validating the robustness and interpretability of the model outputs.

## 5 Result Discussion

The analysis of the questionnaire provided valuable insights into the factors influencing telemedicine adoption among the respondents.

Regarding the prior experience of using telemedicine by the Hong Kong Resident, most respondents (68.5%) indicated no prior experience with telemedicine, while only 31.5% reported having used such services before. This low adoption rate highlights potential barriers such as limited exposure, lack of trust in virtual consultations, or concerns about technological complexity. The findings underscore the need for targeted initiatives to raise awareness and address these barriers, particularly among less educated groups and older populations who may face challenges in accessing or understanding digital healthcare platforms.

Based on the analysis of questionnaire data, a multiple regression model was developed to evaluate the relationships between four independent variables—Cost (C), Convenience (CV), Quality of Service (QoS), and Safety (S) and the dependent variable, Telemedicine Adoption (TA). The initial regression equation was formulated as:

$$TA = 0.148 + 0.352 (C) + 0.251 (CV) + 0.253 (QoS) + 0.064 (S)$$

This comprehensive model was constructed to assess which factors significantly influence the acceptance of telemedicine services in Hong Kong. Through a two-stage modeling process, it became evident that Cost, Convenience, and Quality of Service were the strongest predictors of telemedicine adoption, collectively explaining approximately 61% of the variance in the dependent variable. Although Safety was included in the initial model, its exclusion in subsequent iterations had minimal impact on the model's explanatory power, suggesting its relatively minor role in influencing adoption decisions.

To refine the analysis and focus on the most impactful predictors, a stepwise regression was conducted. The final model retained **Cost**, **Convenience**, and **Quality of Service (QoS)** as statistically significant predictors of telemedicine adoption. The resulting equation as:

$$TA = 0.185 + 0.366 (C) + 0.263 (CV) + 0.283 (QoS)$$

This model accounted for 63% of the variance (adjusted  $R^2 = 0.621$ ), indicating a robust predictive relationship. All variables were highly significant ( $p < 0.001$ ), reinforcing their dominant influence on adoption behavior (see Table 4.2.3.7).

For hypothesis testing, the significance values (p-values) for each predictor variable were analyzed. The findings are summarized as follows:

Table 5.1. Results of Hypothesis Testing

| Hypotheses   | Regression Coefficient | Sig. Values (p-values) | Analysis Result |
|--------------|------------------------|------------------------|-----------------|
| H1: C → TA   | 0.366 (Round 2)        | < 0.05                 | Supported       |
| H2: CV → TA  | 0.263 (Round 2)        | < 0.05                 | Supported       |
| H3: QoS → TA | 0.283 (Round 2)        | < 0.05                 | Supported       |
| H4: S → TA   | 0.064 (Round 1)        | > 0.05                 | Not Supported   |

Therefore, the table below summarizes the acceptance or rejection of hypotheses based on regression outcomes:

Table 5.2. Summary of Hypothesis Testing

| Hypothesis | Description                                                                      | Decision |
|------------|----------------------------------------------------------------------------------|----------|
| H1         | Cost has a positive relationship with telemedicine adoption.                     | Accepted |
| H2         | Convenience has a positive relationship with telemedicine adoption.              | Accepted |
| H3         | Quality of Service (QOS) has a positive relationship with telemedicine adoption. | Accepted |
| H4         | Safety has a positive relationship with telemedicine adoption.                   | Rejected |

## Discussion of Findings

1. **Cost as the Most Influential Factor:** Cost emerged as the strongest predictor of telemedicine adoption in Hong Kong. With a standardized beta coefficient of 0.354, affordability plays a critical role in shaping user decisions. This result aligns with the high-cost sensitivity of Hong Kong residents, particularly given the city's dual public-private healthcare system.

Therefore, Telemedicine provides an opportunity to bridge this gap by offering cost-effective alternatives for non-emergency consultations. According to TAM, cost savings enhance Perceived Usefulness by reducing financial burdens and increasing accessibility. Similarly, UTAUT's Performance Expectancy suggests that lower costs improve users' expectations of telemedicine as an affordable and

accessible option. This finding underscores the importance of implementing cost-control measures such as government subsidies or transparent pricing models to enhance accessibility and encourage broader adoption.

However, the study also highlights that most respondents (68.5%) have never used telemedicine services before, indicating that affordability alone may not be enough to drive adoption without addressing other barriers such as awareness or trust in virtual consultations.

2. **Convenience:** Convenience also demonstrated a significant positive impact on telemedicine adoption, with a beta coefficient of 0.263. This finding reflects Hong Kong's fast-paced urban environment, where residents value time-saving solutions that minimize travel and waiting times. Telemedicine eliminates the need for physical visits to clinics or hospitals, offering patients the flexibility to consult doctors remotely from their homes or workplaces. According to TAM, convenience enhances Perceived Ease of Use by reducing barriers such as travel time and waiting times. In UTAUT terms, convenience aligns with Effort Expectancy, as it makes telemedicine services easier to access and use. Enhancing accessibility through user-friendly platforms and integrating telemedicine into existing healthcare systems can further drive adoption.

The age distribution in the study provides additional insights into this result. Respondents aged 30–40 showed the highest proportion of telemedicine users (38.5%), likely due to their familiarity with technology and busy lifestyles that prioritize convenience. The COVID-19 pandemic has further amplified the importance of convenience, as social distancing measures made remote consultations safer and more practical.

3. **Quality of Service** was another significant predictor of telemedicine adoption, with a regression coefficient of 0.283. This finding underscores users' expectations for reliable and effective virtual healthcare services that match or exceed traditional in-person consultations. In Hong Kong, where healthcare standards are generally high, users demand similar levels of professionalism, accuracy in diagnosis, and technical reliability from telemedicine platforms. According to TAM, high-quality care increases Perceived Usefulness by providing effective treatment and improving health outcomes. In UTAUT terms, QoS impacts Performance Expectancy, ensuring that telemedicine services meet healthcare needs effectively.
4. **Safety** did not significantly impact telemedicine adoption in this study, with a regression coefficient of 0.064 and a p-value greater than 0.05. While concerns about data privacy and cybersecurity are often cited as barriers to digital health adoption globally, this result may reflect contextual factors specific to Hong Kong. The city's residents are accustomed to using secure digital platforms for banking, e-commerce, and government services, which may reduce their concerns about safety in telemedicine applications.

While safety was not statistically significant in this study's regression model, correlation analysis showed moderate positive relationships between safety and telemedicine adoption. This suggests that while safety may not be a primary driver of adoption decisions in Hong Kong's context, it remains an important consideration for long-term trust building.

## 6 Conclusion and Recommendations

### 6.1 Conclusion

This study investigated the factors influencing telemedicine adoption in Hong Kong, focusing on cost, convenience, quality of service (QoS), and safety. The findings revealed that cost is the most influential factor, reflecting the financial sensitivity of Hong Kong residents. Convenience also emerged as a critical driver, highlighting the value placed on time-saving solutions in a fast-paced urban environment. QoS was another significant determinant, underscoring the importance of reliable and effective virtual healthcare services that meet or exceed traditional in-person consultations. Interestingly, safety concerns did not significantly impact adoption decisions, possibly due to Hong Kong residents' familiarity with secure digital platforms.

The study also highlighted barriers to telemedicine adoption, including limited awareness and trust in virtual consultations. Despite its potential to ease the pressure on Hong Kong's overburdened healthcare system, telemedicine remains underutilized, with most respondents reporting no prior experience with such services. This underscores the need for targeted strategies to enhance public acceptance. By addressing these barriers and leveraging the identified factors, telemedicine can play a pivotal role in improving healthcare accessibility and efficiency in Hong Kong. The findings contribute valuable insights for policymakers, healthcare providers, and technology developers to optimize telemedicine services and promote their integration into the healthcare system.

### 6.2 Recommendations

The findings of this study have significant implications for various stakeholders involved in promoting telemedicine adoption in Hong Kong. Policymakers must address cost barriers by introducing financial incentives or subsidies to make telemedicine more affordable for all population segments. Healthcare providers should focus on enhancing service quality and convenience to meet user expectations. Technology developers need to prioritize user-friendly designs and robust security measures to build trust among potential users.

These implications form the basis for actionable recommendations aimed at increasing telemedicine adoption in Hong Kong. By addressing cost concerns, improving convenience and QoS, and maintaining high safety standards, stakeholders can create an environment conducive to telemedicine acceptance.

## Recommendations for Policymakers

Policymakers play a crucial role in creating an enabling environment for telemedicine adoption. The following recommendations are proposed:

1. **Introducing Subsidies and Financial Incentives:** The government should provide subsidies or insurance coverage for telemedicine services to reduce out-of-pocket expenses for patients. This would make telemedicine more accessible to low-income groups and encourage broader adoption.
2. **Implement Public Awareness Campaigns:** Promotional campaigns should be launched to raise awareness about the benefits of telemedicine. These campaigns should target older adults and less tech-savvy populations through accessible media channels such as television, radio, and community outreach programs.
3. **Develop Clear Regulatory Frameworks:** Strengthening regulatory frameworks is essential to ensure data privacy, cybersecurity, and clinical safety in telemedicine platforms. Clear guidelines from regulatory bodies like the Medical Council of Hong Kong can enhance public confidence.
4. **Establish Cross-Border Telemedicine Policies:** With many retirees living in the Greater Bay Area, cross-border policies should be developed to facilitate seamless access to telemedicine services across regions.

## Recommendations for Healthcare Providers

Healthcare providers are at the forefront of implementing telemedicine services. The following recommendations focus on improving the delivery of service:

1. **Enhance Service Quality:** Training healthcare professionals to familiarize telemedicine services, to deliver high-quality virtual consultations. This includes improving diagnostic accuracy through pre-consultation data collection and ensuring effective communication during consultations.
2. **Focus on follow up and Chronic Disease Management:** Telemedicine can be leveraged for chronic disease management by providing continuous monitoring, medication management, and health education for patients with conditions like diabetes or hypertension. Additionally, telemedicine facilitates follow-up monitoring for monitoring the treatment progress, enabling timely adjustments to treatment plans, and improved overall healthcare management through remote consultations and real-time health data tracking.
3. **Implement Feedback Mechanisms:** Robust feedback systems should be established to collect patient reviews and improve service delivery based on user experiences.
4. **Expand Accessibility for Vulnerable Populations:** To ensure telemedicine reaches elderly individuals and those with mobility challenges, targeted initiatives

should be implemented. These could include establishing community centers equipped with telehealth facilities or offering home-based care programs. For example, collaborative campaigns with social workers could assist seniors in adopting telemedicine by providing hands-on guidance and support for accessing remote healthcare services effectively.

### **Recommendations for Technology Developers**

Technology developers play a critical role in designing platforms that meet user needs while addressing safety concerns:

1. **Incorporate Advanced Technologies:** Features like artificial intelligence (AI) for symptom analysis and remote monitoring devices can enhance diagnostic accuracy and patient engagement.
2. **Ensure Data Security:** Robust encryption protocols, secure data storage systems, and multifactor authentication mechanisms should be implemented to address safety concerns.
3. **Develop User-Friendly Platforms:** Telemedicine platforms should be intuitive and easy to navigate, with multilingual support to cater to Hong Kong's diverse population. Features like flexible scheduling, real-time technical support, and integration with electronic health records (EHRs) can enhance user experience.

To effectively implement these recommendations, all stakeholders should take coordinated actions, which include:

- Establish partnerships among government bodies, private healthcare providers, and technology firms to foster collaboration.
- Pilot test new initiatives within specific districts or demographics to evaluate effectiveness before citywide implementation.
- Monitor adoption rates through regular surveys and adjust strategies based on user feedback for continuous improvement.
- Provide training programs to help healthcare professionals become proficient in telemedicine technologies.
- Allocate funding for research and development to enhance telemedicine services and address emerging challenges.

By addressing cost barriers, enhancing convenience and QoS, and fostering collaboration among stakeholders, these recommendations aim to promote widespread acceptance of telemedicine in Hong Kong's healthcare system.

## 6.3 Limitation of Study

While this study provides valuable insights into the factors influencing telemedicine adoption in Hong Kong, several limitations should be acknowledged to contextualize the findings:

1. **Sample Representation:** The sample size of 130 respondents, though statistically sufficient, may not fully represent the diverse population of Hong Kong. Certain demographic groups, such as individuals with limited internet access or lower technological literacy, may have been underrepresented due to the online nature of the survey.
2. **Self-Reported Data:** The study utilized self-reported data gathered through questionnaires, which may introduce biases such as social desirability or recall bias. Participants might have responded in ways they believed were more socially acceptable, rather than accurately reflecting their true experiences or opinions.
3. **Limited Scope of Variables:** While the study focused on four key factors—cost, convenience, quality of service, and safety—other potential influences on telemedicine adoption, such as cultural attitudes, healthcare provider perspectives, or government policies, were not explored in detail.
4. **Technological Context:** The study did not account for variations in respondents' access to technology or digital literacy levels, which could significantly impact their willingness and ability to adopt telemedicine services.
5. **Pandemic-Specific Context:** The findings are influenced by the post-COVID-19 context in which telemedicine adoption surged globally. As pandemic-related restrictions ease, public attitudes toward telemedicine may shift, potentially limiting the generalizability of these results to non-pandemic scenarios.

By addressing these limitations in future research, a more comprehensive understanding of telemedicine adoption can be achieved.

## 6.4 Future Research

This study lays a foundation for understanding telemedicine adoption in Hong Kong. However, further research can be done to expand on its findings. Below are recommendations for future studies:

1. **Longitudinal Research and Evaluation of Long-Term Impacts:** Future studies should adopt a longitudinal approach to track changes in adoption in telemedicine over time, providing insights into evolving factors like cost sensitivity and convenience. Additionally, evaluating the long-term impacts of telemedicine on healthcare efficiency, patient satisfaction, and health outcomes would offer critical evidence for its sustainability as a care delivery model. Combining these

perspectives ensures a comprehensive understanding of telemedicine's progression and enduring effects.

2. **Broader Scope with Regional Comparisons:** Expanding the sample to include diverse geographic and socioeconomic groups, especially vulnerable populations like the elderly or rural residents, would improve representativeness. Comparative studies across regions, such as Hong Kong and Mainland China, could further reveal best practices and contextual factors influencing telemedicine adoption.
3. **Exploration of Influencing Factors and Emerging Technologies:** Future research should examine additional factors influencing telemedicine adoption, such as cultural attitudes, healthcare provider perspectives, government policies, and digital literacy. Simultaneously, it should explore how emerging technologies like AI, wearable devices, and blockchain can enhance telemedicine services and address barriers to adoption.

By addressing these areas, future research can contribute to a more universal understanding of telemedicine adoption and inform strategies for its effective integration into healthcare systems globally.

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## 8 Appendix

### Questionnaire sample of “Survey on study on adoption of Telemedicine in Post-COVID-19 Hong Kong: Analyzing Resident Perspectives and Influencing Factors”

1. What is your gender? \*
- 您的性別是？

*Mark only one oval.*

- ☐ Male 男性
- ☐ Female 女性

2. What is your age? 您的年齡是多少？ \*

*Mark only one oval.*

- ☐ 18-30
- ☐ 30-40
- ☐ 40-50
- ☐ 50-60
- ☐ 60 above (60歲以上)

3. Education Level 教育程度 \*

*Mark only one oval.*

- ☐ Primary education 小學
- ☐ Secondary education 中學
- ☐ Tertiary education or above 大學或以上

4. Have you ever used telemedicine services? 您有使用遠程醫療服務的經驗嗎? \*

Mark only one oval.

☐ Yes

☐ No

Part 1 - General Perception 第一部分 - 普遍看法

5. I am open to using telemedicine for healthcare consultations. 我願意使用遠程醫療進行健康諮詢。 \*

Mark only one oval.

1 2 3 4 5

Strongly Disagree 非常不同意 ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

6. I believe that telemedicine is a reliable way to obtain medical advice. 我相信遠程醫療是一個可靠的獲取醫療建議的方式。 \*

Mark only one oval.

1 2 3 4 5

Strongly Disagree 非常不同意 ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

7. Telemedicine can be an effective solution for managing non-urgent health issues. 遠程醫療可以是處理非緊急健康問題的有效解決方案。 \*

Mark only one oval.

|          |                       |                       |                       |                       |                       |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
| Strongly | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Agree 非常同意 |

8. I intend to use telemedicine for future healthcare needs. 我打算在未來使用遠程醫療來滿足健康需求。 \*

Mark only one oval.

|          |                       |                       |                       |                       |                       |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
| Strongly | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Agree 非常同意 |

9. I support the integration of telemedicine into Hong Kong's healthcare system. 我支持將遠程醫療整合到香港的醫療系統中。 \*

Mark only one oval.

|          |                       |                       |                       |                       |                       |            |
|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|
|          | 1                     | 2                     | 3                     | 4                     | 5                     |            |
| Strongly | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Agree 非常同意 |

## Part 2 - Cost Related 第二部分 - 成本

10. I believe telemedicine services are cost-effective compared to traditional in-person medical visits. 我相信遠程醫療服務與傳統面對面醫療訪問相比更具成本效益。 \*

Mark only one oval.

1 2 3 4 5

Stro ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

11. The potential for reducing overall healthcare expenses makes telemedicine acceptable to me. 遠程醫療有潛力降低整體醫療支出，這讓我認為遠程醫療是可以接受的。 \*

Mark only one oval.

1 2 3 4 5

Stro ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

12. I believe using telemedicine could give me indirect economic benefits, like lowering the transportation cost. \*

我相信使用遠距醫療可以給我帶來間接經濟效益，例如降低交通成本。

Mark only one oval.

1 2 3 4 5

Stro ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

13. I will be more willing to use telemedicine if teleconsultation is cheaper than in-person consultation. \*

如果遠程諮詢比面對面諮詢更便宜，我將更願意使用遠距醫療。

Mark only one oval.

1 2 3 4 5

Strongly Disagree 非常不同意 ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

14. I am more likely to accept telemedicine if it offers financial benefits in the long run. 如果遠程醫療在長遠提供財務上的好處，我更有可能接受它。 \*

Mark only one oval.

1 2 3 4 5

Strongly Disagree 非常不同意 ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

### Part 3 - Convenience 第三部分 - 便利性

15. The convenience of accessing healthcare from home would increase my acceptance of telemedicine. 從家裡方便地獲得醫療服務會增加我對遠程醫療的接受程度。 \*

Mark only one oval.

1 2 3 4 5

Strongly Disagree 非常不同意 ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

16. I find telemedicine acceptable because it saves me time compared to in-person visits. 與親自就診相比，遠程醫療可以為我節省時間，這使我認為遠程醫療是可以接受的。 \*

Mark only one oval.

1 2 3 4 5

Strongly Disagree 非常不同意 ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

17. The flexibility in scheduling consultations makes telemedicine an acceptable option for me. 對於我來說，遠程醫療提供的會談排程彈性使其成為一個可以接受的選擇。 \*

Mark only one oval.

1 2 3 4 5

Strongly Disagree 非常不同意 ☐ ☐ ☐ ☐ ☐ Strongly Agree 非常同意

18. Flexibility of accessing care outside regular clinic hours would increase my acceptance of telemedicine. 在常規診所時間之外靈活地獲得護理服務的便利性會增加我對遠程醫療的接受程度。 \*

Mark only one oval.

1 2 3 4 5

Strongly Agree 非常同意

19. The ease of managing my health through telemedicine positively influences my acceptance of this technology. 透過遠程醫療輕鬆管理我的健康情況對提高我對這項技術的接受度產生積極影響。 \*

Mark only one oval.

1 2 3 4 5

Strongly Agree 非常同意

Part 4 - Quality of Service 第四部分 - 護理服務質素

20. I find telemedicine acceptable if it can provide a similar quality of care as in-person visits. 如果遠程醫療能夠提供與親自就診相同水平的護理品質，我會認為它是可以接受的。 \*

Mark only one oval.

|                   |                       |                       |                       |                       |                       |                     |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
|                   | 1                     | 2                     | 3                     | 4                     | 5                     |                     |
| Strongly Disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

21. I am more likely to accept telemedicine if it offers access to qualified healthcare professionals. 如果遠程醫療能夠提供接觸合格醫療專業人員的機會，我更有可能接受這項技術。 \*

Mark only one oval.

|                   |                       |                       |                       |                       |                       |                     |
|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
|                   | 1                     | 2                     | 3                     | 4                     | 5                     |                     |
| Strongly Disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

22. Do you feel that telemedicine services allow or would allow you to communicate your health concerns and needs effectively to healthcare providers? 你是否認為遠程醫療服務能讓你有效地與醫療保健提供者溝通你的健康問題和需求？ \*

Mark only one oval.

|      |                       |                       |                       |                       |                       |                     |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
|      | 1                     | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

23. The potential for improved continuity of care in managing chronic conditions increases my acceptance of telemedicine. 透過遠程醫療可能改善慢性疾病管理的連續性，這增加了我對遠程醫療的接受度。 \*

Mark only one oval.

|      |                       |                       |                       |                       |                       |                     |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
|      | 1                     | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

24. Do you believe telemedicine services can provide timely and effective follow-up care for ongoing health conditions? 你是否認為遠程醫療服務能夠為持續的健康狀況提供及時且有效的後續護理？ \*

Mark only one oval.

|      |                       |                       |                       |                       |                       |                     |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
|      | 1                     | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

## Part 5 - Safety related factors 第五部分 - 與安全相關的因素

25. The reduced risk of exposure to infectious diseases makes telemedicine an acceptable option for me. 遠程醫療降低了接觸傳染病的風險，這讓我覺得遠程醫療是可以接受的選擇。 \*

Mark only one oval.

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|------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
| 1    | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

26. I am concerned about privacy breaches in telemedicine. 我對遠程醫療中的隱私侵犯問題感到擔憂。 \*

Mark only one oval.

|      |                       |                       |                       |                       |                     |
|------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
| 1    | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

27. I worry about misdiagnosis in telemedicine. 對於遠程醫療可能出現的誤診問題，我感到擔憂。 \*

Mark only one oval.

|      |                       |                       |                       |                       |                     |
|------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
| 1    | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

28. Adopting a regulatory framework for telemedicine can boost my confidence in its safety and reliability. 採納適用於遠程醫療的監管框架可以提高我對遠程醫療安全性的信心。 \*

*Mark only one oval.*

|      |                       |                       |                       |                       |                       |                     |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
|      | 1                     | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |

29. The ability to consult healthcare providers from the safety of my home makes telemedicine acceptable to me. 在家中安全諮詢醫療服務提供者的能力讓我覺得遠程醫療是可以接受的。 \*

*Mark only one oval.*

|      |                       |                       |                       |                       |                       |                     |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|
|      | 1                     | 2                     | 3                     | 4                     | 5                     |                     |
| Stro | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Strongly Agree 非常同意 |