

ASSESSING PATIENT SATISFACTION WITH TELEMEDICINE SERVICES: A COMPREHENSIVE STUDY POST- COVID-19, USING HOSPITAL AUTHORITY AS CASE OF STUDY

Research Proposal



UWTSD - Master of Business Administration

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1. Introduction

Telemedicine, the use of telecommunication technology to deliver healthcare services remotely, has gained significant attention globally. With advancements in technology and the growing demand for healthcare access, telemedicine presents a promising solution to address healthcare delivery challenges. This research proposal aims to explore the factors affecting the implementation of telemedicine in Hong Kong, identifying barriers and enablers to its adoption.

1.1. Background

Telemedicine has a long and evolving history that began in the 19th century, primarily driven by advancements in communication technologies. The use of the telegraph during the American Civil War marked one of the first instances of remote medical communication, allowing for the transmission of casualty lists and medical information (Zundel, 1996). As technology progressed, the telephone and radio became integral to telemedicine, facilitating consultations and diagnoses over distances. By the mid-20th century, television was utilized for medical education and patient care, and the term "telemedicine" was officially coined in the 1970s (Murphy and Bird, 1974). The internet revolution in the late 1990s further transformed telemedicine by enabling real-time video consultations and electronic health records, leading to widespread adoption and integration into modern healthcare systems (Jagarapu & Savani, 2021).

Before the COVID-19 pandemic, the progress of telemedicine was relatively slow, hampered by various regulatory, technological, and cultural barriers (Isabaliya *et al.*, 2011). These obstacles contributed to a fragmented landscape where telemedicine was primarily utilized in specific fields such as radiology and psychiatry, but not widely integrated into general healthcare practices. Despite the increasing interest from both providers and patients—evidenced by a 2019 survey where 85% of consumers expressed interest in virtual care but only 17% had access—telemedicine remained underutilized due to concerns about quality of care and provider reluctance to adopt new technologies (Zundel, 1996; Hincapié *et al.*, 2020).

In contrast, the COVID-19 pandemic catalyzed a rapid transformation in telemedicine's adoption and integration into healthcare systems. As physical distancing measures were implemented to curb the spread of the virus, healthcare providers quickly pivoted telehealth solutions to maintain patient care while minimizing exposure risks. Legislative changes significantly relaxed previous restrictions on telehealth services, allowing for broader reimbursement policies and enabling providers to offer care across state lines (Brunet *et al.*, 2021; Nittari *et al.*, 2020). This shift resulted in an unprecedented surge in telemedicine usage; for instance, overall telehealth utilization increased by 78 times from February to April 2020 (Bestsenny *et al.*, 2021). The pandemic not only highlighted the effectiveness of telemedicine in delivering care but also fostered greater acceptance

among both patients and providers. As a result, telemedicine has become an integral component of healthcare delivery moving forward, with many anticipating its continued expansion even post-pandemic due to its demonstrated benefits in accessibility and efficiency (Bashshur et al., 2020).

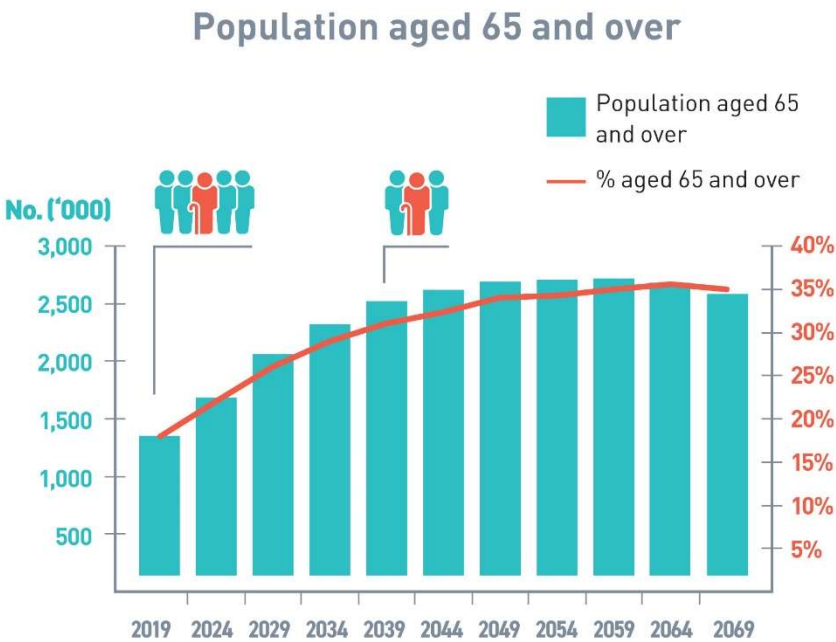
1.2. Research Drivers

The rapid adoption of telemedicine during COVID-19 has highlighted its potential benefits, including convenience, accessibility, and reduced travel time. However, challenges such as technical difficulties, communication barriers, and inequities in access persist (Mirasghari et al., 2024). These challenges underscore the need for research to identify factors influencing patient satisfaction and address barriers to adoption.

Healthcare Challenges in Hong Kong

Hong Kong faces critical healthcare challenges that make the implementation of telemedicine increasingly necessary. The rapidly aging population, projected to reach 2.52 million elderly (31% of total population) by 2039, combined with the rising prevalence of chronic diseases, is putting unprecedented pressure on the healthcare system (Health Bureau, HKSAR, 2024).

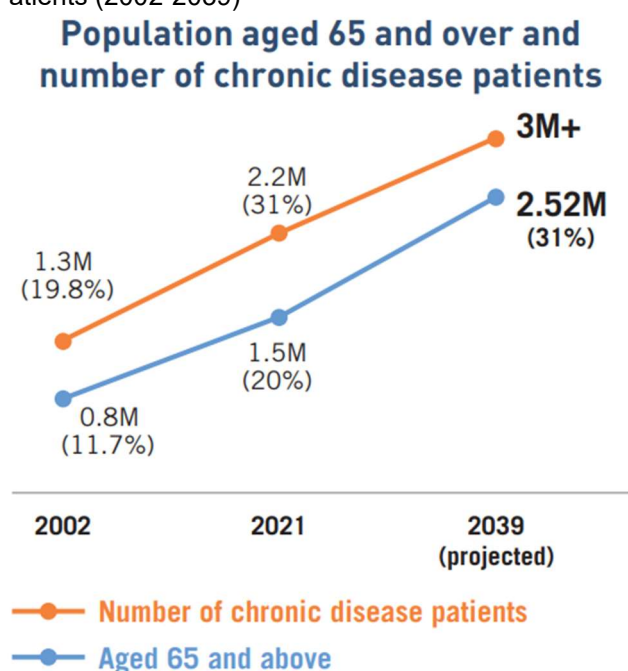
Chart 1: Projection of population of 65 ages and above, from year 2019 to 2069



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

Mentioned in the Primary Healthcare Blueprint (Health Bureau, HKSAR, 2022), the challenge is further compounded by the rising prevalence of chronic diseases, with approximately 31% of Hong Kong's population (around 2.2 million people) suffering from chronic health conditions. The Hospital Authority projects that patients with chronic diseases will reach 3 million in the coming decade, with a substantial number remaining undiagnosed and unmanaged, estimated to be as many as double the diagnosed number. Telemedicine can significantly address these challenges by facilitating regular monitoring of chronic conditions, enabling early detection of complications, supporting medication management, and providing continuous health education, offering them consistent care while reducing the burden on physical healthcare facilities.

Chart 1: 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 patients in choosing telemedicine services following the COVID-19 pandemic to further explore the potential application of telemedicine in the post-COVID era. This study aims to pinpoint crucial elements that enhance positive patient experiences, and to comprehend the ways in which we can optimize these factors to enhance future telehealth services.

The objectives of this study are:

1. To identify the key factors influencing the implementation of telemedicine in Hong Kong.
2. To evaluate patient satisfaction with telemedicine services compared to traditional in-person consultations.
3. To explore the perceptions and attitudes of healthcare professionals and patients towards telemedicine.
4. To explore perceived benefits and barriers to telemedicine adoption.
5. To suggest strategies and recommendations to enhance the adoption and integration of telemedicine in Hong Kong.

1.4. Research Questions

Key Questions

1. What are the key factors influencing the implementation and adoption of telemedicine services among patients in Hong Kong following the COVID-19 pandemic?
2. How does patient satisfaction with telemedicine services compare to traditional in-person consultations, and what specific aspects contribute to these satisfaction levels?
3. What are the perceptions and attitudes of healthcare professionals towards telemedicine, and how do these views align or contrast with those of patients?
4. What perceived benefits and barriers do patients identify regarding the adoption of telemedicine, and how do these factors impact their willingness to utilize such services?
5. What strategies and recommendations can be developed to enhance the integration and adoption of telemedicine services in Hong Kong, based on patient and healthcare professional feedback?

1.5. Value & Contribution of Research

The proposed research on telemedicine services in Hong Kong post-COVID-19 aims to significantly enhance patient care by identifying key factors that influence choices and patient satisfaction, thereby informing healthcare providers on how to optimize telehealth services. It will bridge the gap between patients and healthcare professionals by exploring their perceptions and attitudes, fostering better communication and collaboration. Additionally, the study will uncover barriers and facilitators to telemedicine adoption, providing critical insights for policymakers and healthcare administrators to develop targeted interventions. Ultimately, the research will contribute to future telehealth innovations by offering actionable strategies and recommendations, ensuring that telemedicine becomes a viable and effective option for a broader population in the evolving healthcare landscape.

1.6. Chapter Structure

The dissertation is structured as follows:

1. Chapter 1 introduces research background, objectives, questions, and contributions.
2. Chapter 2 reviews relevant literature on telemedicine adoption and patient satisfaction.
3. Chapter 3 outlines the research methodology, including hypotheses, framework, data collection methods, and ethical considerations.
4. Chapter 4 carries out data analysis from the questionnaire results, and discusses the results
5. Chapter 5 Discussion of results and derive conclusions

2. Literature Review

The evolution and implementation of telemedicine represents a significant transformation in healthcare delivery systems, particularly in the context of modern healthcare challenges. This review examines the current literature on telemedicine adoption, patient satisfaction, and implementation challenges, with a specific focus on the Hong Kong healthcare context.

2.1. Historical Development and Recent Transformation

Telemedicine's evolution has been marked by significant technological advancements, from its early beginning with basic telecommunication tools to today's sophisticated digital platforms. Murphy and Bird (1974b) documented how various communication technologies, from telegraph to television, contributed to telemedicine's development. The internet revolution of the 1990s marked a crucial turning point, enabling real-time video consultations and electronic health records integration (Jagarapu & Savani, 2021).

2.2. Pandemic-Driven Acceleration

The COVID-19 pandemic served as a catalyst for unprecedented telemedicine adoption. Ahmed (2020) documented how healthcare systems rapidly pivoted to telehealth solutions during the initial phases of the pandemic. This shift resulted in remarkable growth, with Bestsenny (2021) reporting a 78-fold increase in telehealth utilization between February and April 2020. The pandemic not only accelerated adoption but also demonstrated telemedicine's effectiveness in maintaining continuity of care during crisis situations (Bashshur et al., 2020).

2.3. Implementation Challenges and Barriers

Despite rapid adoption, significant challenges persist in telemedicine implementation. Recent research by Mirasghari (2024) identifies several key barriers:

- Technical infrastructure limitations
- Communication challenges in virtual environments
- Digital literacy gaps among certain patient populations
- Equity concerns in healthcare access

2.4. Hong Kong Healthcare Context

The Hong Kong healthcare system faces unique challenges that make telemedicine implementation particularly relevant. According to the Health Bureau, HKSAR (2024), key pressures include:

- An aging population requiring increased healthcare resources
- Rising prevalence of chronic diseases
- Need for improved healthcare accessibility
- Resource optimization in healthcare delivery

2.5. Patient Satisfaction and Quality of Care

Research on patient satisfaction with telemedicine services has yielded mixed results. Yao (2022) conducted a comprehensive meta-analysis revealing that patient satisfaction is influenced by multiple factors:

- Technical quality of the consultation
- Provider communication skills
- Ease of platform use
- Patient demographics and digital literacy

2.6. Healthcare Provider Perspectives

Studies examining healthcare provider experiences with telemedicine highlight both opportunities and challenges. Abdelghany (2023) found that providers recognize telemedicine's potential for:

- Improving access to care
- Reducing unnecessary hospital visits
- Enabling more efficient patient monitoring

However, concerns persist regarding:

- Clinical assessment limitations
- Technical infrastructure reliability
- Integration with existing workflows

2.7. Future Directions and Research Gaps

Current literature indicates several areas requiring further investigation:

1. Long-term effectiveness of telemedicine in chronic disease management
2. Impact on healthcare resource utilization
3. Optimal models for hybrid care delivery
4. Strategies for enhancing patient engagement in virtual consultations

The literature review reveals that while telemedicine has demonstrated significant potential, particularly during the COVID-19 pandemic, there remain important areas for research and development. The Hong Kong context presents unique opportunities and challenges for telemedicine implementation, warranting focused investigation into factors affecting patient satisfaction and adoption. Understanding these elements is crucial for developing effective strategies to enhance telemedicine services and improve healthcare delivery in Hong Kong.

3. Research Model

3.1. Theoretical Framework

The theoretical framework for this research is based on established theories and models that explain the adoption and satisfaction with telemedicine services. The framework integrates the following components:

1. Technology Acceptance Model (TAM)

Description: TAM explains how perceived ease of use and perceived usefulness influence the acceptance of technology.

Applications: In the context of telemedicine, if patients find the technology easy to use and beneficial for their health needs, they are more likely to report higher satisfaction levels. In this research, TAM is used to understand how Implementation Factors (e.g., ease of use, rewards) and Perceived Benefits (e.g., convenience, accessibility) influence Telemedicine Adoption (Davis, 1989; Holden et al., 2010)

2. Unified Theory of Acceptance and Use of Technology (UTAUT)

Description: UTAUT identifies performance expectancy, effort expectancy, social influence, and facilitating conditions as key determinants of technology adoption (Williams et al., 2015).

Application: This theory supports the role of Perceptions & Attitudes and Implementation Factors in influencing Telemedicine Adoption (Venkatesh et al., 2003; Dwivedi et al., 2017).

3. Diffusion of Innovation Theory

Description: This theory explains how innovations are adopted over time, emphasizing factors like relative advantage, compatibility, and complexity (Kaminski et al., 2011; Rogers, 2003).

Application: It is used to analyze how Perceived Barriers (e.g., lack of knowledge, trust) and Perceived Benefits influence the rate of Telemedicine Adoption (Greenhalgh et al., 2004).

4. Expectation-Confirmation Theory (ECT)

Description: ECT explains how user satisfaction is influenced by the confirmation of expectations and perceived performance (Hossain and Quaddus, 2011).

Application: This theory underpins the relationship between Telemedicine Adoption and Patient Satisfaction, suggesting that satisfaction is driven by the fulfillment of expectations regarding telemedicine services (Bhattacharjee, 2001; Oliver, 1980).

This theoretical framework integrates these models to explain the relationships between the independent variables (Implementation Factors, Perceived Benefits, Perceived Barriers, Perceptions & Attitudes) and the dependent variables (Telemedicine Adoption, Patient Satisfaction).

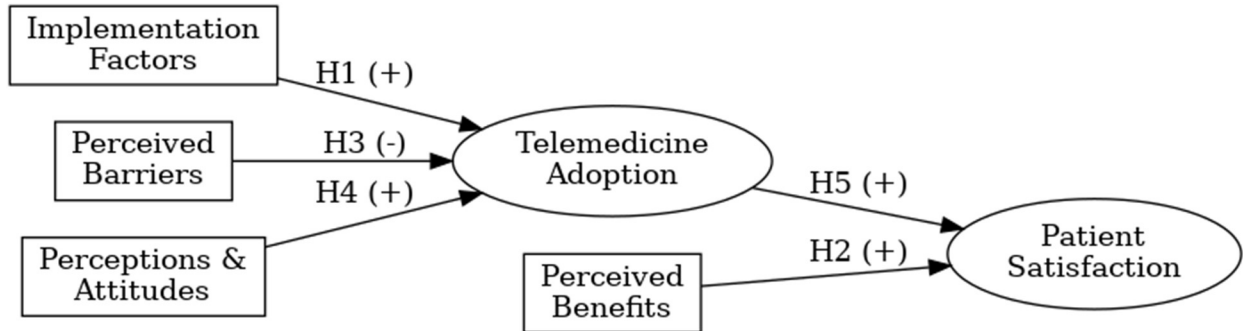
3.2. Hypothesis

Based on the research objectives and variables, the following hypotheses can be proposed:

1. **H1:** Factors influencing telemedicine implementation positively impact telemedicine adoption.
2. **H2:** Perceived benefits of telemedicine positively influence patient satisfaction with telemedicine services.
3. **H3:** Perceived barriers to telemedicine adoption negatively influence telemedicine adoption.
4. **H4:** Positive perceptions and attitudes of healthcare professionals and patients positively influence telemedicine adoption.
5. **H5:** Patient satisfaction with telemedicine services is higher compared to traditional in-person consultations.

3.3. Proposed Research Model Graph

Figure 1: Research Model for Telemedicine Adoption and Patient Satisfaction



Source: Constructed by Author

4. Methodology

This study employs a mixed-methods research design to comprehensively investigate the factors affecting telemedicine implementation in Hong Kong. The methodology combines both quantitative and qualitative approaches that will provide deep insights into the barriers and enablers of telemedicine adoption (Creswell and Plano Clark, 2007).

4.1. Data Collection Methods

To assess patient satisfaction with telemedicine post COVID-19 mixed methods approach could employed (Tashakkori and Teddlie, 2010):

1. Quantitative Phase:

- A structured questionnaire survey will be administered to patients / public who have experienced / acknowledges about telemedicine services.
- The survey will measure:
 - Patient satisfaction levels
 - Factors influencing adoption
 - Perceived benefits and barriers
 - Comparison with traditional in-person consultations

2. Qualitative Phase:

- Semi-structured interviews will be conducted with both public and healthcare professionals.
- The interviews will explore:
 - Professional perspectives on telemedicine implementation
 - Perceived challenges and opportunities
 - Recommendations for improvement
 - Identify specific factors influenced their-satisfaction

4.2. Coding of Variables

Variables include:

- Independent Variables: Implementation Factors, Perceived Benefits, Perceived Barriers, Perceptions & Attitudes.
- Dependent Variable: Telemedicine Adoption, Patient Satisfaction.

4.3. Questionnaire Design

The survey includes Likert-scale questions assessing convenience, communication quality, technical issues, and overall satisfaction (Joshi et al., 2015).

1. Population and Sampling

Participants include person aged ≥ 18 years who have experienced / acknowledges on telemedicine services in Hong Kong.

- Adults aged ≥ 18 years.
- Should have basic knowledge of what telemedicine is.
- Must provide informed consent prior participation.

Sampling Strategy:

- A combination of random sampling (to ensure representativeness) and purposive sampling (focus group).
- The sample size will be determined based on statistical power analysis to ensure sufficient data for hypothesis testing.

2. Data Collection Instruments

Survey Questions: Focus on overall satisfaction, communication quality, convenience, trust in providers, and technical difficulties.

Interview Questions: Explore detailed experiences, communication challenges, accessibility, trust factors, and technical issues.

4.4. Statistical Analysis

1. Quantitative Analysis

1.1. Descriptive Statistics:

Descriptive statistics will be used to summarize the data collected from surveys, including means, and standard deviations. These measures provide an overview of the central tendencies and variability in the data, which is essential for understanding the distribution of responses (Field, 2017).

1.2. Inferential Statistics

1.2.1. Regression Analysis:

Regression analysis will be employed to examine the relationships between independent variables (e.g., implementation factors, perceived benefits, perceived barriers, perceptions, and attitudes) and dependent variables (telemedicine adoption and patient satisfaction). This method is particularly useful for testing hypotheses about causal relationships (Cohen et al., 2014).

1.2.2. T-tests:

Independent sample t-tests will be conducted to compare the means of two groups (e.g., different age groups) to determine if there are statistically significant differences in their perceptions and attitudes towards telemedicine (Kim, 2015).

1.2.3. ANOVA (Analysis of Variance):

ANOVA will be used to compare the means of more than two groups (e.g., public and healthcare professionals) to identify significant differences in telemedicine adoption and satisfaction levels (Tabachnick and Fidell, 1983).

2. Qualitative Analysis

2.1. Content Analysis:

Content analysis will be used to systematically analyze qualitative data, focusing on the frequency and context of specific words or phrases. This method is particularly useful for exploring Perceptions and Attitudes, as it allows for the quantification of qualitative data (Shelley and Krippendorff, 1984).

3. Software Tools:

Data will be analyzed using statistical software - SPSS, which are widely used for conducting descriptive and inferential statistics (Field, 2017).

4.5. Ethical Considerations

The study will adhere to strict ethical guidelines, including:

- Obtaining informed consent from all participants.
- Ensuring confidentiality and anonymity of data.
- Securing necessary approvals from relevant institutional review boards.
- Protecting sensitive healthcare information.
- Providing participants with the right to withdraw at any time.

4.6. Pre-Test

A pilot test will be conducted with a small sample size to refine survey instruments.

5. Results

Expected Outcomes

The expected outcomes from this study include:

1. Key Factors Influencing Telemedicine Adoption

The study identifies critical factors that drive the implementation and adoption of telemedicine services in Hong Kong. These factors include ease of use, technical infrastructure, and perceived benefits such as convenience, accessibility, and reduced travel time. Understanding these elements will provide insights into optimizing telemedicine services for broader adoption.

2. Patient Satisfaction and Modality Comparison

It is expected to find out patient satisfaction towards current telemedicine services, particularly for video consultations. Video consultations are expected to yield higher satisfaction scores compared to audio-only consultations due to enhanced visual interaction capabilities, which improve communication and patient-provider rapport.

3. Barriers to Telemedicine Adoption

The study aims to uncover barriers to telemedicine adoption, including technical difficulties, communication challenges, and digital literacy gaps. These barriers are expected to vary across demographic groups, with elderly patients and rural residents likely facing more significant challenges due to limited technological literacy and infrastructure.

4. Perceptions and Attitudes of Stakeholders

The research anticipates exploring the perceptions and attitudes of the public, patients and healthcare professionals towards telemedicine. It is expected to identify areas of alignment and contrast that could influence the success of telemedicine integration, providing a comprehensive understanding of stakeholder perspectives.

5. Clinical Outcomes and Effectiveness

The study aims to assess clinical outcomes associated with telemedicine, with the expectation that certain conditions, such as chronic disease management, will show comparable or improved outcomes compared to traditional in-person consultations. This evaluation will help establish guidelines for the appropriate use of telemedicine in different clinical scenarios.

6. Recommendations for Telemedicine Integration

Finally, the findings are expected to provide actionable recommendations for enhancing telemedicine adoption and integration in Hong Kong. These recommendations will address both patient and provider needs, aiming to optimize telehealth services and improve healthcare delivery in the post-pandemic era.

6. Discussion

1. Interpretation of Expected Findings and Their Implications

The anticipated findings from this study will provide valuable insights into the implementation and adoption of telemedicine services in Hong Kong's healthcare system. The identification of key factors influencing telemedicine adoption, including ease of use, technical infrastructure, and perceived benefits, will be crucial for healthcare providers and policymakers in developing effective strategies for telemedicine implementation. These findings are expected to align with existing literature on digital health adoption while providing specific contextual insights for Hong Kong's healthcare landscape.

2. Patient Satisfaction and Service Delivery Modalities

The expected higher satisfaction rates for video consultations compared to audio-only services highlight the importance of visual interaction in virtual healthcare delivery. This finding has significant implications for healthcare providers in choosing and implementing telemedicine platforms. The preference will work as a guide for healthcare organizations to maintain and improve on the mode of delivery in telemedicine.

3. Addressing Barriers and Demographic Considerations

The anticipated identification of barriers across different demographic groups, particularly among elderly patients, emphasizes the need for targeted interventions. These findings will be crucial for developing inclusive telemedicine services that address the specific needs of vulnerable populations. Healthcare providers and policymakers must consider implementing support systems, such as technical assistance programs and digital literacy training, to ensure equitable access to telemedicine services across all demographic groups.

4. Stakeholder Perspectives and Integration Challenges

The exploration of stakeholder perceptions and attitudes will provide essential insights into the successful integration of telemedicine services. Understanding areas of alignment and contrast between patients, the public, and healthcare professionals will help in developing strategies that address the concerns and needs of all stakeholders.

5. Clinical Effectiveness and Service Optimization

The expected findings regarding clinical outcomes will be particularly valuable in establishing guidelines for telemedicine use across different medical conditions. The anticipated comparable or improved outcomes for chronic disease management through telemedicine could lead to significant changes in how healthcare is delivered for these conditions.

6. Future Directions and Policy Implications

The recommendations derived from this study will have important implications for healthcare policy and practice in Hong Kong. The findings are expected:

- Development of telemedicine guidelines and standards
- Training programs for healthcare providers
- Support systems for patients
- Integration of telemedicine into existing healthcare frameworks

7. Study Limitations and Future Research

While the study is expected to provide valuable insights, several limitations should be acknowledged:

- The focus on Hong Kong may limit generalizability to other healthcare systems
- Rapid technological evolution may affect the longevity of some findings
- The post-pandemic context may influence current perceptions and attitudes

Future research should consider:

- Comparative analyses across different healthcare systems
- Investigation of emerging technologies in telemedicine
- Cost-effectiveness analyses of different telemedicine modalities

7. Research Flow and Schedule

The proposed timeline for this research project spans four months from initial planning through data collection and analysis stages until final submission:

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, and organize focus groups; Analyze 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

This timeline allows sufficient time for each phase while accommodating potential delays related participant recruitment or scheduling conflicts arising throughout process itself.

8. Conclusion

The expected outcomes of this study will contribute significantly to our understanding of telemedicine implementation in Hong Kong. The findings will provide a foundation for developing more effective, accessible, and patient-centered telemedicine services. As healthcare systems continue to evolve, these insights will be crucial in shaping the future of healthcare delivery in Hong Kong and potentially informing telemedicine implementation in other contexts.

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APPLICATION FOR ETHICAL APPROVAL

RESEARCH STUDENTS

This form is to be completed by the student within **SIX** months for full-time students and **TWELVE** months for part time students, after the commencement of the research degree or following progression to Part Two of your course.

Once complete, submit this form via the **MyTSD Doctoral College Portal** at (<https://mytsd.uwtsd.ac.uk>).

This document is also available in Welsh.

RESEARCH STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk, with the title 'Ethical Approval' followed by your name.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity. Please see Checklist for details of process for different categories of application.

SECTION A: About You (Principal Researcher)

1	Full Name:	Cheung Siu To			
2	Tick all boxes that apply:	Member of staff:	☐	Honorary research fellow:	☐
	Undergraduate Student	☐	Taught Postgraduate Student	☒	Postgraduate Research Student
3	Institute/Academic Discipline/Centre:	The Hong Kong Management Association (HKMA)			
4	Campus:	The Hong Kong Management Association (HKMA)			
5	E-mail address:	2322639@student.uwtsd.ac.uk / stocheung@hotmail.com			
6	Contact Telephone Number:	94576889			
For students:					

7	Student Number:	2322639
8	Programme of Study:	Master of Business Administration
9	Director of Studies/Supervisor:	Dr. LEUNG, Wing Chung Joe

SECTION B: Approval for Research Activity

1	Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)	YES	☐	NO	☒
					Date
2	If Yes, please indicate source of approval (and date where known): <i>Approval in principle must be obtained from the relevant source prior to seeking ethical approval</i>	Research Degrees Committee	☐		
		Institute Research Committee	☐		
		Other (write in)	☐		

SECTION C: Internal and External Ethical Guidance Materials

	Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, location-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines. You may add rows to this table if needed.				
1	UWTSD Research Ethics & Integrity Code of Practice				☒
2	UWTSD Research Data Management Policy				☒
3	<i>[List any other relevant documents here]</i>				☒

SECTION D: External Collaborative Research Activity

If there are external collaborators then you should gain consent from the contact persons to share their personal data with the university. If there are no external collaborators then leave this section blank and continue to section E.

1	Institution					
2	Contact person name					
3	Contact person e-mail address					
4	Is your research externally funded?		YES	☐	NO	☒
5	Are you in receipt of a KESS scholarship?		YES	☐	NO	☒
6	Are you specifically employed to undertake this research in either a paid or voluntary capacity?	Voluntary	YES	☐	NO	☒
7		Employed	YES	☐	NO	☒
8	Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP)?	If YES then the permission question below does not need to be answered.	YES	☐	NO	☒

9	Has permission to undertake the research has been provided by the partner organisation?	(If YES attach copy) If NO the application cannot continue	YES	☐	NO	☒
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Where research activity is carried out in collaboration with an external organisation

10	Does this organisation have its own ethics approval system?	YES	☐	NO	☒
	If Yes, please attach a copy of any final approval (or interim approval) from the organisation (this may be a copy of an email if appropriate).				

SECTION E: Details of Research Activity

1	Indicative title:	ASSESSING PATIENT SATISFACTION WITH TELEMEDICINE SERVICES: A COMPREHENSIVE STUDY POST-COVID-19, USING HOSPITAL AUTHORITY AS CASE OF STUDY			
2	Proposed start date:	03 Nov 2024	Proposed end date:	19 Dec 2024	
	Introduction to the Research (maximum 300 words per section) Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the points below: <i>Purpose of Research Activity</i> <i>Proposed Research Question</i> <i>Aims of Research Activity</i> <i>Objectives of Research Activity</i> Demonstrate, briefly, how Existing Research has informed the proposed activity and explain <i>What the research activity will add to the body of knowledge</i> <i>How it addresses an area of importance.</i>				
3	Purpose of Research Activity To evaluate the factors influencing patients in choosing telemedicine services following the COVID-19 pandemic to further explore the potential application of telemedicine in the post-COVID era. This study aims to pinpoint crucial elements that enhance positive patient experiences, and to comprehend the ways in which we can optimize these factors to enhance future telehealth services.				
4	Research Question - What are the key factors influencing the implementation and adoption of telemedicine services among patients in Hong Kong following the COVID-19 pandemic? - How does patient satisfaction with telemedicine services compare to traditional in-person consultations, and what specific aspects contribute to these satisfaction levels? - What are the perceptions and attitudes of healthcare professionals towards telemedicine, and how do these views align or contrast with those of patients? - What perceived benefits and barriers do patients identify regarding the adoption of telemedicine, and how do these factors impact their willingness to utilize such services? - What strategies and recommendations can be developed to enhance the integration and adoption of telemedicine services in Hong Kong, based on patient and healthcare professional feedback?				
5	Aims of Research Activity The proposed research on telemedicine services in Hong Kong post-COVID-19 aims to significantly enhance patient care by identifying key factors that influence choices and patient satisfaction, thereby informing healthcare providers on how to optimize telehealth services. It will bridge the gap between patients and healthcare professionals by exploring their perceptions and attitudes, fostering better communication and				

	collaboration. Additionally, the study will uncover barriers and facilitators to telemedicine adoption, providing critical insights for policymakers and healthcare administrators to develop targeted interventions. Ultimately, the research will contribute to future telehealth innovations by offering actionable strategies and recommendations, ensuring that telemedicine becomes a viable and effective option for a broader population in the evolving healthcare landscape.
6	Objectives of Research Activity 1. To identify the key factors influencing the implementation of telemedicine in Hong Kong. 2. To evaluate patient satisfaction with telemedicine services compared to traditional in-person consultations. 3. To explore the perceptions and attitudes of healthcare professionals and patients towards telemedicine. 4. To explore perceived benefits and barriers to telemedicine adoption. 5. To suggest strategies and recommendations to enhance the adoption and integration of telemedicine in Hong Kong.
	Proposed methods (maximum 600 words) Provide a brief summary of all the methods that may be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. You do not need to justify the methods here, but should instead describe how you intend to collect the data necessary for you to complete your project.
7	The study will employ a mixed-methods approach to collect and analyze data. The primary data collection methods will include structured questionnaire surveys and semi-structured interviews. The questionnaire surveys will be administered to individuals aged 18 years and above who have experienced or are aware of telemedicine services, utilizing Likert-scale questions to assess various aspects including satisfaction levels, adoption factors, benefits, barriers, and comparisons with traditional in-person consultations. The survey instrument will measure both independent variables (implementation factors, perceived benefits, perceived barriers, perceptions and attitudes) and dependent variables (telemedicine adoption and patient satisfaction). Semi-structured interviews will be conducted with both the public and healthcare professionals to gather in-depth qualitative data. These interviews will explore perspectives on telemedicine implementation, challenges, opportunities, recommendations for improvement, and factors influencing patient satisfaction. The study will employ a combination of random sampling for representativeness and purposive sampling for focus groups. Data analysis will involve both quantitative methods (descriptive statistics, regression analysis, t-tests, and ANOVA) and qualitative content analysis, utilizing statistical software - SPSS. A pilot test will be conducted with a small sample size to refine the survey instruments before proceeding with full-scale data collection. All research activities will be conducted following ethical guidelines, including obtaining informed consent, ensuring confidentiality and anonymity, and securing necessary institutional approvals. If additional methods are deemed necessary during the course of the study, further ethical approval will be sought before implementation.
	Location of research activity Identify all locations where research activity will take place.
8	Hong Kong (this box should expand as you type)
	Research activity outside of the UK If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised

	by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants. If you live in the country where you will do the research then please state this.
9	Yes, I understood <i>(this box should expand as you type)</i>

10	Use of documentation not in the public domain: Are any documents NOT publicly available?	NO	☒
		YES	☐
11	If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with the current data protection law of the country in question and that of England and Wales. <i>(this box should expand as you type)</i>		

	Does your research relate to one or more of the seven aims of the Well-being of Future Generations (Wales) Act 2015?	YES	NO
12	A prosperous Wales	☐	☒
13	A resilient Wales	☐	☒
14	A healthier Wales	☐	☒
15	A more equal Wales	☐	☒
16	A Wales of cohesive communities	☐	☒
17	A Wales of vibrant culture and thriving Welsh language	☐	☒
18	A globally responsible Wales	☐	☒
19	If YES to any of the above, please give details: <i>(this box should expand as you type)</i>		

SECTION F: Scope of Research Activity

	Will the research activity include:	YES	NO
1	Use of a questionnaire or similar research instrument?	☒	☐
2	Use of interviews?	☒	☐
3	Use of focus groups?	☒	☐
4	Use of participant diaries?	☐	☒
5	Use of video or audio recording?	☒	☐
6	Use of computer-generated log files?	☒	☐
7	Participant observation with their knowledge?	☒	☐
8	Participant observation without their knowledge?	☐	☒

9	Access to personal or confidential information without the participants' specific consent?	☐	☒
10	Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	☒
11	Performance of any acts which may cause embarrassment or affect self-esteem?	☐	☒
12	Investigation of participants involved in illegal activities?	☐	☒
13	Use of procedures that involve deception?	☐	☒
14	Administration of any substance, agent or placebo?	☐	☒
15	Working with live vertebrate animals?	☐	☒
16	Procedures that may have a negative impact on the environment?	☐	☒
17	Other primary data collection methods. Please indicate the type of data collection method(s) below.	☐	☒
	Details of any other primary data collection method: (this box should expand as you type)		

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: Intended Participants

If there are no participants then do not complete this section, but go directly to section H.

	Who are the intended participants:	YES	NO
1	Students or staff at the University?	☒	☐
2	Adults (over the age of 18 and competent to give consent)?	☒	☐
3	Vulnerable adults?	☐	☒
4	Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required)	☐	☒
5	Prisoners?	☐	☒
6	Young offenders?	☐	☒
7	Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	☒
8	People engaged in illegal activities?	☐	☒
9	Others. Please indicate the participants below, and specifically any group who may be unable to give consent.	☐	☒
	Details of any other participant groups: (this box should expand as you type)		

Participant numbers and source

	Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?	
10	How many participants are expected?	200
11	Who will the participants be?	Friends, Colleagues, classmates and fellows Online friends Research participants on social media Healthcare Professionals in the industry
12	How will you identify the participants?	Through personal relationships for: • Friends, colleagues, classmates and fellows • Online friends • Healthcare professionals in the industry Online Network: • Research participants on social media

	Information for participants:	YES	NO	N/A
13	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
14	Will you tell participants that their participation is voluntary?	☒	☐	☐
15	Will you obtain written consent for participation?	☒	☐	☐
16	Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
17	If the research is observational, will you ask participants for their consent to being observed?	☒	☐	☐
18	Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐
19	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☒	☐	☐
20	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
21	Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☒	☐	☐
22	If NO to any of above questions, please give an explanation			
	(this box should expand as you type)			

	Information for participants:	YES	NO	N/A
24	Will participants be paid?	☐	☒	☐
25	Is specialist electrical or other equipment to be used with participants?	☐	☒	☐
26	Are there any financial or other interests to the investigator or University arising from this study?	☐	☒	☐
27	Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	☒	☐
28	If YES to any question, please provide full details			

(this box should expand as you type)

SECTION H: Anticipated Risks

Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them. If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.			
1	Full risk assessment completed and appended?	Yes	☐
		No	☒
2	Risks to participants For example: sector-specific health & safety, emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information		
	Risk to participants: N/A <i>(this box should expand as you type)</i>	How you will mitigate the risk to participants: N/A <i>(this box should expand as you type)</i>	
3	If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities		
	N/A <i>(this box should expand as you type)</i>		
4	Risks to the investigator For example: personal health & safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest		
	Risk to the investigator: N/A <i>(this box should expand as you type)</i>	How you will mitigate the risk to the investigator: N/A <i>(this box should expand as you type)</i>	
5	University/institutional risks For example: adverse publicity, financial loss, data protection		
	Risk to the University: N/A <i>(this box should expand as you type)</i>	How you will mitigate the risk to the University: N/A <i>(this box should expand as you type)</i>	
6	Environmental risks For example: accidental spillage of pollutants, damage to local ecosystems		
	Risk to the environment: N/A <i>(this box should expand as you type)</i>	How you will mitigate the risk to environment: N/A <i>(this box should expand as you type)</i>	
Disclosure and Barring Service			
	If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	YES	NO
			N/A

7	Does your research require you to hold a current DBS Certificate?	☐	☒	☐
8	If YES, please give the certificate number. If the certificate number is not available please write "Pending"; in this case any ethical approval will be subject to providing the appropriate certificate number.	N/A		

SECTION I: Feedback, Consent and Confidentiality

1	Feedback What de-briefing and feedback will be provided to participants, how will this be done and when?
	Participants will be thanked for their valuable contributions to the research both during and after their participation. Upon completing the survey or interview, participants will receive a message expressing gratitude for their time and effort in supporting the study. They will also be informed that their responses will remain confidential and will only be used for research purposes. For survey participants, this thank-you message will be displayed electronically upon submission, while interview participants will receive verbal thanks and be reassured about the confidentiality of their data at the end of their session.
2	Informed consent Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation.
	Potential participants will be informed about the study's purpose, procedures, and their role in the research before providing consent. This will include details about the voluntary nature of participation, the confidentiality of their data, and their right to withdraw at any time without consequences. For survey participants, an information sheet will be provided at the beginning of the survey, and consent will be obtained electronically before proceeding. For interview participants, a detailed consent form will be shared in advance, and written consent will be collected before the interview begins. All consent procedures will comply with prevailing data protection legislation to ensure participants are fully informed and their rights are protected.
3	Confidentiality / Anonymity Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.
	The anonymity and confidentiality of participants will be strictly maintained throughout the research process. Survey responses will be anonymized, and no identifying information will be linked to the data. For interviews, participants' names and other identifying details will be replaced with pseudonyms in all transcripts and reports. All data will be securely stored on password-protected devices and encrypted servers, accessible only to the research team. Any outputs, such as publications or presentations, will present aggregated data to ensure individual participants cannot be identified. If anonymity cannot be guaranteed in specific cases, participants will be informed beforehand and asked for explicit consent.

SECTION J: Data Protection and Storage

	Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")?	YES	NO
1	"Personal data" means any information relating to an identified or identifiable natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person. Any video or audio recordings of participants is considered to be personal data.	☐	☒

	If YES, provide a description of the data and explain why this data needs to be collected:		
2	N/A (this box should expand as you type)		
	Does it involve special category data (as defined by the GDPR)?	YES	NO
3	“Special category data” means sensitive personal data consisting of information as to the data subjects’ – (a) racial or ethnic origin, (b) political opinions, (c) religious beliefs or other beliefs of a similar nature, (d) membership of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992), (e) physical or mental health or condition, (f) sexual life, (g) genetics, (h) biometric data (as used for ID purposes),	☐	☒
	If YES, provide a description of the special category data and explain why this data needs to be collected:		
4	N/A (this box should expand as you type)		

	Will data from the research activity (collected data, drafts of the thesis, or materials for publication) be stored in any of the following ways?	YES	NO
5	Manual files (i.e. in paper form)?	☒	☐
6	University computers?	☐	☒
7	Private company computers?	☐	☒
8	Home or other personal computers?	☒	☐
9	Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☒	☐
10	“Cloud” storage or websites?	☒	☐
11	Other – specify:	☐	☒
12	For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of backup procedures, password protection, encryption, anonymisation and pseudonymisation: To ensure the security and confidentiality of all stored data, several measures will be implemented. Data will be stored on password-protected and encrypted devices, with access restricted to authorized members only. Backup procedures will include regular data backups to secure, encrypted servers to prevent data loss. For cloud storage, data will be stored on a secure platform with end-to-end encryption, and restricted access permissions. All participant data will be anonymized during analysis, with identifying information replaced by pseudonyms to maintain confidentiality. Additionally, any physical documents will be securely stored in locked cabinets, and all digital data will be deleted upon completion of the study. These measures will ensure compliance with ethical standards and data protection regulations.		

Data Protection			
	Will the research activity involve any of the following activities:	YES	NO
13	Electronic transfer of data in any form?	☒	☐
14	Sharing of data with others at the University outside of the immediate research team?	☐	☒
15	Sharing of data with other organisations?	☐	☒
16	Export of data outside the UK or importing of data from outside the UK?	☐	☒
17	Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☒	☐
18	Publication of data that might allow identification of individuals?	☐	☒
19	Use of data management system?	☒	☐
20	Data archiving?	☐	☒
21	If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and Data Protection Act (2018) (and any international equivalents, where appropriate):		
	1. Electronic Transfer of Data (Question 13): Data will be transferred electronically using secure, encrypted platforms to prevent unauthorized access. Only authorized members will have access to the data, and all transfers will be logged to maintain transparency and accountability. 2. Use of Personal Information (Question 17): Personal information will be collected solely for communication purposes during the study. This information will be stored separately from research data to ensure anonymity and will be deleted upon study completion. Access to personal information will be restricted to authorized personnel only. 3. Use of Data Management System (Question 19): SPSS will be used for data analysis. All data entered into SPSS will be anonymized, with identifying information removed or replaced with pseudonyms. The SPSS software will be installed on password-protected devices, and data files will be encrypted to prevent unauthorized access. 4. General Data Protection Measures: - All data will be stored on encrypted devices and secure cloud storage platforms with end-to-end encryption and multi-factor authentication. - Regular backups will be conducted on encrypted servers to prevent data loss. - Anonymization and pseudonymization techniques will be applied to ensure participant confidentiality. - Data will be retained only for the duration of the study and deleted upon completion, in line with GDPR requirements.		
22	List all who will have access to the data generated by the research activity:		
	Self and Supervisor <i>(this box should expand as you type)</i>		
23	List who will have control of, and act as custodian(s) for, data generated by the research activity:		
	Self and Supervisor <i>(this box should expand as you type)</i>		
24	Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.		

	N/A After finished the assignment <i>(this box should expand as you type)</i>		
25	Please indicate if your data will be stored in the UWTSD Research Data Repository (see https://researchdata.uwtsd.ac.uk/). If so please explain. <i>(Most relevant to academic staff)</i>		
	N/A <i>(this box should expand as you type)</i>		
26	Confirm that you have read the UWTSD guidance on data management (see https://www.uwtsd.ac.uk/library/research-data-management/)	YES	☒
27	Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding	YES	☒

SECTION K: Declaration

	The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants.	
	In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: https://www.uwtsd.ac.uk/research/research-ethics/	
1	Signature of applicant:	
		Date: 18 Dec 2024

For STUDENT Submissions:

2	Director of Studies/Supervisor:	Dr. LEUNG, Wing Chung Joe	Date: 18 Dec 2024
3	Signature:	<i>Joe Leung</i>	

For STAFF Submissions:

4	Academic Director/ Assistant Dean:		Date:
5	Signature:		

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

☒	I have read the guidance notes supplied before completing the form.
☒	I have completed ALL RELEVANT sections of the form in full.
☒	I confirm that the research activity has received approval in principle
☒	I have attached a copy of final/interim approval from external organisation (where appropriate)
☒	I have attached a full risk assessment (where appropriate) ONLY TICK IF YOU HAVE ATTACHED A FULL RISK ASSESSMENT
☒	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
☒	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director.

RESEARCH STUDENTS ONLY

Once complete, submit this form via the **MyTSD Doctoral College Portal** at (<https://mytsd.uwtsd.ac.uk>).

RESEARCH STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk, with the title 'Ethical Approval' followed by your name.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.