AN INTEGRATIVE PSYCHOSOCIAL PATHWAY MODEL OF DISCRIMINATION EFFECTS ON SEXUAL RISK BEHAVIORS AMONG OLDER MEN WHO HAVE SEX WITH MEN (OMSM) IN HONG KONG, TAIWAN, AND MAINLAND CHINA

CHAN SIU WING ALEX

PhD

The Hong Kong Polytechnic University

2024

The Hong Kong Polytechnic University

Department of Applied Social Sciences

An Integrative Psychosocial Pathway Model of Discrimination Effects on Sexual Risk Behaviors among Older Men Who Have Sex with Men (OMSM) in Hong Kong, Taiwan, and Mainland China

Chan Siu Wing Alex

A thesis submitted in partial fulfilment of the requirements for the degree of Degree of Doctor of Philosophy

May 2024

CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgement has been made in the text.

_____ (Signed)
Chan Siu Wing Alex (Name of student)

Abstract

Background: The global population is aging rapidly, with projections indicating a significant increase in the proportion of people aged 65 or above by 2050. While there is a growing focus on promoting healthy aging worldwide, the experiences and needs of older men who have sex with men (OMSM) are often overlooked. OMSM face unique challenges due to discrimination based on both age and sexual orientation, which can impact their sexual risk behaviors and overall well-being. Research on these issues is particularly scarce in Chinese-speaking societies, where discussions about sexuality and aging are often taboo. This lack of attention creates a critical gap in understanding how to promote healthy aging for all segments of the population.

Objectives: This study aims to investigate regional differences in discrimination, psychosocial factors, and sexual risk behaviors among OMSM in Hong Kong, Taiwan, and mainland China, and to examine the complex relationships between discrimination and sexual risk behaviors in this population, including potential mediating factors.

Methods: In 2021, a multi-regional cross-sectional exploratory comparative study was conducted with N=453 participants evenly distributed across Hong Kong, Taiwan, and mainland China (N=151 participants per region). Participants responded to an online survey voluntarily. The study utilized various measures to assess various aspects of the participants' experiences, including discrimination (EDS), social capital (PSCS), sense of control (SCS), psychological distress (GHQ-12), resilience (CD-RISC), sexual risk behaviors (SRS), social acceptance (PAS), and legal inclusion (GIRLHO). An integrative psychosocial pathway model of **DIS**crimination effects on **S**exual **R**isk behaviors in OMSM (DIS-SR Model) was constructed to explain the pathways from discrimination to sexual risk behaviors.

Results: Regional analyses revealed substantial variations in the experiences and well-being of OMSM across mainland China, Hong Kong, and Taiwan. OMSM in mainland China faced greater constraints on their sense of control, lower social capital, and lower resilience, but reported the lowest psychological distress and highest social acceptance. In contrast, Taiwan and Hong Kong showed higher levels of discrimination and psychological distress, as well as more sexual risk behaviors, but also greater social capital and legal inclusion. The DIS-SR Model revealed significant relationships between discrimination, psychological factors, and sexual risk behaviors among OMSM. Experiencing greater discrimination was associated with better sense of control, higher social capital, and increased resilience, suggesting that OMSM may develop coping mechanisms and social networks in response to discrimination. However, discrimination was also linked to higher psychological distress, indicating its negative impact on mental health. Higher resilience was associated with a better sense of control and higher social capital. Surprisingly, higher psychological distress was related to both greater discrimination and higher social capital, aligning with the minority stress model. OMSM who experienced greater discrimination, had an enhanced sense of control, and higher psychological distress were more likely to engage in sexual risk behaviors. The DIS-SR Model yielded a good fit for the data ($\chi^2 = 3.77$, $p = .152$; CFI = .99; RMSEA = .04; SRMR = .01). Analysis of indirect effects revealed that psychological distress significantly mediated the relationship between discrimination and sexual risk behaviors.

Conclusions: This study offers key insights into OMSM experiences in Chinese societies, highlighting regional differences and complex relationships between discrimination, psychological distress, and sexual risk behaviors. These findings will guide the development of culturally sensitive interventions and policies, enabling

researchers, clinicians, and policymakers to improve OMSM well-being across diverse contexts. The goal is to reduce sexual risk behaviors while fostering psychological growth and social integration for this population.

Acknowledgments

First, I express my heartfelt gratitude to my supervisors, Prof. Elsie Yan and Prof. Ben Ku from the Department of Applied Social Sciences at the Hong Kong Polytechnic University. Their exceptional support and guidance throughout this research project have been invaluable. Their profound knowledge, unwavering motivation, and dedicated mentorship have been pivotal in shaping my education and professional growth. Their expert insights into elder protection and community healthcare have significantly enriched my understanding of research methodology and critical analysis.

I extend my deepest thanks to the NGOs and university research collaborators in Hong Kong, Mainland China, and Taiwan. Their instrumental assistance and cooperation made this research project possible. Their support and dedication have been the backbone of this study, and I am grateful for their contributions.

My heartfelt appreciation goes to my parents for their unwavering love and support throughout my academic journey. Their constant encouragement and faith in my capabilities have been my guiding light. My family, especially my father, has been a source of inspiration, reminding me of the profound impact research can have on shaping the future of Hong Kong. Their support has given me a sense of belonging and driven me to achieve my academic objectives.

I want to express my sincere thanks to the Graduate School for providing the attachment program, which enabled me to exchange at the University of Toronto. This opportunity broadened my horizons and enriched my academic experience. The conference grants allowed me to participate in numerous conferences, apply for

various scholarships, and gain invaluable exposure to the global research community. Also, I am deeply grateful to the Department of Applied Social Sciences for their unwavering support and for honoring me with the Best Paper Award. This recognition has been a tremendous motivation in my PhD journey, encouraging me to submit more research papers for publication and strive for excellence in my academic endeavors.

This learning period has been a transformative journey, filled with new discoveries and perspectives that have significantly contributed to my growth. The supreme experience has motivated me to pursue further education and deepen my commitment to contributing to the well-being of the older LGBT population. This research has heightened my awareness of the mental health and disability issues faced by the older LGBT community, and I am determined to continue advocating for their needs.

Lastly, I am deeply grateful to all the participants in this study. Your willingness to share your experiences and insights has been crucial in advancing our understanding of the unique challenges faced by older men who have sex with men (OMSM). Your stories have not only enriched this research but have also inspired me to continue working towards a more inclusive and supportive society.

Thank you to everyone who has been part of this incredible journey. Your support, encouragement, and belief in me have made this achievement possible.

Table of Contents

List of Tables

List of Figures

Abbreviations

ANOVA	Analysis of Variance
CD-RISC	Connor Davidson Resilience Scale
CFI	Comparative fit index
DIS-SR Model	An integrative psychosocial pathway model of discrimination effects on sexual risk behaviors in OMSM
EDS	Everyday Discrimination Scale
GHQ-12	General Health Questionnaire-12
GILRHO	Global Index on Legal Recognition of Homosexual Orientation
HBM	Health Belief Model
HIV	Human Immunodeficiency Virus
LGBT	Lesbian, Gay, Bisexual, and Transgender
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and Queer or Questioning
MSM	Men who have sex with men
NGOs	Non-governmental organizations
OMSM	Older men who have sex with men
PAS	Personal Acceptance Scale
PSCS	Personal Social Capital Scale
PSCS - Bonding	Personal Social Capital Scale - Bonding Social Capital
PSCS – Bridging	Personal Social Capital Scale - Bridging Social Capital
RMSEA	Root mean square error of approximation
SCS	Sense of Control Scale
SCS – PC	Sense of Control Scale - Perceived Constraints subscale
SCS – PM	Sense of Control Scale - Personal Mastery subscale

SEM	Structural equation model
SRMR	Standardized root mean square residual
SRS	Sexual Risk Survey
STI	Sexually Transmitted Infections
WHO	World Health Organization
YMSM	Young men who have sex with men

Chapter 1 Introduction

1.1 Overview

Older men who have sex with men (OMSM) face unique challenges ranging from discrimination to marginalization which adversely affect their psychological and sexual well-being. While research has explored these areas individually, there remains a significant gap in our understanding of how discrimination affects OMSM and leads to potential sexual risk behaviors, particularly in the context of Chinese communities. Moreover, comparative studies that take into account the effects of regional differences and varying cultural, social, and legal factors on these relationships are scarce. This study aims to address these research gaps by examining the relationships between discrimination against OMSM and its impact on their psychological well-being, resilience, and sexual risk behaviors across Hong Kong, Taiwan, and mainland China.

Discrimination against minorities or marginalized groups is a common phenomenon in human societies. Discrimination against OMSM significantly impacts their psychological health and sexual life. Research has shown that various forms of discrimination are associated with increased depressive symptoms and sexual risk behaviors among MSM (Yoshikawa et al., 2004; Jarama et al., 2005; Nakamura & Zea, 2010; Metzger et al., 2017). However, the specific mediating roles of social capital, sense of control, psychological distress, and resilience remain understudied, particularly in Chinese populations.

OMSM face unique challenges due to societal prejudices and stigmas, often leading to mental health issues and social isolation (Chan, 2023; Batchelder et al.,

2017). MSM more frequently suffer from depression, distress, trauma, and substance abuse compared to heterosexual men (Batchelder et al., 2017; Smit et al., 2011; Lin et al., 2020). The minority stress theory attributes the persistent psychological distress [experienced by sexual minority groups] to a fear of the stigmas associated with their sexual orientation (Tsuyuki et al., 2017). Addressing societal prejudices, providing tailored support services, promoting social equality, and combating stigmas are crucial steps in improving the mental health and overall well-being of OMSM (Chan, 2023).

Sexual risk behavior among MSM, especially OMSM, is a significant public health concern. Research on the relationship between age and sexual risk behaviors has yielded mixed results. Some studies have found that younger MSM tend to engage in riskier behaviors (Crepaz et al., 2000; Hospers & Kok, 1995; Rosario et al., 2006), while other studies have reported higher rates of unprotected sex among older MSM (Prestage et al., 2009; Koerner et al., 2012). Discrimination has been linked to higher rates of sexual risk behaviors among MSM, particularly among ethnic minorities (Yoshikawa et al., 2004; Jarama et al., 2005; Nakamura & Zea, 2010; Metzger et al., 2017). For OMSM specifically, internalized homophobia, risk denial, substance use, and anonymous encounters have been identified as Human Immunodeficiency Virus (HIV) risk factors (Grossman, 1995). Other factors leading to sexual risk behaviors have also been identified, including negative attitudes towards homosexuality, substance abuse, poor safe sex intentions (Rosario et al., 2006), HIV serostatus, and depression (Klein, 2012). Variables found to correlate with risky anal sexual intercourse include cohabitation with a male partner, drug use, and aversion towards condom use (Rocha, 2019; Lee, 2017).

This study has two primary objectives: (1) investigate regional differences in psychosocial factors leading to sexual risk behaviors among OMSM in Hong Kong, Taiwan, and mainland China, and to identify and analyze any significant variations in the study measures when they are applied to participants of the three regions. It will explore differences in levels of discrimination, social capital, sense of control, psychological distress, resilience, and sexual risk behaviors among / experienced by OMSM; (2) examine the complex relationships between discrimination and sexual risk behaviors among OMSM, including potential mediating factors, in the three regions, investigating the structural paths and indirect effects between discrimination and sexual risk behaviors, and exploring the potential mediating roles of social capital, sense of control, psychological distress, and resilience using a structural equation model.

1.2 Impact of this Study

This study addresses critical gaps in existing literature by focusing on the unique challenges faced by OMSM, a population often overlooked by researchers. It examines the complex relationships between discrimination, sexual risk behaviors, and various psychosocial factors among OMSM in Hong Kong, Taiwan, and mainland China, taking into account Chinese community cultures and regional differences.

The study proposes a psychosocial pathway model comprising components that include constructs of discrimination against OMSM, social capital, sense of control, psychological distress, resilience, and sexual risk behaviors. Multiple mediating pathways will be examined using structural equation modeling (SEM) to provide an in-depth understanding of how discrimination ultimately influences sexual risk behaviors in this population. Results yielded from testing this complex model are expected to add to the literature on social minority stress theory, social support theory, and intersectionality.

The findings from this study can also guide the development of targeted interventions and support systems aimed at mitigating the negative effects of discrimination and reducing sexual risk behaviors among OMSM. These evidence-based strategies can contribute to improving the overall well-being of OMSM and addressing the health disparities between this vulnerable group and the general population.

1.3 Organization of the Thesis

This study utilizes data obtained from a sample of OMSM aged 60 or above living in mainland China, Hong Kong, and Taiwan. Chapter 2 provides a detailed review of relevant literature, and explores the challenges faced by OMSM in connection with aging, discrimination, social and legal acceptance, and psychological distress. The chapter also discusses protective factors, including sense of control, resilience, and social capital, as well as minority stress theory, social support theory, and intersectionality theory. Chapter 3 outlines the research questions, proposed conceptual models, and hypotheses put forward by the study. Chapter 4 details the methodology of the study including research design, data collection protocols, questionnaire, and data analysis strategy.

Chapter 5 presents the results of the study and includes a profile of participants, patterns of sexual risk behaviors reported, and analyses based on the region, age, and economic status of the participants. The chapter also examines the correlations between study measures, multiple regression analyses on sexual risk behaviors, and the structural equation model.

Finally, Chapter 6 provides a summary of the findings and discusses the implications and limitations of this study. It also offers directions for future research and highlights areas that warrant further investigation.

1.4 Summary

This study addresses an existing research gap by examining the complex relationships between discrimination, psychological well-being, and sexual risk behaviors among OMSM in Hong Kong, Taiwan, and mainland China. It aims to analyze how discrimination affects OMSM and their inclination towards sexual risk behaviors, particularly in the context of Chinese communities where comparative studies are scarce, by investigating how factors such as types of discrimination, social capital, sense of control, psychological distress and resilience vary across the three regions.

By proposing a psychosocial pathway model and employing SEM, this study examines multiple mediating pathways to provide an in-depth understanding of how discrimination influences sexual risk behaviors in OMSM communities. It is one of this study's principal objectives to potentially inform or add to existing theories such as social minority stress theory, social support theory, and intersectionality. It is also hoped that findings from this study can guide the development of targeted interventions and support systems, contributing to improving the overall well-being of OMSM and addressing the health disparities between this vulnerable group and the general population.

Chapter 2 Literature Review

2.1 Challenges for OMSM in Aging

2.1.1 Global context of aging

Population aging is an emerging global issue. It is predicted that the proportion of the global population aged 65 and above will increase from 12 percent to 22 percent between 2015 and 2050 (World Health Organization, 2019). Considering this trend, promoting healthy aging has become a top priority for many countries.

The World Health Organization (WHO) defines healthy aging as "the process of developing and maintaining the functional ability that enables wellbeing in older age." Similar definitions have been proposed by scholars in various parts of the world. Reich et al (2019) describe healthy aging as a mechanism for establishing and sustaining functional capabilities that promote the subject's welfare in their senior years. The European Healthy Aging Project describes healthy aging as sustained bodily, societal, and psychological health that allows older individuals to continue to participate in their communities without suffering discrimination while maintaining an autonomous and decent standard of living (Sancarlo et al, 2015; Williams et al, 2010). Health Canada identifies healthy aging as an ongoing journey of maximizing opportunities for enhancing and maintaining biological, societal, and psychological health and autonomy and standard of living, as well as promoting meaningful lifestyle changes (Holloway, 2020; Canada, 1994).

2.1.2 Healthy aging

In its broadest sense, there are various aspects to healthy aging: biological, physical, mental, social, and spiritual (Wiechers et al., 2020; World Health Statistics, 2019). Several scholars have argued that the definition of healthy aging should cover these aspects as opposed to only meaning the mere absence of illness (Ardelt, 2016; Brier, 2020; Brown, 2020).

Societal and mental indicators of healthy aging have increasingly been recognized as carrying greater significance than physiological indicators (Salmoirago et al., 2019) as more retirees around the world become increasingly dissatisfied with merely achieving an average standard of living (Fredriksen, 2018). Efforts to promote healthy aging focus on reducing mental health problems, such as depression and insecurity, while enhancing psychological well-being through improvements in self-esteem, self-fulfillment, and ego strength (Reich, 2020).

It is crucial to recognize the diversity within the aging population when developing strategies to promote healthy aging. The older adult demographic is heterogeneous, with various subgroups experiencing the aging process differently. Consequently, initiatives aimed at encouraging healthy aging must be tailored to address the specific needs and characteristics of each subgroup.

OMSM represents a distinct subset of the aging population and faces unique challenges that demand targeted interventions and support. Simpson (2015) noted that the need for OMSM-specific knowledge on healthy aging is growing as OMSM communities continue to age rapidly like the rest of the population.

2.2 Discrimination and its impact on OMSM

2.2.1 Definition

Discrimination is defined as the preference to convey or demonstrate a lack of approval or support for a person or topic in a manner that deviates from typical societal norms, often based on factors such as gender, race, color, ethnic background, religion, functional limitations, sexuality, social status, family status, or household duties (Fields et al., 2020). The Equality Act (2010) of the United Kingdom describes discrimination as "treating a person unfairly because of who they are or because they possess certain characteristics." The Act outlines nine common factors for discrimination: age, sex, ethnicity, disability, religion, pregnancy and childbirth, sexuality, gender reassignment, and marriage and civil partnership.

Discrimination is widespread. In a Midlife Development in the United States (MIDUS) study, Kessler et al. (1999) observed that a remarkably high percentage (61 percent) of the US population reported having experienced discrimination in their daily lives. Despite this prevalence, research examining discrimination as a life stressor is lacking (Dion, 2002; Kessler et al., 1999; Thoits, 1983).

2.2.2 Sources and effects

Carr & Friedman (2005) noted that discrimination can be prompted by various characteristics of the targeted individual or community, including age, sex, race, ethnicity, sexuality, physical features, and social position. Regardless of their origin, discrimination and stereotyping often lead to emotional problems in socially deprived groups (Dekosky et al., 1980; King, 2010; Wong, 2016). Numerous cognitive studies have found that discrimination can intensify social pressure and that stress arising

from discrimination often leads to psychological problems, including anxiety and depression. These psychological problems are in turn often exacerbated by social injustice and undue application of the “mentally ill” label (Vargas, 2020; King, 2017).

Existing literature has established that discrimination, bias, and social tension contribute to psychological distress among MSM. In this connection, OMSM face additional discrimination due to their age (Wang, 2019; King, 2017), which means the negative effects on their mental health and overall well-being can be compounded, making OMSM a particularly vulnerable subgroup within the aging population.

2.2.3 Impact on psychological well-being

Discrimination greatly impacts the psychological well-being of MSM (Smith, 2019). A US survey has found that MSM who have encountered oppression and abusive behavior are twice as likely to develop suicidal tendencies compared to those who have not (Mukherjee & Wei, 2020). Prejudice (harmful and generally biased beliefs) and discrimination (wrongfully punishing an individual or a community) against MSM are prevalent in many societies and may have a detrimental impact on the physical condition and welfare of such communities (Morrison et al, 2019). It is possible that such indifference, misunderstanding, and rejection can lead to “silent outbreaks” of illnesses in MSM communities.

A study in Tanzania has shown that MSM who experienced emotional and verbal harassment were the most depressed group in the population (Öhman et al 2020; Mgopa et al, 2017). A further analysis utilizing data from the 2009 Relational Database Service (RDS) has found that MSM who have encountered sexual harassment, regardless of other factors, are twice as likely to develop suicidal

tendencies compared to those who have not. A Hobaica & Kwon (2017) research has found that depression is highly correlated with discrimination targeting one's sexuality, often in the form of alienation by peers, verbal discrimination, extortion [by who?], and discomfort in public spaces.

Statistics from a 2017 national survey by the Center for American Progress (CAP) show that 25.2% of LGBT individuals have experienced violence due to their gender or sexuality in the previous year. Despite the social progress achieved in past decades, discrimination remains a significant threat to the welfare, physical health, and financial stability of LGBT individuals. Among those who reported having faced discrimination in the past year, 68.5% reported negative impacts on their psychological well-being, 43.7% reported detrimental effects on their physical health, and 47.7% indicated harm to their spiritual well-being. Furthermore, 38.5% stated that discrimination negatively affected their school envomement, 52.8% reported adverse effects on their work environment, and 56.6% reported negative impacts on their neighborhood and community environment (Mccrone, 2018; Phillippi, 2021). These statistics highlight the extensive and pervasive effects of discrimination on various aspects of the daily life of LGBT individuals.

2.2.4 Legal and policy implications

Stereotypes and discrimination are considered a significant risk factor for reduced public psychological well-being, and their consequences may not be immediately apparent as they may be absorbed and remain unreported (Levy, 2021; Ojeda, 2019). Deeply ingrained biases against Lesbian, Gay, Bisexual, Transgender, and Queer or Questioning communities (LGBTQ) often lead to self-devaluation and a poor sense of worth on the part of members of such communities (Richard, 2018).

Discrimination against OMSM significantly impacts their mental health. Chan et al. (2023) have found that social stigmas and homophobia often contribute to higher rates of depression and suicidal tendencies among OMSM. Their systematic review revealed that LGBTQ cancer patients often face inadequate treatment and care, as well as communication challenges with healthcare providers, which often exacerbate their psychological distress. Another study by Chan et al. (2022) further underscores the importance of addressing both overt and subtle forms of discrimination to improve the mental well-being of OMSM. Implementing inclusive policies and practices in healthcare and social services is crucial for mitigating the adverse effects of discrimination and promoting a supportive environment for OMSM.

2.3 Social acceptance and legal inclusion of LGBT

2.3.1 Social and cultural context in Hong Kong

While one may assume that OMSM in Hong Kong will face greater social acceptance as a result of Hong Kong's unique history as a former British colony and her exposure to recent trends in the West that bring about great social acceptance of OMSM, they in fact still experience a low level of social acceptance as the city still retains numerous aspects of Chinese traditional values when it comes to the subject of homosexuality (Yau, 2010; Kong, 2019). Heterosexuality is still considered the natural, preferred, and arguably the only accepted sexual orientation. The mass media perpetuates this traditional discrimination against homosexuality by marginalizing MSM and other members of the LGBT community in their content, in order to play it safe by aligning with traditional values (Yau, 2010; Bai, 2018).

The Hong Kong government has been reluctant in carrying out meaningful reforms in the arena of LGBT rights in the absence of some form of mainstream consensus. Such consensus is hard to achieve when the prevailing political mindset is one of complacency, and there have been virtually no attempts to start a consensus-building process. Hong Kong lawmakers have been largely unfazed by periodic calls for reforms and policies to facilitate greater social acceptance of LGBTQ communities (Liu, 2021). Chan (2018) pointed out that same-sex couples in Hong Kong have to live with the fact that their marriage is not recognized by the law, and they do not enjoy any sort of spousal protection. Instead, they have to navigate the legal and social support bureaucracies as "companions" and "close friends."

The “Hong Kong LGBT Climate” survey undertaken by the University of Hong Kong has shown that there is room for greater LGBT acceptance in society. Almost all of the survey participants said they “would not mind” and “would not have special feelings” about these minority groups. 85% of them claimed that they support the idea of greater tolerance and acceptance of LGBT members. Although the study has found a growing degree of support among the heteronormative majority in Hong Kong society, LGBT participants in the same survey nonetheless stated that they were still reluctant to make their sexuality known because of concerns over social stigma and alienation by their family (Kam, 2017). This finding may help to explain why many sexual minority groups rely on social networking sites instead of family for support (Tamagawa, 2018).

2.3.2 Social and cultural context in Taiwan

Taiwan became the first region in Asia to allow same-sex marriages on 24 May 2019. Prior to that homosexual couples in Taiwan could apply for “unusual marriage registrations” in a vast majority of administrative districts that cover approximately 94 percent of the island’s inhabitants. Despite the landmark ruling, there remains some doubt as to the full extent of legal protection offered to homosexual partners, since some 498 other spousal privileges are still only applicable to heterosexual partners in areas such as land ownership, public assistance, and medical treatment (Chen, 2017).

The Taiwanese government, particularly under the present administration, has taken active steps to demolish LBGTQ stereotypes. The government has campaigned vigorously and worked with local LGBT groups to dispel myths such as the idea that homosexual behaviors can cause HIV. Social and mainstream media have also joined

in to explicitly expose and condemn inequalities (Kuan, 2019). Taiwanese lawmakers have been exceptional in their transparency and commitment to LGBT matters. Elected representatives across the political spectrum have worked together to push through bipartisan legislation in support of LGBTQ communities (Lau, 2019; Hsu & Yen, 2017).

Taiwan is primarily inhabited by offsprings of refugees from mainland China, and like in Hong Kong, the prevalent Taiwanese culture is rooted deeply in Chinese traditions, where philosophies such as Confucianism and Taoism play a central role. The Taiwanese administration appears to have reckoned that encouraging people to love openly without regard to sexual orientation or preference is not only consistent with traditional Chinese ideals, but also a logical and reasonable extension of them (Kong, 2021).

2.3.3 Social and cultural context in mainland China

Mainland China has the largest LGBT community in the world, but as recently as ten years ago, it has remained an invisible and anonymous segment of the population. While state oppression has been abolished since 1997 (Homosexual was against the law until 1997 and was officially listed as a psychiatric disorder until 2001. (Zhengjia, 2018)), LGBT individuals still face serious discrimination in everyday life. Chinese traditions make having children and maintaining one's bloodline a paramount duty owed to the family and a failure to do so is perceived by many to be a social misdeed. Mainland China's one-child policy (abolished in 2015) has generated a severe burden on LGBT individuals who, as the only child, feel obligated to engage in heteronormative relationships just to extend their bloodline. The demand for marriage has led to the formation of communities of Tongqi (women

who are married to gay men) and Tongfu (men who are married to lesbian women) - marriages of convenience where LGBT individuals marry members of the opposite sex to satisfy family expectations while concealing their sexual orientation.

Although not the subject of any explicit ban, depiction of LGBT life and culture is heavily curtailed in the news and all forms of media as they are considered inappropriate. Other challenges faced by LGBT individuals in mainland China include their inability to marry their same-sex partners or foster children, and their partnerships being excluded from social security.

All these factors make life extremely stressful for LGBT individuals in mainland China. It is not hard to see that the plight of OMSM can only be more severe, with substantive negative influence on their psychological well-being.

2.4 Psychological distress

2.4.1 Mental health challenges

It is critical, when investigating mental health issues among OMSM, to carefully consider the complex relationships between their psychological well-being and external factors that may impact it. According to research, OMSM are more likely to experience despair, anxiety, and loneliness. These mental health concerns are often caused by a lifetime of dealing with social stigma, discrimination, and internalized homophobia, which can undermine self-esteem, aggravate feelings of isolation, and create a sense of alienation from mainstream society (Smith et al., 2019). Fear of being judged or rejected can also cause anxiety and hypervigilance in social situations (Kim, 2008).

Discrimination, bias, and social tension are recognized as significant contributors to the high level of mental distress reported among MSM. A survey conducted across nine Chinese cities revealed that 44-60 percent of MSM participants perceived their lives to be negatively and severely affected by their sexual orientation (Kim, 2008). Further research in four northeastern Chinese cities has found that the prevalence and comorbidity of mental health conditions are significantly higher among MSM compared to their heterosexual counterparts (Zhao et al., 2017). National data indicates that 34.5% of MSM in mainland China have attempted or contemplated suicide (Sun, 2020). Qiu and Huang (2020) have also identified correlations between alcohol consumption, lower living standards, practice of unsafe sex and a higher level of mental discomfort among older MSM. These findings underscore the critical need for targeted mental health interventions and support

systems for MSM, particularly in regions where social stigma and discrimination are prevalent.

2.4.2 Aging stress

Studies have highlighted the negative impact of discrimination and prejudice on the mental health of OMSM and the need for targeted treatment programs and support services (Zhao et al., 2017). Understanding the intricate relationships between stigma, discrimination, and mental health will allow healthcare practitioners and policymakers to design and formulate more effective measures to improve the psychological well-being of OMSM and create an inclusive environment that accepts and validates their identity and experience.

Aging-related stress among OMSM is compounded by their experience of stigma and discrimination. Research has shown that these stressors significantly impact their psychological well-being. For instance, Chan et al. (2022) have found that OMSM are more likely to suffer from depression and suicidal tendencies than the general population, leading to poor mental health outcomes including anxiety and substance abuse. The Minority Stress Theory, introduced by Meyer (2003), posits that individuals from stigmatized groups face heightened stress levels due to societal discrimination. This theory is particularly relevant for understanding the challenges faced by OMSM, as it explains how the intersectionality of age and sexual orientation exacerbates their stress and vulnerability to mental health issues.

2.4.3 Importance of psychological well-being

Cosco (2017) has noted that the overall welfare and death rate of older adults are significantly affected by their perception of their own health: older adults who

perceive themselves as healthy are often found to be subject to a lower mortality rate and enjoy a higher level of overall welfare. Personal mental assets like self-worth, self-achievement, and ego-integrity are significant mental variables for healthy aging as well (Zhu, 2019).

Depression is one of the most prevalent psychiatric disorders among older adults, one that demands urgent attention from healthcare providers and policymakers (Wood & Joseph, 2010). It is highly correlated with suicidal feelings and behaviors, and older adults with depression are often given poor prognoses as they are more prone to suicide and death in general (Wålinder & Rutz, 2001; Luo et al, 2017). Factors that have been linked to depression include compromised capabilities in everyday activities, poor sense of self-worth, low level of personal happiness, pain, low income, exhaustion, and lack of public care (Silva & Figueiredo, 2018).

Recent studies have found that LGBT adults are subject to a higher degree of psychological morbidity than their heterosexual counterparts, and that this additional morbidity is a result of vulnerability caused by stressors like racism, bigotry, and abuse (Flockhart, 2019). Such types of stress are sometimes known as “minority stress,” a particular form of social stress members of marginalized communities is subjected to as a result of their minority status (la et al, 2019). Notwithstanding the abundance of research and information on the impact of minority stress on the psychological well-being or sexual minorities, researchers often do not in their research attach sufficient significance to the level of stigmatization and challenges faced by LGBT communities. Such challenges include difficulties in forging meaningful social relationships in heteronormative environments, developing a

healthy sense of self and identity, and setting relationship and life goals. (Vesterinen wt al, 2017; Chang, 2021; McConnell et al, 2018).

Psychological well-being and physical health are intricately connected, particularly in the case of older adults. As people age, the prevalence of chronic illnesses tends to rise (Cosco, 2017). As life expectancy increases as a result of advancements in the treatment of life-threatening diseases, it has become increasingly important for older adults to maintain good psychological health. While research has shown that an individual's physical health can greatly improve their quality of life in old age and accordingly their psychological well-being as well, other studies have found that other factors come into play as well, such as material satisfaction, social and family relationships, and social status (Borhan et al., 2018; Bökberg et al., 2019).

More recent research focusing on OMSM has also shown that psychological well-being may serve as a protective factor for overall health and can potentially reduce the risk of chronic physical illnesses and boost life expectancy. As the body of evidence supporting a more holistic definition of health to include psychological health keeps growing, some scholars argue that psychological well-being should be taken into account in health assessments and healthcare resource allocation (Meanley et al., 2020).

When examining the psychological well-being of OMSM, it is crucial to consider the intricate factors in play. OMSM often experience despair, anxiety, and loneliness (Smith et al., 2019), often the result of a lifetime of navigating around prejudice, discrimination, and internalized homophobia, which erode their self-esteem while exacerbating feelings of isolation and alienation. The fear of judgment and

rejection also often lead to anxiety and hypervigilance in social situations (Kim, 2008).

2.5 Protective factors

2.5.1 Sense of control

Sense of control refers to the extent to which individuals perceive that they have power and control over their life and environment (e.g., Lachman, 2018; Romo, 2017; Tapal et al, 2017). A remarkable number of studies have shown that a degree of empowerment is conducive to healthy tolerance of adverse situations and promotes both physical and psychological health (Assari, 2017; Tkatch et al, 2017; Phillippi et al, 2021; Rosenkrantz, 2020).

2.5.2 Resilience

Resilience is the ability to adapt well in the face of adversity, trauma, tragedy, threats, or significant stressors such as family and relationship issues, serious health problems, or work and financial challenges, and to "bounce back." from difficult experiences (Grove, 2018). A high level of adaptability can be helpful when dealing with the psychological trauma resulting from marginalization (Legge, 2017; Mustanski et al, 2011). Handlovsky (2018) explored the cultivation of resilience among OMSM and found that resilience fosters and protects their mental well-being.

2.5.3 Social capital

Social connections and social capital can potentially help OMSM combat the negative consequences of prejudice. Social capital is often considered a significant factor that affects physical and psychological health (Baum & Ziersch, 2003). Rodgers et al (2019) noted that scholars have sought to figure out ways to quantify social capital, and researchers have adopted different definitions. Campbell (2002)

and Farag (2017) focused on “membership and participation in voluntary community organizations.” Fiorillo (2018) regarded social capital as “social support, social leverage, informal social control and participation in neighborhood organizations.” Similarly, Phua (2017) associated social capital with social networking, connectivity, and group adaptability. Meanwhile, Hwang (2017) emphasized the abstract facets of social capital by viewing it as “collective norms, trust, reciprocity and knowledge.” Applying the concept of social capital to OMSM, Hussen et al (2018) noted that the accumulation of social capital by OMSM allows them to resist and combat stereotypes and prejudice.

2.6 Sexual risk behaviors

Sexual risk behavior among MSM is a significant public health concern especially in the context of HIV prevention. Past research investigating the relationship between age and sexual risk behaviors among gay and bisexual men have yielded mixed results. Although the prevalence of HIV infection is not higher among young MSM (YMSM) compared with OMSM (Catania et al., 2001; Rosario et al., 2006), several studies have found that YMSM are more likely to engage in sexual risk behaviors than OMSM (Crepaz et al., 2000; Hospers & Kok; 1995; Rosario et al., 2006; Stall et al., 1992). On the other hand, Prestage et al. (2009) have found that YMSM are less likely to engage in sexual activities with casual partners or group sex compared to OMSM. Koerner et al. (2012)'s study of gay bar customers in Osaka, Japan also revealed a higher rate of unprotected receptive anal intercourse (URAI) among MSMs aged 45 and older. These conflicting findings suggest that age alone may not be a reliable predictor of sexual risk behaviors, and other factors must be taken into account.

A significant body of research has examined the impact of discrimination on sexual risk behaviors among MSMs, especially those who are also ethnic minorities. Yoshikawa et al. (2004)'s study of Asian and Pacific Islander MSM has found associations between experiences of racism and higher levels of depressive symptoms, as well as between anti-immigrant discrimination and higher rates of URAI with secondary partners. Experiences of homonegativity (i.e., discrimination against homosexuality) have also been found to be associated with sexual risk behaviors among Latio MSMs in the United States (Jarama et al., 2005; Nakamuraa & Zeab, 2010). One analysis [citation?] has found that MSM who reported having

engaged in URAI with stable male partners are more likely to also report having experienced sexual prejudice, compared to those who engage in safe sex at all times. Exposure to discrimination has also been found to raise the likelihood of engaging in more sexual risk activities such as unprotected anal sex (Metzger et al, 2017). In terms of OMSM, internalized homophobia, denial of the risks inherent in unprotected sexual activities, alcohol and other substance use, and engagement in anonymous sexual encounters have been identified as risk factors of HIV among OMSM (Grossman, 1995).

Other factors associated with sexual risk behaviors include negative attitudes toward homosexuality, signs of substance abuse, poor safe sex awareness (Rosario et al., 2006), and HIV serostatus and depression, especially for OMSM (Klein, 2012). Research established correlations between multiple variables and unsafe anal sex. These variables include residing with a male partner, drug use, healthy relationships, engaging in sexual intercourse exclusively with males, poor concept of safe sex among friends, and a high self-perceived likelihood of HIV infection (Rocha, 2019; Lee, 2017).

2.7 Theory

2.7.1 Minority stress theory

The minority stress theory, introduced by Meyer in 2003, posits that individuals from stigmatized groups, including OMSM, face heightened stress levels due to widespread societal discrimination, stigmas, and prejudice. This theory underscores how the constant exposure to stressors such as social rejection, internalized homophobia, and the need to conceal one's sexual orientation leads to negative mental and physical health outcomes in OMSM. Managing societal expectations and cultural attitudes in connection with both age and sexual orientation presents significant challenges for OMSM, often resulting in increased stress and anxiety (Fredriksen-Goldsen & Kim, 2017). Meyer emphasizes that the intersectionality of marginalized identities, such as age and sexual orientation, exacerbates the stress experienced by OMSM, which can heighten their vulnerability to mental health issues like depression, anxiety, and substance abuse, as well as physical health problems such as cardiovascular diseases (Fredriksen-Goldsen et al., 2013). The theory also suggests that protective factors such as social support, community connections, and positive coping strategies can mitigate the negative impacts of minority stress and emphasizes the importance of targeted intervention programs and support systems.

2.7.2 Social support theory

The social support theory emphasizes the critical role of social networks in enhancing the overall well-being of individuals. This theory posits that social support can manifest in various forms, including emotional, instrumental, and informational

(Thoits, 2011). Emotional support involves expressions of empathy and care that foster a sense of belonging and validation. Instrumental support includes tangible assistance like financial help or aid in daily tasks, which can alleviate stress and bolster coping mechanisms (Cohen & Wills, 1985). Informational support involves the provision of advice or information to help individuals deal with challenges (Langford et al., 1997). The availability and effectiveness of social support can vary based on factors such as the quality of the relevant relationships, reciprocity in exchange of support, and cultural norms. Limiting factors such as social stigmas and geographic isolation can restrict access to supportive networks and the benefits they offer. Social support plays a particularly crucial role in promoting healthy aging among aging populations, especially when it comes to marginalized groups like OMSM.

2.7.3 Intersectionality theory

Developed by Kimberlé Crenshaw in 1989, the intersectionality theory asserts that various aspects of one's social identity converge to shape one's experiences of oppression (Crenshaw, 1989). For OMSM, this means facing compounded discrimination based not only on sexual orientation but also age, which impacts their access to healthcare and social support. The intersectionality theory promotes an integrated understanding of how multiple social identities interact, and applying this principle to OMSM, researchers have identified unique challenges that demand tailored solutions (Bowleg, 2008).

2.7.4 Theories integration

An integrated framework for understanding sexual risk behaviors among OMSM can be developed by combining the minority stress theory, social support theory and intersectionality theory. The minority stress theory examines how discrimination can potentially lead to sexual risk behaviors, while other factors may have a mediating effect. According to this theory, OMSM face unique stressors due to their marginalized status, which can affect their sense of control, social connections, psychological well-being, decision-making capability, and perception of sexual risk behaviors, while other factors, such as resilience, may play a mediatory role.

The social support theory complements this framework by emphasizing the critical role of social capital in enhancing one's well-being. The intersectionality theory can help researchers examine more comprehensively the complex relationships between the multiple identities OMSM possess and how they shape their experience. Such identities are not simply additive but multiplicative and can lead to even more complex relationships when additional identities, such as socioeconomic status, are thrown into the mix.

It is hoped that the integration of these theories into a cohesive framework can aid the development of more effective strategies that address the complex relationships between psychological distress, resilience, and sexual risk behaviors on the part of OMSM.

2.8 Summary

OMSM face unique challenges in aging. Discrimination, based on both age and sexual orientation, is a significant stressor that negatively impacts the psychological well-being of OMSM, leading to increased rates of depression, anxiety, substance abuse, and sexual risk behaviors. These negative impacts are further complicated by the unique cultural environment in Hong Kong, Taiwan, and mainland China, where LGBT communities continue to face challenges in their pursuit for social acceptance and legal inclusion. Protective factors such as a sense of control, resilience, and social capital are crucial in mitigating the adverse effects of discrimination and promoting the mental health of OMSM. Targeted intervention programs and support systems are urgently needed to address these complex issues. An integrated framework for understanding sexual risk-taking behaviors among OMSM can be developed by integrating the minority stress theory, social support theory, and intersectionality theory. This framework can help researchers acquire a better understanding of the unique stressors OMSM face due to societal discrimination, as well as the crucial role played by social networks in mitigating these stressors, and the challenges that emerge when multiple identities such as age, sexual orientation and socioeconomic status intersect with each other. It can also facilitate more comprehensive analyses of the complex relationships between the psychological distress, resilience, and sexual risk behaviors of OMSM.

Chapter 3 Conceptual Framework

3.1 Research questions

The present study explores the relationships between discrimination against OMSM and its impact on their psychological well-being, resilience, and sexual risk behaviors, taking into account regional social and cultural differences. This study also aims to add to our understanding of the relationships between discrimination and other factors such as social capital, sense of control, psychological distress, resilience, and sexual risk behaviors. The following research questions were posed:

1. Are there any major regional differences when study measures are applied to OMSM in Hong Kong, Taiwan, and mainland China?
2. How does discrimination against OMSM affect sexual risk behaviors among OMSM in Hong Kong, Taiwan, and Mainland China?
3. Are there any structural paths and indirect effects from discrimination against OMSM to sexual risk behaviors?
4. Are the effects of discrimination and sexual risk behaviors mediated by social capital, sense of control, psychological well-being, and resilience?

Despite growing research on the experiences of OMSM, significant gaps remain in our understanding of how discrimination affects their psychological well-being, resilience, and sexual risk behaviors, particularly in the context of Chinese communities. While studies have explored these factors separately, there is a lack of research that examines the complex relationships between discrimination and sexual risk behaviors among OMSM in Hong Kong, Taiwan, and mainland China, and

potential mediating factors such as social capital, sense of control, psychological well-being, resilience, etc. Moreover, comparative studies that take into account the effects of regional differences and varying cultural, social, and legal factors on these relationships are scarce. Furthermore, there is a notable research gap in our understanding of the structural paths and indirect effects linking discrimination to sexual risk behaviors among OMSM. While existing literature suggests potential connections, the specific mediating roles of social capital, sense of control, psychological well-being, and resilience in these relationships remain largely unexplored, especially in the context of Chinese communities. The lack of empirical evidence on these theoretical pathways may hinder the development of targeted intervention programs and support systems for OMSM. By addressing these research gaps, this study aims to provide a more comprehensive understanding of the challenges faced by OMSM and aid the development of more effective strategies to improve their overall well-being and reduce the health disparities between this vulnerable group and the rest of the population.

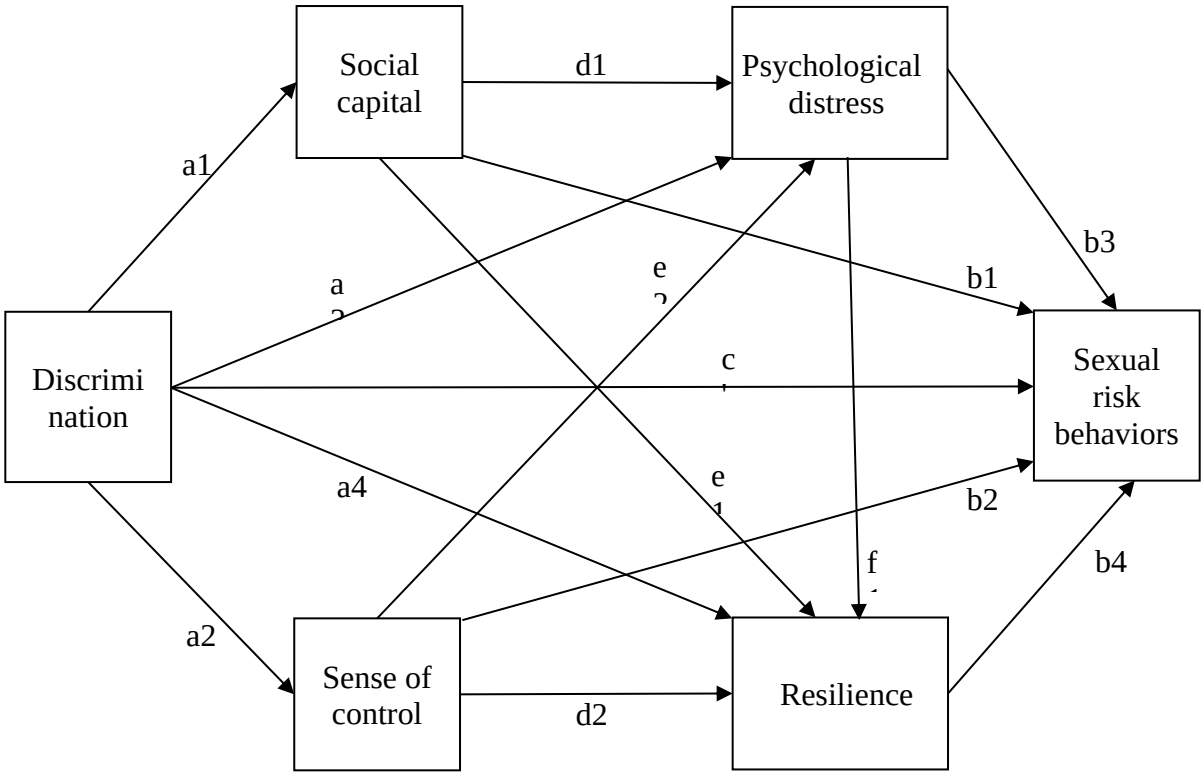
3.2 Proposed conceptual model

This study utilized structural equation modeling (SEM) as it offers numerous benefits. SEM allows researchers to simultaneously explore the relationships between measures and predict outcomes and is typically adopted to test complex path models more rigorously while also maintaining a high level of flexibility compared to traditional multiple regression techniques. In this study, SEM was employed to test path models in order to predict psychological distress and resilience, and their effects on sexual risk behaviors. SEM is also particularly useful as it enables the testing of mediating relationships between multiple dependent and independent variables.

This study aims to add to the literature on social minority stress theory, social support theory, and intersectionality theory by testing a complex model that examines how these constructs interact with each other. An integrative psychosocial pathway model of **DIS**crimination effects on **S**exual **R**isk behaviors in OMSM was adopted (hereafter referred to as the DIS-SR Model). The constructs examined include: (a) discrimination against OMSM, (b) social capital and sense of control, (c) psychological distress and resilience, and (d) sexual risk behaviors. The DIS-SR Model allows for the examination of multiple mediating pathways, thus providing the opportunity for a more in-depth understanding of how discrimination ultimately influences sexual risk behaviors among OMSM.

A diagram of the hypothesized SEM of the DIS-SR Model with multiple pathways is presented in Figure 3.1.

Figure 3.1 *Hypothesized DIS-SR Model with multiple pathways*



3.3 Hypotheses

Based on the research questions and the proposed DIS-SR Model, the following hypotheses were formulated and tested in this study:

Hypothesis 1. Social capital is associated with discrimination, psychological distress, resilience, and sexual risk behaviors.

H_{1a1}: Discrimination predicts psychological distress (path a3).

H_{1a2}: Discrimination predicts resilience (path a4).

H_{1a3}: Discrimination predicts sexual risk behaviors (path c').

H_{1b}*:* Discrimination is associated with social capital (path a1).

H_{1c1}*:* Social capital predicts psychological distress (path d1).

H_{1c2}*:* Social capital predicts resilience (path e1).

H_{1c3}*:* Social capital predicts sexual risk behaviors (path b1).

H_{1d1}*:* Social capital mediates the relationship between discrimination and psychological distress.

H_{1d2}*:* Social capital mediates the relationship between discrimination and resilience.

$H1_{d3}$*:* Social capital mediates the relationship between discrimination and sexual risk behaviors.

Hypothesis 2. Sense of control is associated with discrimination, psychological distress, resilience, and sexual risk behaviors.

H_{2a1}: Discrimination predicts psychological distress (path a3).

H_{2a2}: Discrimination predicts resilience (path a4).

H_{2a3}: Discrimination predicts sexual risk behaviors (path c').

H_{2b}: Discrimination is associated with sense of control (path a2).

H_{2c1}: Sense of control predicts psychological distress (path e2).

H_{2c2}: Sense of control predicts resilience (path d2).

H_{2c3}: Sense of control predicts sexual risk behaviors (path b2).

H_{2d1}*:* Sense of control mediates the relationship between discrimination and psychological distress.

H_{2d2}*:* Sense of control mediates the relationship between discrimination and resilience.

H_{2d3}*:* Sense of control mediates the relationship between discrimination and sexual risk behaviors.

Hypothesis 3. Psychological distress is associated with discrimination, resilience, and sexual risk behaviors.

H_{3a1}: Discrimination predicts resilience (path a4).

H_{3a2}: Discrimination predicts sexual risk behaviors (path c').

H_{3b}: Discrimination is associated with psychological distress (path a3).

H_{3c1}: Psychological distress predicts resilience (path f1).

H_{3c2}: Psychological distress predicts sexual risk behaviors (path b3).

H_{3d1}*:* Psychological distress mediates the relationship between discrimination and resilience.

H_{3d2}*:* Psychological distress mediates the relationship between discrimination and sexual risk behaviors.

Hypothesis 4. Resilience is associated with discrimination and sexual risk behaviors.

H_{4a}: Discrimination predicts sexual risk behaviors (path c').

H_{4b}: Discrimination is associated with resilience (path a4).

H_{4c}: Resilience predicts sexual risk behaviors (path b4).

H_{4d}*:* Resilience mediates the relationship between discrimination and sexual risk behaviors.

3.4 Summary

The conceptual framework for this study aims to explore the complex relationships between discrimination against OMSM and their psychological well-being, resilience, and sexual risk behaviors, in the context of Hong Kong, Taiwan, and mainland China. Four key research questions were used to examine (via a DIS-SR Model) the direct and indirect effects of discrimination on various psychosocial qualities and sexual risk behaviors. Four hypotheses were proposed and tested in the study, each with multiple sub-hypotheses.

Chapter 4 Research Method

4.1 Participants

This study targeted OMSM in Hong Kong, Taiwan, and mainland China. Participants must meet the following criteria: 1) having a history of engaging in sexual intercourse with males; 2) 60 years of age or older; 3) residing in Hong Kong, Taiwan, or mainland China; 4) capable of reading and understanding Chinese; 5) willing to participate in the study on their own accord; and 6) holding citizenship of their respective region.

Individuals who do not identify as male were excluded from the study as were those who failed to provide informed consent or complete the interviews for whatever reasons including cognitive impairments.

To ensure representative diversity and equitable geographical distribution, an equal number of participants were selected from each of the three regions, resulting in the recruitment of 151 participants from each region, and a robust total sample size of 453. This balanced distribution allows for meaningful comparisons between the regions and enhanced generalizability of the findings.

The study adopted protocols that prioritize ethical considerations and participant rights. Participants could withdraw at any time without having to provide an explanation, upon which time data collection from such participants would cease immediately and any data collected would be destroyed forthwith. Participants could also decline to answer any of the survey questions without having to provide an explanation, so that the level of discomfort felt by the participants when discussing sensitive topics could be reduced and an ethical research environment could be

maintained. These protocols were enforced vigorously with the aim of maintaining high ethical standards and obtaining high-quality representative data without compromising the participants' wellbeing and rights.

4.2 Research design

4.2.1 A multi-regional cross-sectional design

This study adopted a multi-regional cross-sectional exploratory comparative design. Data collection occurred across multiple geographic regions (Hong Kong, Taiwan, and mainland China) at a single point in time and offered a snapshot of the OMSM population, allowing for simultaneous examination of outcomes and associated factors. This exploratory approach was adopted with the objective of investigating and gaining insights into a topic that had not been extensively researched before, while the comparative aspect of the design enabled drawing comparisons between different groups and regions.

The study examined various aspects of the psychological well-being, social experiences, and behavioral patterns of OMSM in the three regions, including psychological distress, sexual risk behaviors, experiences of discrimination, resilience, sense of control, social capital, and social acceptance. These measures were carefully selected to provide a holistic view of the participants' mental health, coping mechanisms, and social experiences.

The study also compared the profiles of OMSM across the three regions, taking into account their personal characteristics, socioeconomic status, social and personal identities, mental health history, and experiences related to their sexual identity, thus enabling a thorough examination of the various factors that may influence the social experiences and behaviors of OMSM in different cultural and legal contexts.

4.2.2 Sampling

The study recruited participants through local LGBT advocacy groups and university departments specializing in gender studies and LGBT research in Hong Kong; NGOs supporting LGBT rights and academic institutions with research programs in gender and sexuality in Taiwan; and LGBT community organizations and universities with active research agendas on LGBT issues in mainland China. A non-random sampling approach was adopted given the OMSM population's distinct characteristics. These include their limited visibility in society, privacy concerns, and age-related stigma. Random sampling would be impractical as this population is harder to reach through conventional methods, lacks a comprehensive sampling frame, and may be reluctant to participate due to confidentiality concerns.

Three methods were adopted in the recruitment of OMSM participants to effectively reach and recruit members of this often-hidden population. Convenience sampling was utilized to reach easily accessible individuals. This method allowed for a broad representation of OMSM across the selected regions. Snowball sampling was employed to take advantage of existing social networks within the OMSM communities – participants were encouraged to refer other eligible individuals to the study. The study also employed direct outreach to and collaborations with local LGBTQ community organizations and NGOs in Hong Kong, Taiwan, and mainland China. These organizations served as vital conduits for reaching potential participants in a respectful and non-intrusive manner.

The simultaneous use of these three recruitment methods aimed to maximize the reach and diversity of the sample and overcome recruitment challenges, especially

where OMSM communities try to remain out of sight and out of reach to avoid stigmas and discrimination.

4.3 Data collection procedure

4.3.1 Data collection and confidentiality

Data was collected via anonymous self-administered online questionnaires. Prior informed consent was obtained from all participants. To ensure complete anonymity and confidentiality, completed questionnaires were submitted through a secure platform with built-in data validation mechanisms and were identified only by their assigned numerical identifier.

Stringent measures were implemented to keep the collected data confidential. Questionnaires contained only a record-identifier, and no personally identifiable information. All data files were password-protected with restricted access. Such measures safeguarded the confidentiality of the participants throughout the entire study process, which is particularly crucial when working with vulnerable or stigmatized communities.

Enquiry hotlines were also set up to address any concerns or questions participants might have and allowed them to seek clarification on any aspect of the study and their involvement. This practice of open communication helped develop a sense of trust and support among the participants.

4.3.2 Sample size

The effective sample size was determined based on recommendations from existing multivariate regression studies and structural equation modeling guidelines (SEM). Existing guidelines established by multivariate regression studies suggest including at least ten instances for each unique factor (Fallowfield et al., 2002; Mansouri et al., 2018). SEM guidelines recommend 5 to 10 observations per

estimated parameter to ensure robustness and validity (Kline, 2015). Given that the SEM model in this study included approximately 40 estimated parameters, at least 400 observations were needed (40 parameters × 10 observations/parameter).

Based on statistical calculations using a 95% confidence level and a 5% error rate, the initial sample size requirement was determined to be 383 participants, taking into account potential non-response and missing data. However, considering the challenges specific to internet-based data collection, including higher dropout rates and potentially lower response reliability, an adjustment to the sample size was deemed necessary. Following recommendations from Dillman, Smyth, and Christian (2014), a 15% increase was applied to the initial sample size estimate. This adjustment resulted in a target of 440 participants (383 × 1.15 = 440).

4.3.3 Quality assurance

Quality assurance measures were implemented to ensure data reliability and credibility. These included systematic quality checks, questionnaire validation, and adherence to proper interview practices. Random spot checks of completed surveys were also carried out to verify response consistency and completeness, while regular data audits were used to identify and address any suspicious response patterns. Follow-up verification was also conducted for a subset of participants to confirm submission authenticity. A hotline was also set up to assist participants with technical issues.

4.3.4 Handling missing data

All questions in the online questionnaires were designated as compulsory, with the exception of three demographic background questions: living arrangement,

housing type, and personal income. This approach was adopted to ensure a high completion rate for critical survey items while allowing participants to retain control over the disclosure of certain personal information. It is important to note that these three non-compulsory background questions had a relatively low missing data rate (none with a rate exceeding 8%). No imputation techniques were employed to address these missing values, as the impact on overall data analysis was considered minimal.

4.3.5 Ethical considerations

Given the study's focus on sensitive topics such as prejudice and sexual orientation, careful attention was paid to maintain a high level of ethical standards. In this connection, the study design and proposal were submitted for review by the Hong Kong Polytechnic University ethics committee (HSEARS 202101723001) and approval was duly granted.

4.4 Measures

Data was collected from participants through a structured questionnaire. Table 4.1 lists the reliability coefficients of the measurement scales adopted in the study, which are listed as follows:

4.4.1 Discrimination

Discrimination was measured using the 9-item Everyday Discrimination Scale (EDS; Williams et al., 1997), which assesses a wide range of discriminatory experiences individuals may encounter in their daily lives. These experiences include uncourteous or disrespectful treatment from others, receiving inferior service from public organizations, being subjected to negative assumptions about one's intelligence or honesty, being treated as weak or inferior by others, as well as other more overt forms of discrimination such as verbal abuse, insults, threats, and harassment. The Chinese version of the EDS has demonstrated excellent internal reliability, with a Cronbach's alpha of 0.948 (Wu et al., 2015). Participants were asked to respond to the EDS on a 6-point Likert scale, ranging from "never" (0) to "almost every day" (5). The overall score ranges from 0 to 45, with higher scores indicating a higher level of exposure to discrimination.

4.4.2 Social capital

Social capital was measured using the 42-item Personal Social Capital Scale (PSCS; Chen et al., 2009) to quantify social factors related to health and behavior. The PSCS assesses an individual’s social capital through 10 composite items based on 42 items that categorize social capital into total social capital, bonding social capital, and bridging social capital. The Chinese version of the PSCS has shown satisfactory

internal reliability, with a Cronbach's alpha ranging from 0.78 to 0.81 for these categories (Chen et al., 2009). Participants were asked to respond to the PSCS on a 5-point Likert scale, ranging from "none or a few" (1) to "all or a lot" (5). The total score ranges from 42 to 210, with higher scores indicating greater social capital. Individuals with greater social capital typically have access to broader and more diverse networks that facilitate stronger emotional support, greater information exchange, and more effective resource mobilization.

4.4.3 Sense of control

Sense of control was measured using the 12-item Sense of Control Scale (SCS; Lachman & Weaver, 1998), which comprises two subscales: personal mastery (four items) and perceived constraints (eight items). Personal mastery focuses on an individual's perception of their own capability in achieving their goals. Perceived constraints represent the degree to which a person believes external factors or obstacles, beyond their control, hinder their ability to reach their objectives. The Chinese version of the SCS has demonstrated satisfactory internal reliability, with a Cronbach's alpha of 0.86 for the perceived constraints subscale and 0.70 for the personal mastery subscale (Lachman & Weaver, 1998a, 1998b). Participants were asked to respond to the SCS on a 7-point Likert scale, ranging from "strongly agree" (1) to "strongly disagree" (7). The personal mastery subscale was reverse-coded. The overall average score ranges from 1 to 7, with higher scores indicating greater constraints on sense of control. Individuals with higher constraints tend to feel more helpless in the face of life's challenges as they believe any efforts on their part have little impact on outcomes due to external forces or circumstances.

4.4.4 Psychological distress

Psychological distress was measured using the 12-item General Health Questionnaire (GHQ-12; Goldberg and Williams, 1988), a widely used self-report tool for evaluating psychological disorders and stress. The scale covers a range of qualities and experiences, including ability to concentrate, sleep disturbances, decision-making capacity, stress levels, coping abilities, enjoyment of daily activities, feelings of depression, self-confidence, and overall happiness. The Chinese version of the GHQ-12 has demonstrated satisfactory internal reliability, with a Cronbach's alpha of 0.75 (Hankins, 2008). Participants were asked to respond to the GHQ-12 using the binary method, ranging from 0 to 12, with higher scores indicating poorer psychological well-being over the past month.

4.4.5 Resilience

Resilience was measured using the 10-item Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003), which evaluates an individual's ability to adapt to change, cope with various challenges, and recover from adversity. The scale covers several key aspects of resilience, including adaptability, problem-solving skills, and the ability to find humor in the face of difficulties, achieve personal growth in midst of stress, recover from setbacks, stick to set goals in the face of obstacles, focus under pressure, persevere through failure, perceive own strength in dealing with life's challenges, and regulate own emotions. The Chinese version of the CD-RISC has shown satisfactory internal reliability, with a Cronbach's alpha of 0.8 (Ye et al., 2017). Participants were asked to respond to the CD-RISC on a 5-point Likert scale, ranging from "not true at all" (0) to "true nearly all of the time" (4). The overall score

ranges from 0 to 40, with higher scores indicating a greater ability to cope with adversity.

4.4.6 Sexual risk behaviors

Sexual risk behavior was measured using the Sexual Risk Survey (SRS; Turchik & Garske, 2009) which focuses primarily on the frequency of sexual risk behaviors. This scale comprises five subscales of sexual risk behaviors: sexual risk-taking with uncommitted partners, sexual acts, impulsive sexual behaviors, intent to engage in sexual risk behaviors, and risky anal sex acts. Each subscale was assessed through specific questions. For example, sexual risk-taking with uncommitted partners was measured by questions like “How many times have you had sex with someone you don't know well or just met?” Risky sexual acts were evaluated with questions such as “How many times have you or your partner used alcohol or drugs before or during sex?” Impulsive sexual behaviors were assessed with questions such as “How many times have you had an unexpected and unanticipated sexual experience?” The intent to engage in sexual risk behaviors was measured through questions like “How many times have you gone out to bars, parties, or social events with the intent of 'hooking up' and having sex with someone?” Lastly, risky anal sex acts were evaluated with questions such as "How many times have you had anal sex without a condom?”

Participants were asked to read 23 items, each describing a sexual risk behavior, and indicate in a free-response format the number of times they had participated in each behavior over the past six months. Raw response frequencies were recorded and converted into ordinal categories and assigned weights from 0 to 4 to reflect the level of sexual risk-taking (Turchik, et al., 2015). This method addresses

the unreliability of frequency data commonly encountered in sexual risk assessment studies. The total “sexual risk score” was calculated by adding up the responses to all individual items, resulting in a possible range of 0 to 92. This method provides a more comprehensive measure of overall sexual risk behaviors, as it takes into account both the frequency and intensity of sexual risk activities. The Chinese version of the SRS has shown satisfactory internal reliability, with a Cronbach's alpha of 0.88 (Turchik & Garske, 2009). Higher scores indicate greater involvement in sexual risk behaviors.

4.4.7 Social acceptance

Social acceptance was measured using the 44-item Perceived Acceptance Scale (PAS; Brock et al., 1998). This scale measures the perceived social acceptance from friends, mother, father, and family. The Chinese version of the PAS has demonstrated satisfactory internal reliability, with a Cronbach's alpha of 0.947 (Yang & Shen, 2018). Participants were asked to respond to the PAS on a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). The average score ranges from 1 to 5, with higher scores indicating greater social acceptance. Individuals with greater social acceptance typically experience a stronger sense of belonging, approval, and inclusion within their social circles.

4.4.8 Legal inclusion

Legal inclusion was measured using the Global Index on Legal Recognition of Homosexual Orientation (GIRLHO; Badgett, Waaldijk & Rodgers, 2019), which evaluates the level of legal recognition and protection enjoyed by LGBT individuals across eight categories, including decriminalization, anti-discrimination, and partnership recognition. Legal inclusion was assessed not based on subjective self-

reporting by participants, but the objective application of a standardized global index derived from GIRLHO specifically designed to evaluate the legal environment for LGBT individuals in different regions, and which was applied to Hong Kong, Taiwan, and mainland China in this study. The total score ranges from 0 to 8, with higher scores indicating greater protection and a more extensive legal framework that safeguards LGBT rights such as stronger anti-discrimination laws, legal recognition of same-sex partnerships, and laws and regulations that foster broader societal acceptance.

4.4.9 Demographics

A demographic questionnaire was used to collect personal information of the participants, including age, gender, place of birth, marital status, and religion. Socioeconomic factors were also assessed, including level of education, economic activity status, monthly personal income, type of housing, and living arrangement. Participants were also asked to summarize their mental health diagnosis history, as well as their LGBT-specific experiences and the level of openness they harbor towards family, friends, colleagues, and others about their sexual orientation.

Table 4.1 *Reliability coefficients of the measures*

	No. of items	Cronbach's alpha
Psychological distress		
General Health Questionnaire-12 (GHQ-12)	12	0.64
Sexual risk behaviors		
Sexual Risk Survey (SRS)	23	0.89
Discrimination		
Everyday Discrimination Scale (EDS)	9	0.84
Resilience		
Connor Davidson Resilience Scale (CDRS)	10	0.76
Sense of control		
Sense of Control Scale (SCS)	12	0.85
SCS - Personal Mastery subscale	4	0.48
SCS - Perceived Constraints subscale	8	0.88
Social capital		
Personal Social Capital Scale (PSCS)	42	0.44
PSCS - Bonding Social Capital	30	0.61
PSCS - Bridging Social Capital	12	0.33
Social acceptance		
Perceived Acceptance Scale (PAS)	12	0.53
PAS - Friends	10	0.57
PAS - Mother	10	0.49
PAS - Father	12	0.48
PAS - Family	44	0.83

4.5 Data analytic strategy

Descriptive statistics, such as age, gender, place of birth, marital status, and religion, were used to provide an overview of the participants. Socioeconomic factors were also examined, including education, economic activity status, monthly personal income, type of housing, and living arrangement, as well as other attributes such as sexual orientation and mental health status.

Analysis of Variance (ANOVA) tests were also conducted to uncover any significant regional differences between Hong Kong, Taiwan, and mainland China, in terms of the personal, socioeconomic, sexual, and mental health attributes of the respective participants that might impact the outcomes of the study.

Sexual risk behaviors, which served as the primary outcome variable, was assessed by examining the prevalence of specific behaviors under five categories: sexual risk-taking with uncommitted partners, risky sexual acts, impulsive sexual behaviors, intent to engage in sexual risk behaviors, and risky anal sex acts.

The scales used in the study were compiled following predetermined calculation methods. To ensure the reliability of these scales, Cronbach's alpha was used to assess their internal consistency. Means and standard deviations were calculated for all study measures to provide a central tendency and variability overview. Further analyses using ANOVA tests were conducted to explore regional differences, aiming to understand geographical variations. To identify demographic patterns, the study measures were compared across different age groups (60 to 64, 65 to 69, and 70 or above) and socioeconomic status (economically active and inactive OMSM).

Correlation analysis and Pearson correlations were employed to measure the strength and direction of relationships between variables using Pearson correlations. This approach provided valuable insights into the associations among various factors and their impacts on sexual risk behaviors, e.g. the correlation between subjective experiences of discrimination and the psychological well-being of OMSM; the relationships between (1) factors such as sense of control, resilience, social capital, social acceptance, and legal inclusion; and (2) the psychological health and practice of safe sex among OMSM in Hong Kong, Taiwan and mainland China.

Multiple regression analysis was conducted to investigate the relationships between multiple independent variables (discrimination, social capital, sense of control, resilience, and psychological distress) and the dependent variable (sexual risk behaviors). The analysis controlled for age and socioeconomic status, and collinearity was checked using Variance Inflation Factor (VIF) values, all of which should be below 5, which would indicate an absence of multicollinearity issues. The explanatory power of the model was assessed using adjusted R-squared. It is hoped that the results from this regression analysis can provide insights for the development of structural equation models.

Structural equation modeling (SEM) was employed to test the DIS-SR Model predicting sexual risk behaviors based on discrimination. This powerful statistical tool enables the evaluation of theoretical models by allowing the simultaneous analyses of multiple relationships (Kline, 2016). Linear SEMs can be viewed as multivariate regression models that analyze structural relationships between multiple dependent and independent variables concurrently and represent a synthesis of path analysis and factor analytic procedures.

In this study, SEM was used to identify potential pathways, test significant relationships between independent and dependent variables, and facilitate mediational analyses on discrimination, social capital, sense of control, psychological distress, resilience, and sexual risk behaviors. Full mediation, as far as a mediator is concerned, is established when the relationship between the independent and dependent variables becomes insignificant in the presence of such mediator. Partial mediation occurs when this relationship remains significant, even if substantially reduced, in the presence of the mediator. Overall, SEM allows for a more accurate estimation of relationships between variables compared to conventional correlation or regression analyses, thus providing a more in-depth understanding of the complex relationships between discrimination, psychological well-being, and sexual risk behaviors among OMSM.

To assess the goodness-of-fit for the SEM, multiple criteria were employed. The primary method for evaluating overall fit in SEM is the chi-square (χ^2) statistic, which is used when maximum likelihood estimation is applied. The χ^2 fit index compares the observed covariance matrix with the predicted covariance matrix. A lower χ^2 value is indicates a better model fit. Specifically, a low χ^2 suggests that the predicted covariances closely align with the observed values, meaning the model adequately represents the data (Kline, 2005). However, it is important to note that while the χ^2 statistic is a conventional measure, it is sensitive to sample size and model complexity. Therefore, additional fit indices are often used in conjunction with χ^2 to provide a more robust assessment of model fit, such as the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR).

CFI measures how well the target model fits compared to the null or independent model (Hu & Bentler, 1999). A CFI value of .97 or higher indicates a good fit, while values of .95 or above are considered acceptable. Although .95 is often cited as a cutoff, a value of .97 is generally viewed as a more stringent indicator of good model fit (Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Muller, 2003).

The RMSEA coefficient assesses approximate model fit by measuring model error per degree of freedom and returning the average size of model misfit. RMSEA values are interpreted as follows: ≤ .05 indicates a good fit, .05 to .08 an adequate fit, .08 to .10 a mediocre fit, and values larger than .10 mean the model is not acceptable (Browne & Cudeck, 1993).

The SRMR coefficient is used to evaluate model residuals. It assesses how well the model reproduces observed variances, covariances, and means. Lower SRMR values indicate a better model fit. Typically, values below .05 suggest a good fit (Hu & Bentler, 1999), while values under .10 are generally considered acceptable.

Among the various model fit indices, the CFI and RMSEA are the most widely used in SEM analyses, and they are particularly valued for their superior ability to identify misspecified models (Hu & Bentler, 1999). By offering different perspectives on model fit, the CFI and RMSEA provide a more robust assessment of how well the proposed model aligns with the data collected.

In this study, statistical analyses were performed using SPSS Version 28.0, while all SEM analyses were conducted using Mplus Version 8.0. Results are

presented using standardized coefficients (β), with level of significance set at 5% ($p < .05$).

4.6 Summary

This study targeted OMSM aged 60 or older in Hong Kong, Taiwan, and mainland China who could read and understand Chinese, and employed a multi-regional cross-sectional exploratory comparative design to compare OMSM across Hong Kong, Taiwan, and mainland China at a single time point. Participants were recruited through regional LGBT-focused NGOs and university departments specializing in gender and LGBT studies. A non-random sampling approach was adopted in the recruitment process due to the unique characteristics of the OMSM population. Recruitment was carried out via convenience sampling, snowball sampling, and direct outreach to LGBTQ community organizations and NGOs. Data collection was conducted through online self-administered questionnaires.

The study utilized various measures to assess various aspects of the participants' experiences. Discrimination was measured using the EDS, social capital using the PSCS, sense of control using the SCS, psychological distress using the GHQ-12, resilience using the CD-RISC, sexual risk behaviors using the SRS, social acceptance using the PAS, and legal inclusion using the GIRLHO.

Descriptive statistics, correlation analysis, multiple regression analysis, and structural equation modeling (SEM) were employed to analyze the data. The SEM model was used to test a path model predicting discrimination causing sexual risk behaviors, and the goodness-of-fit of the SEM models was also evaluated.

Chapter 5 Results

5.1 Profile of participants

5.1.1 Personal characteristics

In all 453 participants were recruited for the present study, with 151 participants from Hong Kong, 151 from Taiwan, and 151 from mainland China. Table 5.1 summarizes the personal characteristics of the participants. All participants were male at the time of the study. About two-thirds (66.9%) were aged between 60 and 69, and the remaining one-third (33.1%) were aged 70 or above. The mean age of all participants was 68.21 years (SD = 6.85), while mean age of the participants in Taiwan was 71.28 years (SD = 7.79), 67.36 years (SD = 6.20) in mainland China, and 65.99 years (SD = 5.21) in Hong Kong. Significant regional differences in age were observed, $F(2, 450) = 26.99$, $p < .001$, with participants recruited in Taiwan being the oldest and those in Hong Kong the youngest. Regarding the place of birth, all participants reported being born in the same region as their recruitment region.

Regarding marital status, more than half (62.5%) of the participants were married, followed by single individuals (24.5%). A small percentage was engaged (9.9%) or divorced / widowed (3.1%). Significant regional differences in marital status were observed, $\chi 2(6, N = 453) = 135.12$, $p < .001$. In mainland China, a majority (90.7%) of the participants were married at the time of the study, and the remaining 9.3% were divorced or widowed. Similar patterns were observed in Hong Kong and Taiwan, where less than half of participants were married (47.7% in Hong Kong and 49.0% in Taiwan), with the remaining being single (37.7% in Hong Kong and 35.8% in Taiwan) or engaged (14.6% in Hong Kong and 15.2% in Taiwan). It is

worth noting that participants were not asked whether they were married to a same-sex or opposite-sex partner. In terms of religious affiliation, about 70.0% of the participants reported having some form of religious affiliation, while 30.0% reported no religious affiliation. Significant regional differences in religious affiliation were observed, $\chi 2(2, N = 453) = 8.97, p < .05$. Participants from Hong Kong (75.5%) and mainland China (73.5%) reported similar rates of religious affiliation, whereas a lower rate was reported in Taiwan (60.9%).

Table 5.1 *Personal characteristics of participants by three regions*

	Total		Region						*F* test / chi-square	*p*-value
			Mainland China		Hong Kong		Taiwan			
	N	%	*n*	%	*n*	%	*n*	%		
Age Group									36.93	< .001
60-64	158	34.9%	57	37.7%	70	46.4%	31	20.5%		
65-69	145	32.0%	46	30.5%	53	35.1%	46	30.5%		
70+	150	33.1%	48	31.8%	28	18.5%	74	49.0%		
Mean (SD)	68.21	(6.85)	67.36	(6.20)	65.99	(5.21)	71.28	(7.79)	26.99	<.001
Place of birth									-	-
Mainland China	151	33.3%	151	100%	0	0.0%	0	0.0%		
Hong Kong	151	33.3%	0	0.0%	151	100%	0	0.0%		
Taiwan	151	33.3%	0	0.0%	0	0.0%	151	100%		
Marital status									135.12	< .001
Single	111	24.5%	0	0.0%	57	37.7%	54	35.8%		
Engaged	45	9.9%	0	0.0%	22	14.6%	23	15.2%		
Married	283	62.5%	137	90.7%	72	47.7%	74	49.0%		
Divorced or widowed	14	3.1%	14	9.3%	0	0.0%	0	0.0%		
Religious affiliation									8.97	.011
Yes	317	70.0%	111	73.5%	114	75.5%	92	60.9%		
No	136	30.0%	40	26.5%	37	24.5%	59	39.1%		
Total	453	100%	151	100%	151	100%	151	100%		

5.1.2 Socioeconomic attributes

Table 5.2 summarizes the socioeconomic attributes of participants. In terms of education, 44.4% reported having received lower secondary education or below, 36.6% reported completing upper secondary education, and 19.0% reported having obtained a diploma, bachelor's degree, or higher. Significant regional differences in educational attainment were observed, $\chi 2(4, N = 453) = 79.68$, $p < .001$. Participants in mainland China generally attained a lower level of education, with 68.9% having completed lower secondary education or below, 28.5% having completed upper secondary education, and 2.6% having obtained a diploma, bachelor's degree, or higher. Participants in Hong Kong and Taiwan shared similar patterns, with 42.4% and 21.9% respectively having completed lower secondary education or below, 33.1% and 48.3% respectively having completed upper secondary education, and 24.5% and 29.8% respectively having obtained a diploma, bachelor's degree, or higher.

In terms of economic activity, about 61.6% of all participants were employed, while the remaining 38.4% were economically inactive, including 37.5% who had retired and a negligible 0.9% who were unemployed. Significant regional differences in economic activity status were observed, $\chi 2(2, N = 453) = 22.40$, $p < .001$. The rate of employment was higher among participants in Hong Kong (74.8%), compared to mainland China (61.6%) and Taiwan (48.3%).

Regarding monthly personal income, more than three-quarters (77.3%) of the participants reported an income of HK$18,700 or below, while 20.1% reported an income above HK$18,700, and 2.6% did not provide this information. Significant regional differences in monthly personal income were observed, $\chi 2(2, N = 453) = 58.49$, $p < .001$. A high proportion of participants in mainland China (82.8%) and

Taiwan (90.1%) reported an income of HK$18,700 or below. In contrast, a higher proportion of participants in Hong Kong reported an income above HK$18,700 (41.1%), compared to mainland China (9.3%) and Taiwan (9.9%). These results align with expectations, as the living wages in the three regions differ substantially.

Regarding type of housing, about one-third (33.1%) of all participants were living in village houses, followed by public housing (19.2%), substandard housing (temporary housing, wooden huts, cubicle apartments, subdivided units, and cage homes) (18.5%), private housing (15.2%), and subsidized housing (13.5%). Significant regional differences in type of housing were observed, $\chi 2(10, N = 453) = 263.91$, $p < .001$. In mainland China, more than three-quarters (76.8%) of the participants were living in village houses. In Hong Kong, about 39.7% of the participants were living in public housing, 22.5% in private housing, 15.2% in substandard housing, and 13.2% in subsidized housing, as public and private housing are the most common types of housing in Hong Kong. In Taiwan, about one-third of the participants (33.8%) reported living in substandard housing, and 25.8% in subsidized housing. These housing patterns reflect the distinct socioeconomic conditions across the regions. The high proportion of mainland Chinese participants living in village houses is consistent with the fact that village housing is the dominant housing type in mainland China. The diverse distribution of housing status among the Hong Kong participants also aligns with the highly urban landscape of the region and the housing initiatives undertaken by the Hong Kong government in the past. Meanwhile, the fact that a high percentage of participants in Taiwan reported living in substandard and subsidized housing may indicate a level of economic challenges faced specifically by the OMSM population in Taiwan.

Data pertaining to living arrangements were also collected. More than half (57.6%) of all participants were living alone, 17.7% were living with family members, 11.5% with friends, and 10.6% with partners. Significant regional differences in living arrangements were observed, $\chi 2(8, N = 453) = 129.32$, $p < .001$. A higher proportion of participants in Hong Kong (74.2%) and Taiwan (72.2%) reported living alone, compared to those in mainland China (26.5%). For participants in mainland China, a high proportion were living with family members (37.1%) and friends (21.2%). These differences could be the result of the fact that a high proportion of participants in mainland China were married (90.7%), compared to those in Taiwan (49.0%) and Hong Kong (47.7%).

Table 5.2 *Socioeconomic attributes of participants by region*

	Total		Region						*F* test / chi-square	*p*-value
			Mainland China		Hong Kong		Taiwan			
	N	%	*n*	%	*n*	%	*n*	%		
Educational attainment									79.68	< .001
Lower secondary or below	201	44.4%	104	68.9%	64	42.4%	33	21.9%		
Upper secondary	166	36.6%	43	28.5%	50	33.1%	73	48.3%		
Diploma or above	86	19.0%	4	2.6%	37	24.5%	45	29.8%		
Economic activity status									22.40	< .001
Active	279	61.6%	93	61.6%	113	74.8%	73	48.3%		
Inactive	174	38.4%	58	38.4%	38	25.2%	78	51.7%		
Monthly personal income									58.49	< .001
HK$18,700 or below	350	77.3%	125	82.8%	89	58.9%	136	90.1%		
Above HK$18,700	91	20.1%	14	9.3%	62	41.1%	15	9.9%		
No information provided	12	2.6%	12	7.9%	0	0.0%	0	0.0%		
Type of housing									263.91	< .001
Public housing	87	19.2%	4	2.6%	60	39.7%	23	15.2%		
Village house	150	33.1%	116	76.8%	14	9.3%	20	13.2%		
Private housing	69	15.2%	17	11.3%	34	22.5%	18	11.9%		
Subsidized housing	61	13.5%	2	1.3%	20	13.2%	39	25.8%		
Substandard housing[1]	84	18.5%	10	6.6%	23	15.2%	51	33.8%		
Others	2	0.4%	2	1.3%	0	0.0%	0	0.0%		
Living arrangement									129.32	< .001
Living alone	261	57.6%	40	26.5%	112	74.2%	109	72.2%		
Family members	80	17.7%	56	37.1%	9	6.0%	15	9.9%		
Friends	52	11.5%	32	21.2%	11	7.3%	9	6.0%		
Partners	48	10.6%	12	7.9%	18	11.9%	18	11.9%		
Others	11	2.4%	11	7.3%	0	0.0%	0	0.0%		
No information provided	1	0.2%	0	0.0%	1	0.7%	0	0.0%		
Total	453	100%	151	100%	151	100%	151	100%		

Note 1: Substandard housing included temporary housing, wooden huts, cubicle apartments, subdivided units, and cage homes.

5.1.3 Sexual orientation disclosure and mental health

Table 5.3 summarizes the data collected from participants in connection with their sexual orientation and mental health. All participants indicated that their sexual orientation was homosexual. Regarding the disclosure of their sexual orientation to others, all participants in Hong Kong and Taiwan reported that they had, so to speak, "come out of the closet,," while only 72.2% of the participants in mainland China reported having done so. For those who had disclosed their sexual orientation, such disclosure was most commonly made to friends (47.2%), followed by family members (44.2%), colleagues (37.1%), and others (2.4%). For disclosure to family members, no significant differences were found in the data collected from the three regions, which suggests that family dynamics and the challenges arising from disclosing one's sexual orientation might be similar across all three regions, possibly due to shared cultural values. On the other hand, significant regional differences were observed for disclosure to friends, $\chi 2(2, N = 453) = 44.50$, $p < .001$. A high proportion of participants in Taiwan (59.6%) and Hong Kong (57.0%) reported having disclosed their sexual orientation to their friends, compared to only 25.2% in mainland China. Similarly, significant regional differences were observed when it comes to disclosure to colleagues, $\chi 2(2, N = 453) = 22.03$, $p < .001$. A high proportion of participants in Taiwan (47.7%) and Hong Kong (41.1%) reported having disclosed their sexual orientation to their colleagues, compared to only 22.5% in mainland China. Such findings suggest a more open social environment for OMSM in Hong Kong and Taiwan compared to mainland China.

Participants were also asked whether they had ever been diagnosed with a mental illness by a doctor (such as depression, anxiety disorder, etc.). About 11.5% of

all participants reported having been diagnosed with a mental illness, while the remaining 88.5% did not. Significant regional differences in mental illness were observed, $\chi 2(2, N = 453) = 29.50$, $p < .001$, as no participants in mainland China reported having been diagnosed with a mental illness, while some participants in Hong Kong (17.9%) and Taiwan (16.6%) reported having been so diagnosed. After excluding the participants in mainland China, no significant differences were found between the participants in Hong Kong and Taiwan in terms of mental illness diagnoses. Readers are, however, advised to exercise caution when interpreting these statistics, particularly for mainland China. The absence of reported mental illness diagnoses may just be a result of underreporting or a lack of mental health knowledge and awareness on the part of the participants.

Table 5.3 *Sexual orientation disclosure and mental health of participants by three regions*

	Total		Region						*F* test / chi-square	*p*-value
			Mainland China		Hong Kong		Taiwan			
	N	%	*n*	%	*n*	%	*n*	%		
Sexual orientation									-	-
Homosexual	453	100%	151	100%	151	100%	151	100%		
Bisexual	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%		
Heterosexual	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%		
Coming out									92.58	.304
Yes	411	90.7%	109	72.2%	151	100%	151	100%		
No	42	9.3%	42	27.8%	0	0.0%	0	0.0%		
Coming out to family members									2.38	.304
Yes	200	44.2%	71	47.0%	59	39.1%	70	46.4%		
No	253	55.8%	80	53.0%	92	60.9%	81	53.6%		
Coming out to friends									44.50	< .001
Yes	214	47.2%	38	25.2%	86	57.0%	90	59.6%		
No	239	52.8%	113	74.8%	65	43.0%	61	40.4%		
Coming out to colleagues									22.03	< .001
Yes	168	37.1%	34	22.5%	62	41.1%	72	47.7%		
No	285	62.9%	117	77.5%	89	58.9%	79	52.3%		
Coming out to others									-	-
Yes	11	2.4%	0	0.0%	8	5.3%	3	2.0%		
No	442	97.6%	151	100%	143	94.7%	148	98.0%		
Mental illness									29.50	< .001
Yes	52	11.5%	0	0.0%	27	17.9%	25	16.6%		
No	401	88.5%	151	100%	124	82.1%	126	83.4%		
Total	453	100%	151	100%	151	100%	151	100%		

5.1.4 Patterns of sexual risk behaviors

Table 5.4 summarizes the data collected from the 23 questions posed to participants in the questionnaire pertaining to sexual risk behaviors. More than half (61.1%) of the participants reported having had sex with at least one sexual partner up to that point in their life, with 25.8% indicating four or more partners. Engagement in sexual relations with uncommitted partners, or so-called “friends with benefits,” was less common, with 58.3% of all participants reporting no such partners, 37.7% reported having had one, and 4.0% reported having had two or more. Notably, 29.6% of all participants reported that they have had sex with a new partner at least once before discussing their sexual history or sexual health status. About 43.0% of all participants reported having had sex with someone known to have multiple partners. 28.3% of all participants reported having had sex with strangers or new acquaintances. Trust issues were relatively rare, with only 5.3% of participants reporting having had sex with partners they did not trust. Trust in this context primarily refers to confidence in a partner's honesty about their sexual health status and commitment to safer sex practices. Regarding Sexually Transmitted Infections (STI) or HIV testing, 21.0% of the participants had engaged in sex with partners who had been sexually active but had not been tested for STI. Lastly, 10.4% of participants reported that their partners were engaged in sexual relations with others during the same period they had sex with them.

The participants reported varying levels of engagement in risky sex acts. 56.7% of the participants reported having engaged in unprotected vaginal intercourse at least once, with 30.5% reporting four or more instances. Unprotected oral sex on women was less common, with 45.3% of participants reporting having performed

cunnilingus without adequate protection at least once. The use of alcohol or drugs before or during sex was reported by 43.0% of the participants, with 15.5% indicating four or more occurrences. Vaginal intercourse without protection was less prevalent, with 26.3% of participants reporting at least one instance, and 11.3% reporting four or more occurrences. Lastly, 33.3% of the participants reported having given or received oral sex from other men, with 2.2% indicating four or more instances. These statistics suggest that while a significant portion of participants had engaged in various risky sex acts, the prevalence depends on the type of behavior (e.g., unprotected vaginal intercourse being the most commonly reported risky behavior).

In terms of sexual behaviors, more than two-thirds (68.7%) of the participants reported having engaged in sexual acts short of intercourse with at least one partner, with 28.3% reporting such experiences with four or more partners. Unexpected and unanticipated sexual experiences were common, with 59.8% of participants reporting at least one such encounter, and 27.6% reporting 4 or more instances. Regret following a sexual encounter was found to be prevalent, with 58.7% of participants reporting at least one instance where they regretted the experience, although only 5.3% reported four or more such instances. 30.7% of participants reported having left a social event with someone they had just met to engage in sexual activities at least once, but only 1.8% indicated three or more occurrences. 26% of participants reported having engaged in sexual activities (short of intercourse) with someone they did not know well, although only a miniscule portion (1.1%) reported more than 2 instances. These statistics suggest that while many participants had engaged in various impulsive sexual behaviors, the prevalence depends on the type of behavior, with non-penetrative sexual behavior and unexpected sexual experiences being the most commonly reported impulsive sexual behaviors.

Regarding the intent to engage in sexual risk behaviors, more than half (62.9%) of the participants had at least once put themselves in a social situation (e.g. going to a bar) or attended a social event with the intent of meeting someone to engage in sexual activities with, with a notable 39.7% reporting having done so with such intention 4 or more times. Similarly, 62.7% of the participants had at least once put themselves in such social situations or events with the intent of meeting someone to engage in sexual activities with (but not intercourse), with 29.8% indicating having done so with such intention four or more times.

Concerning risky anal sex acts, the data suggests it is less common compared to other types of sexual risk behaviors. 33.6% of the participants reported having engaged in unprotected anal sex, with only 1.5% reporting four or more instances. Anal penetration by hand or object without protection followed by unprotected anal sex was less common, with only 17.9% of participants reporting at least one such instance, and 5.7% reporting three or more occurrences. Similarly, unprotected analingus was reported by 15.9% of participants, with none reporting having engaged in such acts more than three times. These statistics suggest that while a significant portion of the participants had engaged in risky anal sex acts, prevalence is generally lower compared to other sexual risk behaviors, and a majority of the participants reported no such engagements at all.

Table 5.4 *Patterns of sexual risk behaviors*

%	0	1	2	3	4+
Sexual risk taking with uncommitted partners					
How many partners have you had sex with?	38.9%	19.0%	9.9%	6.4%	25.8%
How many people have you had sex with that you know but are not involved in any sort of relationship with (i.e., "friends with benefits," "fuck buddies")?	58.3%	37.7%	3.1%	0.7%	0.2%
How many times have you had sex with a new partner before discussing sexual history, IV drug use, disease status and other current sexual partners?	70.4%	6.6%	7.7%	3.3%	11.9%
How many times (that you know of) have you had sex with someone who has had many sexual partners?	57.0%	19.6%	9.5%	4.9%	9.1%
How many times have you had sex with someone you do not know well or just met?	71.7%	9.5%	9.3%	8.2%	1.3%
How many partners have you had sex with whom you did not trust?	94.7%	4.2%	0.4%	0.2%	0.4%
How many partners (that you know of) have you had sex with who had been sexually active before you first had sex with them but who had not been tested for STIs/HIV?	79.0%	5.7%	8.8%	6.4%	0.0%
How many times (that you know of) have you had sex with someone who was also engaging in sex with others during the same time period?	89.6%	10.2%	0.2%	0.0%	0.0%
Risky sex acts					
How many times have you had vaginal intercourse without a latex or polyurethane condom? **Note:** Include times when you have used a lambskin or membrane condom?	43.3%	13.0%	9.3%	4.0%	30.5%
How many times have you given or received cunnilingus (oral sex on a woman) without a dental dam or adequate protection?	54.7%	12.8%	11.0%	6.0%	15.5%
How many times have you or your partner used alcohol or drugs before or during sex?	57.0%	10.8%	11.3%	5.5%	15.5%
How many times have you had vaginal intercourse without protection against pregnancy?	73.7%	9.5%	3.5%	2.0%	11.3%

%	0	1	2	3	4+
How many times have you given or received fellatio (oral sex on a man) without a condom?	66.7%	12.8%	11.0%	7.3%	2.2%

%	0	1	2	3	4+
Impulsive sexual behaviors					
How many partners have you engaged with in sexual behavior but NOT had sex?	31.3%	18.1%	17.9%	4.4%	28.3%
How many times have you had an unexpected and unanticipated sexual experience?	40.2%	14.8%	12.8%	4.6%	27.6%
How many times have you had a sexual encounter you engaged in willingly but later regretted?	41.3%	35.5%	7.3%	10.6%	5.3%
How many times have you left a social event with someone you just met?	69.3%	23.4%	5.5%	1.8%	0.0%
How many times have you ‘‘hooked up’’ (but NOT had sex) with someone you did not know or did not know well?	74.0%	24.9%	1.1%	0.0%	0.0%
Intent to engage in sexual risk behaviors					
How many times have you gone out to bars/parties/ social events with the intent of “hooking up” and having sex with someone?	37.1%	15.9%	6.0%	1.3%	39.7%
How many times have you gone out to bars/parties/social events with the intent of “hooking up” and engaging in sexual behavior but not having sex with someone?	37.3%	18.1%	9.3%	5.5%	29.8%
Risky anal sex acts					
How many times have you had anal sex without a condom?	66.4%	15.5%	10.8%	5.7%	1.5%
How many times have you or your partner engaged in anal penetration by a hand (“fisting/fingering”) or other object without a latex glove or condom followed by unprotected anal sex?	82.1%	7.7%	4.4%	5.7%	0.0%
How many times have you given or received analingus (oral stimulation of the anal region, “rimming”) without a dental dam or adequate protection?	84.1%	4.9%	7.9%	3.1%	0.0%

5.2 Regional analyses of study measures

Table 5.5 summarizes the mean scores of the measures utilized in this study when assessed with ANOVA tests to compare regional differences when the measures were applied to participants from the three regions: mainland China, Hong Kong, and Taiwan.

5.2.1 Discrimination

Discrimination was measured using the EDS, with higher scores indicating a higher level of discrimination. The EDS exhibited significant regional disparities when applied to participants from the three regions, $F(2, 450) = 113.81$, $p < .001$. The participants in Taiwan ($M = 31.48$, $SD = 7.86$) and Hong Kong ($M = 31.22$, $SD = 8.16$) reported a significantly higher level of discrimination compared to those in mainland China ($M = 20.63$, $SD = 4.93$). The participants reported experiencing uncourteous or disrespectful treatment from others, receiving inferior service from public organizations, being subjected to negative assumptions about their intelligence or honesty, being treated as weak or inferior by others, as well as other more overt forms of discrimination such as verbal abuse, insults, threats, and harassment.

The differences in discrimination level are potentially contributed by the higher disclosure rates to friends and colleagues in Taiwan and Hong Kong compared to mainland China. Participants who reported having disclosed their sexual orientation to their friends had significantly higher EDS scores ($M = 28.86$, $SD = 8.75$) compared to those who did not ($M = 26.81$, $SD = 8.62$), $t(451) = 2.50$, $p < .05$. Similarly, participants who had disclosed their sexual orientation to their colleagues also showed significantly higher EDS scores ($M = 29.38$, $SD = 8.50$) compared to those who did

not (M = 26.83, SD = 8.75), t(451) = 3.03, p < .01. While the disclosure of one's sexual orientation to friends or colleagues appears to be associated with higher levels of perceived discrimination, such disclosure was also more prevalent in regions (Taiwan and Hong Kong) where overall discrimination scores were higher, making it difficult to establish causation. The higher discrimination scores in Taiwan and Hong Kong, despite the potentially more progressive attitudes towards LGBTQ individuals in these regions, might reflect a greater level of awareness of discrimination and a more open environment for reporting discrimination.

5.2.2 Social capital

Social capital was measured using the PSCS, with higher scores indicating greater social capital, which can in turn lead to access to broader and more diverse networks that facilitate emotional support, greater information exchange, and more effective resource mobilization. The PSCS exhibited significant regional disparities when applied to participants from the three regions, F(2, 450) = 11.99, p < .001. The participants in mainland China reported significantly lower social capital (M = 32.39, SD = 2.45) compared to those in Hong Kong (M = 33.19, SD = 2.91) and Taiwan (M = 33.92, SD = 2.78). Similar patterns were observed with the sub-scales. Significant regional differences were found for bonding social capital, F(2, 450) = 96.01, p < .001, and bridging social capital, F(2, 450) = 10.72, p < .001. Participants from mainland China reported the lowest overall social capital, followed by Hong Kong, with Taiwan showing the highest levels. This pattern was also found with both the bonding and bridging social capital subscales.

The bonding social capital score was calculated by adding together the item scores for Cap1 through Cap5 (which assess bonding social capital by looking at the

size of the social group in question, frequency of daily interactions between members, level of trust between members, willingness of members to provide assistance to each other, and the group's access to assets and resources). It focuses on network connections that link people who share common interests and mutual attraction together.

Bridging social capital score was calculated by adding together the item scores for Cap6 through Cap10, which assess the network connections that link members of different social groups and organizations together. Such connections were evaluated by examining the number of groups participants were a part of, the participants' level of engagement in group activities, the extent to which these groups represent the participants' interests, the participants' willingness to provide assistance to each other, and the resources and assets these groups had access to .

Participants in mainland China and Hong Kong achieved lower scores for their bonding social capital compared to their bridging social capital. This suggests that OMSM in these regions may have stronger connections with diverse groups and organizations outside of their immediate social circles. Such a pattern could be attributed to various factors, including societal norms, cultural expectations, or specific challenges faced by OMSM in these regions that limit close personal relationships but encourage broader community involvement. By contrast, participants in Taiwan appear to enjoy similar levels of bonding and bridging social capital, indicating a more balanced social network structure, potentially the result of a more integrated and accepting social environment that is conducive to the development of equally strong connections both within immediate social circles and in the broader society as a whole.

5.2.3 Sense of control

Sense of control was measured using the SCS, with higher scores indicating greater constraints. The SCS displayed significant regional disparities when applied to participants from the three regions, $F(2, 450) = 26.37$, $p < .001$. Participants in mainland China reported experiencing significantly greater constraints on their sense of control ($M = 4.54$, $SD = 0.83$) compared to those in Hong Kong ($M = 4.02$, $SD = 1.17$) and Taiwan ($M = 3.65$, $SD = 1.19$). Similar patterns were observed with the sub-scales. Significant regional differences were observed when the scale was applied to participants of the three regions when it comes to personal mastery, $F(2, 450) = 4.71$, $p < .001$, and perceived constraints, $F(2, 450) = 60.49$, $p < .001$. Compared to their Hong Kong and Taiwan counterparts, participants in mainland China reported experiencing significantly greater constraints on their sense of effectiveness and capability in achieving their goals, and perceiving more external factors or obstacles, beyond their control, hindering their ability to achieve their goals.

The results suggest that OMSM in mainland China experience a lower sense of control and greater perceived constraints compared to the participants in Hong Kong and Taiwan. This disparity can be attributed to factors such as differences in societal norms, legal frameworks, and cultural attitudes towards LGBTQ individuals.

5.2.4 Psychological distress

Psychological distress was measured using the GHQ-12, with higher scores indicating poorer psychological well-being in the past month. The GHQ-12 scores displayed significant disparities across the three regions, $F(2, 450) = 136.91$, $p < .001$. Participants in Taiwan reported notably higher psychological distress ($M = 8.04$, $SD =$

1.81) compared to those in Hong Kong (M = 6.83, SD = 2.26) and mainland China (M = 4.28, SD = 1.96.

Higher scores on the GHQ-12 usually mean poorer concentration, worse sleep quality, lower decision-making capabilities, worse stress management capabilities, less effective coping mechanisms, less enjoyment derived from daily activities, more severe depressive symptoms, lower self-confidence, and less overall happiness.

5.2.5 Resilience

Resilience was measured using the CD-RISC, with higher scores indicating a greater ability to cope with adversity. The CD-RISC exhibited significant regional disparities when applied to participants from the three regions, $F(2, 450) = 223.22$, $p < .001$. Participants in mainland China reported a lower ability to cope with adversity (M = 17.14, SD = 3.48) compared to those in Hong Kong (M = 26.78, SD = 6.92) and Taiwan (M = 29.77, SD = 5.34).

The results suggest that the participants in Taiwan and Hong Kong possess greater resilience in terms of adaptability, problem-solving skills, and the ability to find humor in the face of difficulties, achieve personal growth in the midst of stress, recover from setbacks, stick to set goals in the face of obstacles, focus under pressure, persevere through failure, perceive own strength in dealing with life's challenges, and regulate own emotions, as compared to those in mainland China. The higher resilience levels observed in Taiwan and Hong Kong indicate that OMSM in these regions may have developed stronger coping mechanisms and more supportive social networks. On the other hand, the substantially lower resilience levels observed in mainland

China suggest that OMSM in this region face greater challenges in coping with adversity.

5.2.6 Sexual risk behaviors

Sexual risk behavior was measured using the SRS, with higher scores indicating greater engagement in sexual risk behaviors. The SRS scores exhibited significant regional disparities, $F(2, 450) = 113.37$, $p < .001$, when applied to participants from the three regions. The participants in Hong Kong reported significantly greater engagement in sexual risk behaviors ($M = 21.41$, $SD = 5.68$) compared to those in Taiwan ($M = 14.64$, $SD = 12.81$) and mainland China ($M = 6.87$, $SD = 3.90$).

The sexual risk behaviors with the highest prevalence among participants are: intentionally seeking casual sexual encounters (62.9% of participants reported having put themselves in social situations with the intent of engaging in casual sexual activities, while 62.7% reported having done the same but with only with the intent of engaging in casual sexual activities that exclude intercourse), and experiencing unexpected and unanticipated sexual encounters (59.8%). These findings suggest that a majority of the participants had engaged in or were actively putting themselves in potentially risky sexual situations.

5.2.7 Social acceptance

Social acceptance was measured using the PAS, with higher scores indicating greater social acceptance, that is, experiencing a stronger sense of belonging, approval, and inclusion within their social circles. The PAS exhibited significant regional disparities when applied to participants from the three regions, $F(2, 450) =$

6.26, $p < .01$. The participants in mainland China reported significantly greater social acceptance ($M = 3.19$, $SD = 0.60$) compared to those in Hong Kong ($M = 3.01$, $SD = 0.43$) and Taiwan ($M = 3.04$, $SD = 0.37$). Similar patterns were observed with the sub-scales. Significant regional differences were found for the level of acceptance by: friends, $F(2, 450) = 6.68$, $p < .001$; mother, $F(2, 450) = 8.52$, $p < .001$; father, $F(2, 450) = 3.06$, $p < .05$; and family, $F(2, 450) = 5.10$, $p < .01$. This higher level of perceived social acceptance in mainland China was also observed with the subscales. These findings suggest that OMSM in mainland China experience a stronger sense of belonging, approval, and inclusion within their social circles than those in Hong Kong or Taiwan.

5.2.8 Legal inclusion

Legal inclusion was measured using the GIRLHO, with higher scores indicating greater protection for LGBTQ individuals. The scores revealed significant disparities in legal inclusion across mainland China, Hong Kong, and Taiwan.

Mainland China scored only 2 out of 8 points on the GIRLHO scale, meeting just two basic criteria (legal consensual same-sex relations and employment discrimination protections), while lacking crucial protections including equal age of consent between same- and different-sex relations, anti-discrimination laws in goods and services, recognition of unregistered partnerships, registered partnership rights, joint adoption rights, and marriage equality.

Hong Kong has arguably achieved a moderate level of legal inclusion with a score of 4 out of 8. In addition to the fact that consensual sexual acts between same-sex adults is legal and subject to the same age of consent as heterosexual acts, Hong

Kong has enacted legislation explicitly prohibiting discrimination based on sexual orientation in employment and the provision of goods and services.

Taiwan emerged as the most legally inclusive region among the three, scoring 5 out of 8 points. Taiwanese laws recognize same-sex partnerships and Taiwan is the only region among the three that legally sanctions same-sex marriage.

Table 5.5 *Mean scores of study measures by region*

	Total		Region						*F* test	*p*-value
			Mainland China		Hong Kong		Taiwan			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Discrimination										
EDS	27.78	8.73	20.63	4.93	31.22	8.16	31.48	7.86	113.81	< .001
Social capital										
PSCS	33.17	2.78	32.39	2.45	33.19	2.91	33.92	2.78	11.99	< .001
PSCS - Bonding	15.69	2.07	14.30	2.26	15.71	1.42	17.07	1.38	96.01	< .001
PSCS - Bridging	17.48	2.37	18.09	2.14	17.48	2.43	16.86	2.38	10.72	< .001
Sense of control										
SCS	4.07	1.14	4.54	0.83	4.02	1.17	3.65	1.19	26.37	< .001
SCS - PM	4.70	1.12	4.53	0.94	4.65	1.12	4.92	1.25	4.71	< .001
SCS - PC	3.75	1.37	4.55	0.88	3.70	1.35	3.01	1.36	60.49	< .001
Psychological distress										
GHQ-12	6.38	2.55	4.28	1.96	6.83	2.26	8.04	1.81	136.91	< .001
Resilience										
CD-RISC	24.57	7.65	17.14	3.48	26.78	6.92	29.77	5.34	223.22	< .001
Sexual risk behaviors										
SRS	14.30	10.28	6.87	3.90	21.41	5.68	14.64	12.81	113.37	< .001
Social acceptance										
PAS	3.08	0.48	3.19	0.6	3.01	0.43	3.04	0.37	6.26	.002
PAS - Friends	2.99	0.55	3.11	0.66	2.98	0.52	2.88	0.44	6.68	< .001
PAS - Mother	3.18	0.63	3.34	0.77	3.04	0.54	3.16	0.52	8.52	< .001
PAS - Father	3.22	0.57	3.28	0.66	3.13	0.55	3.26	0.48	3.06	.048
PAS - Family	2.97	0.54	3.08	0.62	2.93	0.49	2.90	0.47	5.10	.006
Legal inclusion										
GILRHO	3.67	1.25	2	0	4	0	5	0	-	-
Total	453	-	151	-	151	-	151	-		

Measures: EDS = Everyday Discrimination Scale, PSCS = Personal Social Capital Scale, PSCS - Bonding = Personal Social Capital Scale - Bonding Social Capital Subscale, PSCS - Bridging = Personal Social Capital Scale - Bridging Social Capital Subscale, SCS = Sense of Control Scale, SCS - PM = Sense of Control Scale - Personal Mastery Subscale, SCS - PC = Sense of Control Scale - Perceived Constraints Subscale, CD-RISC = Connor Davidson Resilience Scale, GHQ-12 = General Health Questionnaire-12, SRS = Sexual Risk Survey, PAS = Perceived Acceptance Scale, PAS - Friends = Perceived Acceptance Scale - Friends, PAS - Mother = Perceived Acceptance Scale - Mother, PAS - Father = Perceived Acceptance Scale - Father, PAS - Family = Perceived Acceptance Scale - Family, and GILRHO Scale = Global Index on Legal Recognition of Homosexual Orientation.

5.3 Age analyses of study measures

Table 5.6 shows the mean scores of the measures utilized in this study when assessed with ANOVA tests to compare differences across three age groups, namely, 60 to 64, 65 to 69, and 70 or above.

The bonding social capital scores exhibited significant disparities across the three age groups, $F(2, 450) = 4.06$, $p < .05$. Participants aged 70 or above reported significantly higher bonding social capital ($M = 16.07$, $SD = 2.17$) compared to those aged 60 to 64 ($M = 15.42$, $SD = 2.02$) and aged 65 to 69 ($M = 15.61$, $SD = 1.97$). OMSM aged 70 or above also reported more network connections, which suggested they may have developed more relationships over time. These connections can be with family members, long-term friends, or other OMSM in their age group, and can potentially provide them with a more robust support system. However, for bridging social capital and overall scores, no significant differences were observed for the three age groups.

Significant disparities were observed across the three age groups when it comes to the prevalence of sexual risk behaviors, $F(2, 450) = 126.05$, $p < .001$. Participants aged 70 or above reported having engaged in significantly fewer sexual risk behaviors ($M = 5.57$, $SD = 6.45$) compared to those aged 60 to 64 ($M = 18.27$, $SD = 8.88$) and aged 65 to 69 ($M = 19.02$, $SD = 9.14$). Research investigating the relationship between age and sexual risk behaviors among gay and bisexual men has produced inconsistent findings. Some studies have found no significant difference in HIV infection rates between YMSM and OMSM (Catania et al., 2001; Rosario et al., 2006), while other research has indicated that YMSM are more likely to engage in sexual risk behaviors compared with OMSM (Crepaz et al., 2000; Hospers & Kok,

1995; Rosario et al., 2006; Stall et al., 1992). These conflicting results highlight the complexity of the relationship between age and sexual risk-taking among MSM. As far as the present study is concerned, younger OMSM are found more likely to engage in sexual risk behaviors than older OMSM, thus suggesting that age is a significant factor affecting the likelihood of engagement in sexual risk behaviors among OMSM.

For the remaining study measures utilized in this study, no significant differences across age groups were observed. This suggests that factors such as discrimination, sense of control, psychological distress, resilience, and social acceptance do not vary significantly among OMSM in the three age groups, and it appears that psychosocial factors remain relatively stable within this community.

Table 5.6 *Mean scores of study measures by age group*

	Total		Age group						*F* test	*p*-value
			60-64		65-69		70+			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Discrimination										
EDS	27.78	8.73	26.44	8.65	28.26	8.40	28.72	9.01	2.99	.052
Social capital										
PSCS	33.17	2.78	32.90	2.82	33.07	2.72	33.54	2.78	2.15	.117
PSCS - Bonding	15.69	2.07	15.42	2.02	15.61	1.97	16.07	2.17	4.06	.018
PSCS - Bridging	17.48	2.37	17.49	2.40	17.46	2.53	17.47	2.19	0.00	.996
Sense of control										
SCS	4.07	1.14	4.14	1.15	3.98	1.11	4.08	1.15	0.79	.455
SCS - PM	4.70	1.12	4.67	1.06	4.58	1.13	4.85	1.16	2.23	.108
SCS - PC	3.75	1.37	3.87	1.39	3.67	1.31	3.70	1.40	0.99	.374
Psychological distress										
GHQ-12	6.38	2.55	6.06	2.37	6.34	2.51	6.76	2.73	2.97	.052
Resilience										
CD-RISC	24.57	7.65	23.75	7.59	25.24	7.29	24.77	8.01	1.53	.218
Sexual risk behaviors										
SRS	14.30	10.28	18.27	8.88	19.02	9.14	5.57	6.45	126.05	< .001
Social acceptance										
PAS	3.08	0.48	3.11	0.52	3.10	0.46	3.04	0.47	1.07	.363
PAS - Friends	2.99	0.55	3.05	0.57	3.00	0.55	2.93	0.54	1.82	.163
PAS - Mother	3.18	0.63	3.20	0.68	3.22	0.60	3.12	0.61	0.90	.409
PAS - Father	3.22	0.57	3.19	0.62	3.25	0.52	3.23	0.57	0.50	.607
PAS - Family	2.97	0.54	3.03	0.55	2.97	0.55	2.91	0.50	1.91	.150
Legal inclusion										
GILRHO	3.67	1.25	3.47	1.17	3.68	1.22	3.85	1.33	-	-
Total	453	-	158	-	145	-	150	-		

Measures: EDS = Everyday Discrimination Scale, PSCS = Personal Social Capital Scale, PSCS - Bonding = Personal Social Capital Scale - Bonding Social Capital Subscale, PSCS - Bridging = Personal Social Capital Scale - Bridging Social Capital Subscale, SCS = Sense of Control Scale, SCS - PM = Sense of Control Scale - Personal Mastery Subscale, SCS - PC = Sense of Control Scale - Perceived Constraints Subscale, CD-RISC = Connor Davidson Resilience Scale, GHQ-12 = General Health Questionnaire-12, SRS = Sexual Risk Survey, PAS = Perceived Acceptance Scale, PAS - Friends = Perceived Acceptance Scale - Friends, PAS - Mother = Perceived Acceptance Scale - Mother, PAS - Father = Perceived Acceptance Scale - Father, PAS - Family = Perceived Acceptance Scale - Family, and GILRHO Scale = Global Index on Legal Recognition of Homosexual Orientation.

5.4 Economic activity status analyses of study measures

Table 5.7 sets out the mean scores of the measures utilized in this study when tested (with t-tests) to compare differences when applied to two groups with different economic activity statuses (active and inactive).

The bonding social capital scores exhibited significant disparities when applied to the two groups, $t(451) = 2.12$, $p < .05$. Participants who were economically inactive reported significantly higher bonding social capital ($M = 15.95$, $SD = 2.09$) compared to those who were economically active ($M = 15.53$, $SD = 2.04$). This result might be viewed as counter-intuitive, as it differs from the conventional perception that economically active individuals should have a broader network of social bonds. However, it is important to take into account the fact that the OMSM population who participated in the study were all individuals aged 60 or above. By this age, individuals have typically established long-standing social connections, regardless of their current economic activity status.

The scores for the scales pertaining to sexual risk behaviors also exhibited significant disparities when applied to the two groups, $t(451) = -12.19$, $p < .001$. Participants who were economically active reported a significantly higher likelihood in engaging in sexual risk behaviors ($M = 18.34$, $SD = 8.95$) compared to those who were economically inactive ($M = 7.83$, $SD = 8.88$). Among the OMSM participating in the study, economically active individuals were on average younger ($M = 64.10$, $SD = 2.86$) compared to those who were economically inactive ($M = 74.79$, $SD = 6.22$), $t(451) = -21.30$, $p < .001$. In this regard, the findings align with those observed in connection with age difference, suggesting that OMSM who are younger and economically active are more likely to engage in more sexual risk behaviors.

For the other study measures, no significant differences were observed when applied to participants of different economic activity statuses, which suggests that factors such as discrimination, sense of control, psychological distress, resilience, and social acceptance do not vary significantly among OMSM with different economic statuses.

Table 5.7 *Mean scores of study measures by economic activity status*

	Total		Economic activity status				*t* test	*p*-value
			Inactive		Active			
	Mean	SD	Mean	SD	Mean	SD		
Discrimination								
EDS	27.78	8.73	28.51	8.86	27.32	8.63	1.42	.158
Social capital								
PSCS	33.17	2.78	33.43	2.69	33.01	2.83	1.58	.114
PSCS - Bonding	15.69	2.07	15.95	2.09	15.53	2.04	2.12	.034
PSCS - Bridging	17.48	2.37	17.48	2.23	17.47	2.46	0.01	.993
Sense of control								
SCS	4.07	1.14	4.04	1.11	4.08	1.15	-0.35	.727
SCS - PM	4.70	1.12	4.76	1.17	4.66	1.08	0.95	.345
SCS - PC	3.75	1.37	3.68	1.34	3.79	1.38	-0.82	.411
Resilience								
CD-RISC	24.57	7.65	24.86	8.02	24.38	7.41	0.64	.522
Psychological distress								
GHQ-12	6.38	2.55	6.53	2.74	6.29	2.43	0.98	.329
Sexual risk behaviors								
SRS	14.30	10.28	7.83	8.88	18.34	8.95	-12.19	< .001
Social acceptance								
PAS	3.08	0.48	3.08	0.45	3.08	0.50	-0.06	.951
PAS - Friends	2.99	0.55	2.98	0.52	3.00	0.57	-0.44	.657
PAS - Mother	3.18	0.63	3.18	0.60	3.18	0.65	-0.05	.961
PAS - Father	3.22	0.57	3.28	0.54	3.18	0.59	1.71	.088
PAS - Family	2.97	0.54	2.93	0.50	2.99	0.56	-1.21	.226
Legal inclusion								
GILRHO	3.67	1.25	3.78	1.32	3.59	1.20	-	-
Total	453	-	174	-	279	-		

Measures: EDS = Everyday Discrimination Scale, PSCS = Personal Social Capital Scale, PSCS - Bonding = Personal Social Capital Scale - Bonding Social Capital Subscale, PSCS - Bridging = Personal Social Capital Scale - Bridging Social Capital Subscale, SCS = Sense of Control Scale, SCS - PM = Sense of Control Scale - Personal Mastery Subscale, SCS - PC = Sense of Control Scale - Perceived Constraints Subscale, CD-RISC = Connor Davidson Resilience Scale, GHQ-12 = General Health Questionnaire-12, SRS = Sexual Risk Survey, PAS = Perceived Acceptance Scale, PAS - Friends = Perceived Acceptance Scale - Friends, PAS - Mother = Perceived Acceptance Scale - Mother, PAS - Father = Perceived Acceptance Scale - Father, PAS - Family = Perceived Acceptance Scale - Family, and GILRHO Scale = Global Index on Legal Recognition of Homosexual Orientation.

5.5 Correlations between study measures

Table 5.8 sets out the Pearson correlations between the major measures utilized in the study. Most notably, SRS was positively and significantly associated with EDS ($r = 0.21$, $p < .001$), CD-RISC ($r = 0.32$, $p < .001$), GHQ-12 ($r = 0.22$, $p < .001$), and GILRHO ($r = 0.40$, $p < .001$) in terms of outcome. On the other hand, SRS was negatively and significantly associated with SCS ($r = -0.13$, $p < .01$) and age ($r = -0.52$, $p < .001$). These results suggest that OMSM who experience a higher level of discrimination, who have a higher level of resilience, who experience a higher level of psychological distress, and who live in environments with greater legal inclusion are more likely to engage in sexual risk behaviors. Those with a greater sense of control over their lives and those younger in age were also found to be more likely to engage in sexual risk behaviors.

Significant positive associations were found between EDS and other scales and factors including: PSCS ($r = 0.30$, $p < .001$), CD-RISC ($r = 0.76$, $p < .001$), GHQ-12 ($r = 0.71$, $p < .001$), GILRHO ($r = 0.55$, $p < .001$), and age ($r = 0.14$, $p < .01$). However, EDS was negatively and significantly associated with SCS ($r = -0.13$, $p < .01$). These results suggest that OMSM who possess more social capital, have a higher level of resilience, who experience a higher level of psychological distress, who live in environments with better legal inclusion, who are older, and who have a greater sense of control are more likely to report experiencing discrimination.

Regarding social capital, PSCS was positively and significantly associated with CD-RISC ($r = 0.33$, $p < .001$), GHQ-12 ($r = 0.28$, $p < .001$), and GILRHO ($r = 0.20$, $p < .001$). These results suggest that OMSM who have a higher level of

resilience, who experience a higher level of psychological distress, and who live in environments with better legal inclusion are more likely to have more social capital.

Regarding sense of control, SCS was negatively and significantly associated with CD-RISC (r = -0.19, p < .001), GHQ-12 (r = -0.16, p < .001) and GILRHO (r = -0.32, p < .001). These results suggest that OMSM who have a higher level of resilience, who experience a higher level of psychological distress, and who live in environments with better legal inclusion are more likely to have a greater sense of control over their lives.

In terms of resilience, CD-RISC was positively and significantly associated with GHQ-12 (r = 0.59, p < .001) and GILRHO (r = 0.70, p < .001). These results suggest that OMSM who experience a higher level of psychological distress, and who live in environments with better legal inclusion are more likely to have higher resilience.

For psychological distress, GHQ-12 was positively and significantly associated with GILRHO (r = 0.62, p < .001) and age (r = 0.17, p < .001). These results suggest that OMSM who live in environments with better legal inclusion and who are older are more likely to experience a higher level of psychological distress.

For social acceptance, no significant correlations were found between PAS and other measures utilized in the study.

Table 5.8 *Correlation matrix between study measures*

	Measures	1	2	3	4	5	6	7	8	9
1	EDS	1								
2	PSCS	.30***	1							
3	SCS	-.13**	-.05	1						
4	CD-RISC	.76***	.33***	-.19***	1					
5	GHQ-12	.71***	.28***	-.16***	.59***	1				
6	SRS	.21***	.03	-.13**	.32***	.22***	1			
7	PAS	-.08	.06	.08	-.02	-.07	-.06	1		
8	GILRHO	.55***	.22***	-.32***	.70***	.62***	.40***	-.15**	1	
9	Age	.14**	.09	-.05	.07	.17***	-.52***	-.06	.19***	1

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Measures: EDS = Everyday Discrimination Scale, PSCS = Personal Social Capital Scale, SCS = Sense of Control Scale, CD-RISC = Connor Davidson Resilience Scale, GHQ-12 = General Health Questionnaire-12, SRS = Sexual Risk Survey, PAS = Perceived Acceptance Scale, and GILRHO Scale = Global Index on Legal Recognition of Homosexual Orientation.

5.6 Multiple regression analysis on sexual risk behaviors

Table 5.9 sets out the results of a multiple regression analysis examining sexual risk behaviors among OMSM, in which sexual risk behaviors served as the dependent variable, while independent variables included discrimination, social capital, sense of control, resilience, and psychological distress. The model was also controlled for age and economic activity status.

The analysis showed that the model was significant ($F = 50.36$, $p < .001$) and explained 43.3% of the variance in SRS. All VIFs were below 5, indicating no multicollinearity problems. Five predictors were found to be significant: SCS ($B = -0.74$, $SE = 0.33$, $beta = -0.08$, $p < .05$), CD-RISC ($B = 0.40$, $SE = 0.08$, $beta = 0.30$, $p < .001$), GHQ-12 ($B = 0.62$, $SE = 0.21$, $beta = 0.15$, $p < .01$), age ($B = -0.62$, $SE = 0.08$, $beta = -0.42$, $p < .001$), and economic activity status ($B = 4.08$, $SE = 1.16$, $beta = 0.19$, $p < .001$). Meanwhile, EDS and PSCS were found to be not significant predictors of SRS.

These results suggest that OMSM who have a higher level of resilience, who experience a higher level of psychological distress, who have a greater sense of control over their lives, who are younger, and who are economically active are more likely to engage in sexual risk behaviors.

More resilient OMSM might choose to engage in sexual risk behaviors due to their own perceived greater ability to handle potential consequences and an increased openness to new experiences. On the other hand, OMSM experiencing psychological distress might decide to engage in sexual risk behaviors as a coping mechanism. OMSM with a greater sense of control over their lives might choose to engage in

sexual risk behaviors due to a greater willingness to take risks and potential overconfidence in their own ability to manage consequences. Meanwhile, younger and economically active OMSM might decide to engage in risk-taking behaviors due to sensation-seeking and feeling less vulnerable to health consequences.

These results present a complex picture of sexual risk behaviors among OMSM. The relationships between resilience, sense of control and psychological distress are particularly interesting, as they suggest that while OMSM may feel capable of managing their lives, they may also at the same time experience significant psychological stress, which can lead to engagement in sexual risk behaviors.

Table 5.9 *Regression analysis on sexual risk behaviors*

	Unstandardized Coefficients		Standardized Coefficients	*t* test	*p*-value
	B	Std. Error	Beta		
EDS	-0.05	0.07	-0.05	-0.72	0.473
PSCS	-0.19	0.14	-0.05	-1.36	0.174
SCS	-0.74	0.33	-0.08	-2.26	0.025
CD-RISC	0.40	0.08	0.30	5.32	< .001
GHQ-12	0.62	0.21	0.15	3.01	0.003
Age	-0.62	0.08	-0.42	-7.44	< .001
Economic activity status	4.08	1.16	0.19	3.51	< .001
Adjusted R^2	0.433				
Model (F-test)	50.36				
Model (*p*-value)	< .001				

Measures: EDS = Everyday Discrimination Scale, PSCS = Personal Social Capital Scale, SCS = Sense of Control Scale, CD-RISC = Connor Davidson Resilience Scale, GHQ-12 = General Health Questionnaire-12 and SRS = Sexual Risk Survey.

Dependent variable: SRS

Independent variables: EDS (continuous), PSCS (continuous), SCS (continuous), CD-RISC (continuous), GHQ-12 (continuous), age (continuous) and economic activity status (1 inactive and 2 active).

5.7 DIS-SR Model

Table 5.10 presents the standardized path estimates tested at a 95% confidence interval for the hypothesized model of DIS-SR Model. In the model, results showed that EDS had a significant effect on SCS (β = -0.12, p < .01), PSCS (β = 0.29, p < .001), CD-RISC (β = 0.67, p < .001), and GHQ-12 (β = 0.67, p < .001). Experiencing greater discrimination was associated with a better sense of control, better social capital, and higher resilience. This could suggest that OMSM who faced discrimination developed coping mechanisms and social networks that enhanced their resilience and sense of control. However, discrimination was also associated with higher psychological distress, indicating that despite these positive adaptations, discrimination still took a toll on mental health.

Besides, CD-RISC was related to SCS (β = -0.09, p < .01) and PSCS (β = 0.11, p < .01). OMSM who had higher resilience were associated with a better sense of control and higher social capital.

Further, GHQ-12 was related to PSCS (β = 0.07, p < .05) and EDS (β = 0.67, p < .001). The results were quite surprising, as those who had higher psychological distress were associated with greater discrimination but higher social capital. This suggests that these factors may be interrelated. This pattern aligns with the minority stress model, which posits that minority individuals face stress due to their marginalized status. In this case, OMSM might simultaneously experience discrimination, build social connections for support, and suffer from psychological distress.

Regarding the outcome measure, SRS was related to EDS (β = 0.16, p < .01), SCS (β = -0.11, p < .01), and GHQ-12 (β = 0.18, p < .01). The results indicate that OMSM who encountered greater discrimination, enhanced sense of control, and higher psychological distress were more likely to engage in sexual risk behaviors.

Figure 5.1 presents the hypothesized DIS-SR Model. The DIS-SR Model yielded a $\chi 2$ of 3.77 (p = .152), indicating a good fit for the data. All fit indices suggested a very good fit between the data and the hypothesized model (CFI = .99; RMSEA = .04; SRMR = .01). A CFI value of .97 or higher, a RMSEA value of .05 or below, and an SRMR value below .05 all suggest a good fit. In general, the DIS-SR Model explained a large percentage of variance in several key variables. Specifically, it accounted for a substantial proportion of variance in SRS (R^2= 40.5%), GHQ-12 (R2 = 51.2%), and CD-RISC (R^2= 60.4%). A smaller but still significant proportion of the variance was explained for PSCS (R^2= 9.3%). However, the model did not explain a significant proportion of the variance for SCS (R^2 = 1.8%).

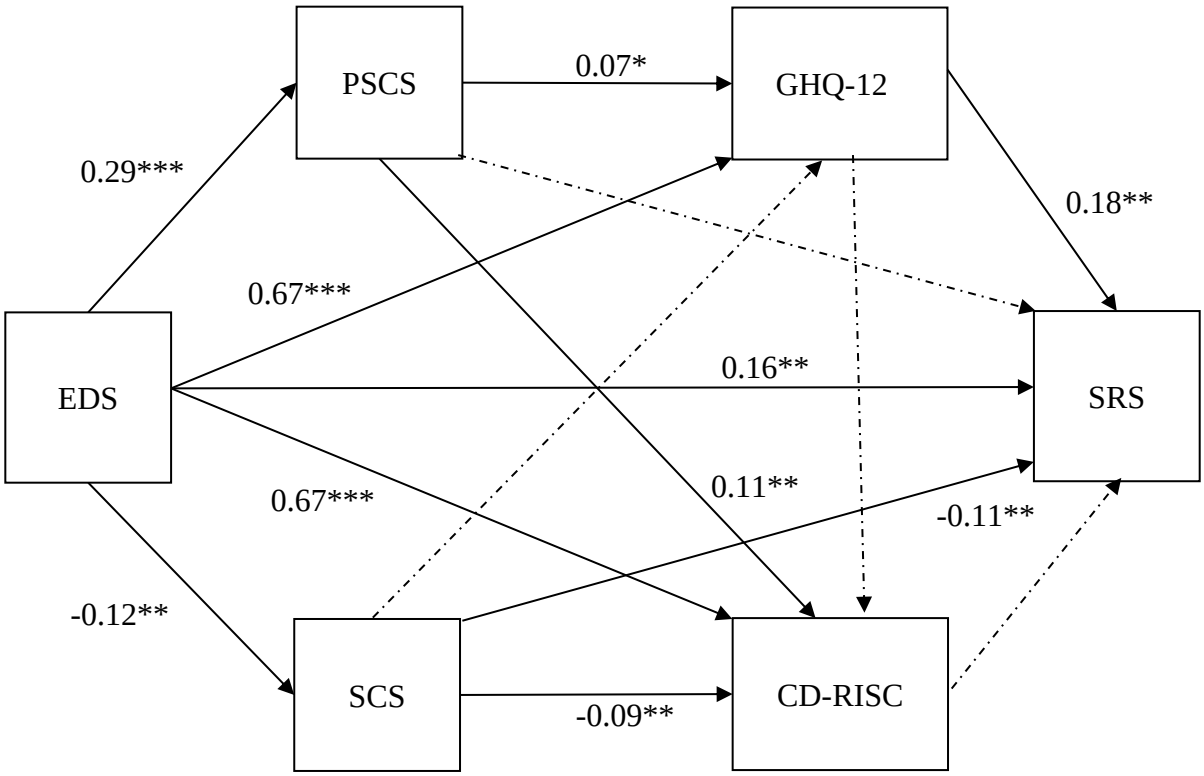
Indirect effects are those mediated through other variables and are often referred to as mediational effects. Mediational effects occur in a path model when one or more variables serve as both dependent and independent variables simultaneously. These variables are commonly called mediators. Table 5.11 presents the standardized coefficients and statistical significance of the mediated pathways in the DIS-SR Model. Results revealed only one significant mediational path in the model: GHQ-12 significantly mediated the relationship between EDS and SRS (β = 0.12, p < .001). This finding suggests that for OMSM, the relationship between experiencing discrimination and engaging in sexual risk behaviors was mediated by higher psychological distress.

Table 5.10 *Standardized path estimates for DIS-SR Model*

	Standardized coefficients	S.E.
Sexual Risk Survey (SRS)		
→ General Health Questionnaire-12 (GHQ-12)	0.18**	0.05
→ Personal Social Capital Scale (PSCS)	-0.02	0.04
→ Sense of Control Scale (SCS)	-0.11**	0.04
→ Everyday Discrimination Scale (EDS)	0.16**	0.05
General Health Questionnaire-12 (GHQ-12)		
→ Personal Social Capital Scale (PSCS)	0.07*	0.03
→ Everyday Discrimination Scale (EDS)	0.67***	0.03
Connor Davidson Resilience Scale (CD-RISC)		
→ General Health Questionnaire-12 (GHQ-12)	0.08	0.04
→ Personal Social Capital Scale (PSCS)	0.11**	0.03
→ Sense of Control Scale (SCS)	-0.09**	0.03
→ Everyday Discrimination Scale (EDS)	0.67***	0.04
Personal Social Capital Scale (PSCS)		
→ Everyday Discrimination Scale (EDS)	0.29***	0.04
Sense of Control Scale (SCS)		
→ Everyday Discrimination Scale (EDS)	-0.12**	0.05

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 5.1 *DIS-SR Model with multiple pathways*



The dotted lines represent nonsignificant paths, and the dashed lines represent significant paths.

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Measures: EDS = Everyday Discrimination Scale, PSCS = Personal Social Capital Scale, SCS = Sense of Control Scale, CD-RISC = Connor Davidson Resilience Scale, GHQ-12 = General Health Questionnaire-12 and SRS = Sexual Risk Survey.

Table 5.11 *Standardized path estimates of mediational pathways*

	Standardized coefficients	S.E.
Effects from EDS to SRS	0.12**	0.04
EDS → GHQ-12 → SRS	0.12**	0.04
EDS → PSCS → GHQ-12 → SRS	0.004	0.002

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Measures: EDS = Everyday Discrimination Scale, PSCS = Personal Social Capital Scale, GHQ-12 = General Health Questionnaire-12 and SRS = Sexual Risk Survey.

5.8 Summary

The study revealed significant regional differences in demographic characteristics and psychosocial factors among OMSM in Hong Kong, Taiwan, and mainland China. Demographic analyses showed variations in age, marital status, education, income, and living arrangements across the three regions. Regional comparisons of study measures indicated that OMSM in mainland China experienced a lower level of discrimination, possessed less social capital, and had a lower level of resilience, but they also reported experiencing a lower level of psychological distress and a higher level of social acceptance compared to participants in Hong Kong and Taiwan.

Correlational analyses revealed complex interrelationships between study measures, with some factors associated with positive outcomes also linked to a higher level of psychological distress and a greater likelihood of engagement in sexual risk behaviors. Multiple regression analysis identified five significant predictors of sexual risk behaviors: sense of control, resilience, psychological distress, age, and economic activity status.

The DIS-SR Model proved to be a good fit and showed that discrimination was associated with a higher level of psychological distress, which in turn mediated the relationship between discrimination and sexual risk behaviors. These findings highlight the complex dynamics of psychosocial factors and their influence on sexual risk behaviors among OMSM in the three regions.

Chapter 6 Discussion

6.1 Regional differences

The first research question of this study pertains to any regional differences when study measures are applied to OMSM in mainland China, Hong Kong, and Taiwan. This comparative analysis is crucial for understanding how different cultural, social, and legal factors influence the lives of OMSM in these regions. By examining these differences, we can gain valuable insights into the unique challenges and experiences faced by OMSM in each of these regions.

The analysis of demographic factors revealed significant differences between the three regions in several key areas. Significant variations (all $p < .05$) were found in age distribution, marital status, religious affiliation, level of education, economic activity status, monthly personal income, type of housing, and living arrangements, indicating a diverse OMSM population in the three regions in terms of personal and socioeconomic characteristics. For instance, the significant differences in marital status and living arrangements may be indicative of distinctive societal attitudes towards same-sex relationships and traditional family values in each region. The differences observed in terms of education, economic activity status, and income may be indicative of various levels of economic development and opportunities available to OMSM in each region. Overall, such differences across multiple demographic and socioeconomic factors highlight the diverse circumstances OMSM in each region live in and the potential impact such vastly different factors may have on their experiences and well-being.

The regional analyses of study measures also revealed significant regional differences between mainland China, Hong Kong, and Taiwan in several key areas affecting OMSM. Discrimination levels were found to be notably higher in Taiwan and Hong Kong compared to mainland China, which may be a result of higher disclosure rates in Taiwan and Hong Kong. Participants in mainland China reported having significantly lower social capital compared to those in Hong Kong and Taiwan. A similar pattern was observed for both the bonding and bridging social capital subscales, which suggests that OMSM in mainland China may have fewer social resources and connections.

OMSM in mainland China reported experiencing significantly greater constraints in their sense of control compared to those in Hong Kong and Taiwan, indicating limited perceived control over their own lives and circumstances. Psychological distress levels were found to be the highest among participants in Taiwan, followed by those in Hong Kong, and participants in mainland China reported the lowest level. This finding suggests that despite facing numerous challenges, OMSM in mainland China nonetheless still experience a lower level of psychological distress. On the other hand, the participants from mainland China were found to have the lowest level of resilience compared to Hong Kong and Taiwan, which suggests that OMSM in mainland China may have fewer coping resources or strategies.

Participants in Hong Kong were found to be more likely to engage in sexual risk behaviors compared to their counterparts in Taiwan and mainland China, highlighting a potential area of concern for public health interventions. Social

acceptance was found to be highest in mainland China, suggesting a stronger sense of belonging and inclusion for OMSM in this region.

In terms of legal inclusion, Taiwan appears to offer the most extensive legal recognition and protection for LGBTQ individuals, followed by Hong Kong, with mainland China offering the lowest level of protection.

The regional analyses uncovered substantial differences in the experiences and well-being of OMSM across mainland China, Hong Kong, and Taiwan. While OMSM in mainland China face challenges such as greater constraints on their sense of control, possessing less social capital, and having a lower level of resilience, they also reported experiencing the lowest level of psychological distress and the highest level of social acceptance. On the other hand, participants in Taiwan and Hong Kong reported experiencing higher levels of discrimination and psychological distress and were found more likely to engage in sexual risk behaviors, even as they were found to possess greater social capital and enjoy a greater level of legal inclusion.

These findings underscore the complex interplay of factors affecting OMSM in different Chinese regions and emphasize the need for tailored approaches in addressing the unique challenges faced by them. Future research and design of intervention programs should take these regional differences into account for more effective results.

6.2 Impact of discrimination on sexual risk behaviors

The second research question of this study explores the complex relationship between discrimination and sexual risk behaviors among OMSM in Hong Kong, Taiwan, and mainland China. This exploration is crucial for understanding how societal attitudes and experiences of discrimination may influence the sexual health of this vulnerable population.

In the correlational analysis, our findings reveal complex interrelationships between the study measures. Notably, many factors associated with potentially positive outcomes (e.g., resilience, social capital, legal inclusion) were also associated with a higher level of psychological distress and a higher likelihood of engagement in sexual risk behaviors. This suggests that the dynamics of psychosocial factors are intricate and may not always align with conventional expectations. These findings also underscore the importance of considering the unique circumstances and experiences of OMSM when interpreting psychosocial factors and their relationships with health outcomes. Furthermore, it is crucial to note that these correlational findings do not imply causality and should be interpreted with caution.

The multiple regression analysis provided further insights into the factors influencing sexual risk behaviors among OMSM. The model explained 43.3% of the variance in sexual risk behaviors, thus exhibiting a strong predictive power. Five significant predictors emerged from this analysis.

A greater sense of control over one's life was associated with increased likelihood of engagement in sexual risk behaviors. This might suggest that OMSM who feel more in control of their circumstances may also feel more confident in

managing the potential risks associated with sexual risk behavior. Interestingly, having a higher level of resilience was also linked to an increased likelihood of engagement in sexual risk behaviors, which suggests that more resilient OMSM may feel better equipped to handle the potential negative consequences of sexual risk behavior.

A higher level of psychological distress was found to be associated with a greater likelihood of engagement in sexual risk behaviors. This aligns with existing research which suggests that mental health challenges can lead to increased risk-taking behaviors, possibly as a coping mechanism.

Additionally, younger and economically active OMSM were found more likely to engage in risk-taking behaviors due to factors like heightened sensation-seeking, feeling less vulnerable to health consequences, and (in the case of higher economic activity) greater opportunities for social interactions that may lead to sexual encounters. These results paint a complex picture of sexual risk behaviors among OMSM. The interplay between resilience, psychological distress, and sense of control suggests that OMSM who feel capable of managing their lives may at the same time also experience significant psychological stress that could be influencing their sexual risk behaviors.

6.3 Structural paths and mediating effects in discrimination and sexual risk behaviors

The third and fourth research questions examine potential structural paths and indirect effects from discrimination to sexual risk behaviors, and whether variables such as social capital, sense of control, psychological distress, and resilience mediate these effects.

6.3.1 Results of hypothesis 1 to 4

Hypothesis 1 posited that social capital is associated with discrimination, psychological distress, resilience, and sexual risk behaviors among OMSM, and the subsequent analysis revealed several significant relationships. Experiencing a higher level of discrimination was found to be predictive of experiencing higher levels of psychological distress (H_{1a1}), greater resilience (H_{1a2}), and a higher likelihood of engagement in sexual risk behaviors (H_{1a3}) and possessing more social capital (H_{1b}). Furthermore, OMSM with greater social capital were found to experience higher levels of psychological distress (H_{1c1}) and have greater resilience (H_{1c2}). However, the analysis did not support H_{1c3}, i.e., social capital was not found to be significantly associated with likelihood of engagement in sexual risk behaviors. Consequently, social capital does not serve as a mediator between discrimination and psychological distress (H_{1d1}), between discrimination and resilience (H_{1d2}), and between discrimination and sexual risk behaviors (H_{1d3}). These findings suggest that while social capital plays a role in the psychological experiences of OMSM facing discrimination, it does not directly influence their tendency to engage in sexual risk behaviors or mediate the effects of discrimination on other outcomes.

Hypothesis 2 posited that one's sense of control is associated with discrimination, psychological distress, resilience, and sexual risk behaviors among OMSM, and the subsequent analysis revealed several significant relationships. Experiencing a high level of discrimination was found to be predictive of higher levels of psychological distress (H_{2a1}), greater resilience (H_{2a2}), and a higher likelihood of engaging in sexual risk behaviors (H_{2a3}) and having a better sense of control (H_{2b}). Furthermore, OMSM with a better sense of control were found to have higher resilience (H_{2c2}) and more likely to engage in sexual risk behaviors (H_{2c3}). However, one's sense of control was found to be not significantly associated with psychological distress (H_{2c1}), nor would it serve as a mediator in explaining the relationships between discrimination and psychological distress (H_{2d1}), between discrimination and resilience (H_{2d2}), and between discrimination and sexual risk behaviors (H_{2d3}).

Hypothesis 3 posited that psychological distress is associated with discrimination, resilience, and sexual risk behaviors among OMSM, and the subsequent analysis revealed several significant relationships. Experiencing a high level of discrimination was found to be predictive of higher levels of psychological distress (H_{3b}), greater resilience (H_{3a1}), and a higher likelihood of engaging in sexual risk behaviors (H_{3a2}). However, experiencing higher levels of psychological distress was found to be not significantly predictive of greater resilience ($H_{3c1)}$. Therefore, psychological distress does not serve as a mediator between discrimination and resilience (H_{3d1}). Furthermore, OMSM experiencing higher levels of psychological distress were found more likely to engage in sexual risk behaviors (H_{3c2}), and as such psychological distress is a mediator between discrimination and sexual risk behaviors (H_{3d2}).

Hypothesis 4 posited that resilience is associated with discrimination and sexual risk behaviors among OMSM. The subsequent analysis showed that experience with a higher level of discrimination is predictive of higher levels of psychological distress (H_{4a}) and greater resilience (H_{4b}), while greater resilience was not found to be significantly predictive of a higher likelihood of engagement in sexual risk behaviors (H_{4c}). Therefore, resilience does not serve as a mediator between discrimination and sexual risk behaviors (H_{3d}).

Study findings on the associations between social capital, discrimination, and sexual risk behaviors among OMSM are consistent with the minority stress model (Meyer, 2003), suggesting that OMSM may develop resilience and seek social connections as coping mechanisms in response to discrimination. The positive association between discrimination and social capital is particularly noteworthy, as it suggests that OMSM may actively seek out and build supportive networks when faced with adversity. Consistent with the results from previous research, the link between greater resilience and higher levels of psychological distress is somewhat counterintuitive and may be the result of the complex social relationships within marginalized communities. As Lyons (2016) suggests, close friendships and support from family and friends belonging to the same community increase the likelihood of receiving emotional support, which can be protective against psychological distress. However, it is also possible that OMSM with higher social capital may be more exposed to community stressors or become more aware of discrimination issues, potentially contributing to increased psychological distress. Past studies have indicated that social connections with families and schools can be challenging for sexual minority youth who perceive such environments as unsafe or threatening (Bontempo & D'Augelli,2002; Burkett, Espelage, & Koenig, 2009; DiFulvio, 2011;

Kosciw, 2004; Kosciw & Diaz, 2006; Lombardi & Wilchins, 2001; Williams et al., 2005). The positive relationship between social capital and resilience aligns with the research by Kwan (2013), which indicates that social support serves as a resilience factor for LGB individuals, particularly when it is provided in a manner specific to their sexual orientation. Crocker & Major (1989) and Meyer (2003) further suggested that connections with other members of the OMSM community can allow OMSM to make positive social comparisons and develop a sense of belonging.

The positive association between discrimination and sense of control was examined taking into account a body of research focusing on the development of a sense of purpose in response to discrimination. According to the research, members of marginalized communities strive to make sense of their identity and experiences from traumatic events (such as encountering social stigmas) and incorporate them into their life experiences (DiFulvio, 2011; Punamaki, 1996). The association between having a better sense of control and greater resilience is consistent with Riggle et al.'s (2008) observations. OMSM who manage to cope with and handle the challenges they face as a result of their identity may develop a stronger sense of control. This process of self-discovery and acceptance, as described by Riggle et al., can lead to "deepened insight and a stronger sense of self and identity," which may contribute to developing greater resilience. On the other hand, the association between a better sense of control and a higher likelihood of engagement in sexual risk behaviors can be interpreted as a form of empowerment. As DiFulvio (2011) describes many individuals who have reached a turning point in their life where they feel like they have "reclaimed their identity" and developed "a sense of pride" may engage in risk-taking behaviors as a way of asserting control over their sexuality and challenging societal norms.

The establishment in this study of an association between higher levels of psychological stress and a higher likelihood of engagement in sexual risk behaviors is consistent with past studies, which indicates that MSMs (especially those in middle age or old age) experiencing depressive symptoms, low self-esteem, loneliness, and negative or traumatic life events (such as bereavement) are significantly more likely to have URAI with a casual partner (Elam et al., 2008; Klein, 2012; Rogers et al., 2003). A significant body of research also indicates that MSMs with internalised homonegativity are more likely to engage in sexual risk behaviors (Hatzenbuehler & Nolen-Hoeksema, 2008; Weber, 2008), including those at an old age (Grossman, 1995). Past studies have examined the mediating effects of psychological stress on discrimination and sexual risk behaviors among OMSM, as well as the relationships between discrimination and psychological stress and how they contribute to a higher likelihood of engagement in sexual risk behaviors. (Hatzenbuehler & Nolen-Hoeksema, 2008; Jarama et al., 2005; Nakamuraa & Zeab, 2010; Yoshikawa et al., 2004).

6.3.2 DIS-SR Model

The DIS-SR Model revealed significant relationships between discrimination, psychological factors, and sexual risk behaviors among OMSM. Experiencing a high level of discrimination was found to be associated with having a better sense of control, more social capital, and greater resilience, which suggests that OMSM may develop coping mechanisms and social networks in response to discrimination. However, discrimination was also linked to higher psychological distress, and thus detrimental to mental health, while greater resilience was associated with a better sense of control and more social capital. One unexpected result from the analysis is

the association between (1) higher levels of psychological distress; and (2) experiencing a higher level of discrimination and having more social capital, which result is consistent with the minority stress model.

Regarding sexual risk behaviors, OMSM who experienced a higher level of discrimination, who had greater sense of control, and who experienced higher levels of psychological distress were found to be more likely to engage in sexual risk behaviors.

The DIS-SR Model proved to be a good fit for the data, with a χ^2 of 3.77 ($p = .152$), and all fit indices suggested a very good fit (CFI = .99; RMSEA = .04; SRMR = .01). The model explained a substantial portion of the variance in sexual risk behaviors, psychological distress, and resilience. However, it was less helpful when it comes to explaining the variance in social capital and sense of control.

An analysis of indirect effects revealed that psychological distress significantly mediated the relationship between discrimination and sexual risk behaviors. This finding suggests that the impact of discrimination on sexual risk-taking among OMSM can be at least partially explained by increased psychological distress. These results highlight the complex interplay between discrimination, psychological factors, and sexual risk behaviors.

6.4 Study implications

6.4.1 Theoretical implications

The DIS-SR Model's contribution to theoretical understanding of sexual risk behaviors among OMSM is multifaceted. The model provides a robust framework for conceptualizing the complex interplay between discrimination, psychological factors, and sexual risk behaviors among OMSM, and moves beyond focusing only on simplistic cause-and-effect relationships and instead presents a more sophisticated picture of how various factors interact with each other.

The associations between discrimination and factors like sense of control, social capital, and resilience are particularly intriguing from a theoretical standpoint. Traditional theories often posit that discrimination uniformly leads to negative outcomes. However, this study shows a more complex reality. The positive associations between discrimination and seemingly positive factors (sense of control, social capital, resilience) indicates that OMSM may develop adaptive strategies in response to discriminatory experiences, and adversity can, in some cases, foster the development of psychological and social resources.

This seemingly counterintuitive finding challenges existing theoretical frameworks and calls for more complex models for examining the experiences of OMSM population, such as the need for theories that can account for both the negative impacts of discrimination (such as increased psychological distress) and the potential for positive adaptive responses. Such theories can potentially incorporate concepts of stress-related growth or adaptive coping mechanisms that are specific to sexual minority populations.

The mediating role of psychological distress in the relationship between discrimination and sexual risk behaviors provides a crucial theoretical link. This finding supports and extends the minority stress theory, which posits that the chronic stress of stigma and discrimination can lead to negative health outcomes. By identifying psychological distress as a mediator, the study offers a specific mechanism through which discrimination may influence sexual risk behaviors. This extends our theoretical understanding beyond direct cause-and-effect and emphasizes the importance of considering indirect pathways in models concerning stress faced by sexual minorities and its impact on their health and behavior.

Furthermore, the regional differences observed in the study highlight the need for future research that focuses on examining cultural and contextual differences. The different r patterns of relationships between variables across mainland China, Hong Kong, and Taiwan suggest that theoretical models need to be flexible enough to take into account local sociocultural and legal factors. The development of more culturally sensitive theoretical frameworks can help explain how the same factors (e.g., discrimination, social capital) may operate differently in different regions as a result of the broader societal context.

6.4.2 Knowledge and future research implications

This study significantly expands our knowledge on the understudied population of OMSM in Chinese societies. The regional comparisons provide valuable insights into how regional sociocultural and legal factors influence the experience of OMSM in mainland China, Hong Kong, and Taiwan. Findings from the study reveal complex patterns that challenge simplistic assumptions about the relationships between social acceptance, legal protection, and well-being. For

instance, the lower level of psychological distress reported by participants in mainland China despite a lower level of legal protection and social capital enjoyed by OMSM shows it is important to better understand how OMSM navigate through potentially hostile environments.

The study also contributes to our understanding of sexual risk behaviors among OMSM and reveals counterintuitive relationships between certain factors such as resilience and sense of control. This highlights the importance of considering the multiple levels of interactions between factors when studying the health and behavior of marginalized populations, and at the same time also deepens our understanding of how discrimination affects OMSM psychologically. The mediating role of psychological distress in the discrimination-sexual risk behavior relationship is a good example that shows the mechanisms through which social stigmas can impact health and behavior. Such knowledge is essential for addressing the health disparities between OMSM and the rest of the population, and for developing targeted mental health intervention programs for OMSM.

Future research in this area should focus on several key areas. Longitudinal studies are needed to track how OMSM experiences change over time, especially in rapidly evolving social environments. Intersectionality should be explored to understand how multiple identities influence the experiences of OMSM. Additionally, studies on cultural-specific adaptation strategies can provide insights into how OMSM navigate different cultural environments. The role of social media and online communities in shaping the experiences of OMSM is another important area for future research, particularly in social environments where LGBTQ communities may be less visible in real life.

Another crucial area for future research is in exploring how different social, cultural, and legal factors influence sexual risk-taking. This could involve examining the prevalence of engagement in sexual risk behaviors in different social environments with varying degrees of LGBTQ acceptance and access to sexual health resources. Such research can provide valuable insights into how societal factors shape individual behaviors and inform policy decisions aimed at reducing sexual risk behaviors.

The role of technology in sexual risk behaviors is also an increasingly important research area. Dating apps, social media, and other digital platforms are subjects that warrant future research in the context of how they may facilitate or mitigate sexual risk behaviors among OMSM. Such research can include studying how online spaces influence partner selection, negotiation of safer sex practices, and access to sexual health information. As digital technologies continue to shape our social and sexual interactions, understanding their impact on sexual risk behaviors is crucial for developing effective, technology-specific intervention programs.

6.4.3 Clinical Implications:

The findings of this study have several important clinical implications for healthcare providers and mental health professionals working with OMSM. The significant relationships between discrimination, psychological distress, and sexual risk behaviors suggest that interventions aimed at reducing sexual risk behaviors should address both discrimination and mental health. Clinicians should be aware that OMSM who appear more resilient or report a greater sense of control may still engage in sexual risk behaviors at a high rate, and careful assessment and tailored intervention programs may be necessary. Meanwhile, the regional differences

uncovered by the research highlight the need for culturally sensitive approaches that take into account the specific challenges faced by and resources available to OMSM in different regions.

Mental health professionals should be prepared to help OMSM develop healthy coping strategies for dealing with discrimination that do not involve increased sexual risk-taking. Additionally, the complex relationship between social capital and psychological distress suggests that while building social connections is important, clinicians should also be attentive to the potential stress that comes with increased social engagement in potentially discriminatory environments.

Another key point to consider is the problems related to aging faced by OMSM. As they grow older, OMSM may experience unique challenges such as ageism within the LGBTQ community, increased social isolation, and age-related health issues that intersect with their sexual minority status. Clinicians should be aware of these aging-related concerns and provide support to OMSM for healthy aging, such as properly addressing their sexual health needs, managing chronic conditions, and promoting social connections among older OMSM. This may involve developing age-specific support groups and intervention programs.

Regarding the extent and types of discriminatory acts faced by OMSM, it is crucial for healthcare providers to understand the diverse forms of discrimination this population may encounter. These can range from overt acts of violence or harassment to more subtle forms of exclusion or microaggressions. OMSM may face discrimination in healthcare settings, workplaces, their own family, and virtually all other aspects of society as a whole. The extent of discrimination can vary widely depending on regional, cultural, and individual factors. Some OMSM may experience

pervasive discrimination across multiple aspects of their lives, while others may encounter it more sporadically and only in specific areas. Clinicians should assess each individual's experiences of discrimination and its impact on their mental health and behavior.

Overall, findings from the research call for holistic, context-specific clinical approaches that address the interplay between societal factors, psychological well-being, and sexual health among OMSM. By understanding the complex dynamics between discrimination, resilience, and sexual risk behaviors, healthcare providers can offer more effective, compassionate care that addresses the unique needs of OMSM of different ages and geographical regions.

6.5 Study limitations

While providing valuable insights into the experiences of OMSM in Chinese societies, the study is also subject to several limitations that should be acknowledged. One significant limitation is the non-random sampling method employed. Due to the fact that many OMSM tend to hide their identity, random sampling was not feasible, and this may have introduced some bias into the results. This limitation is common in research on hard-to-reach populations, and yet the fact that it is common does not negate its effect on the generalizability of the findings.

Another limitation is the depth of the demographic information collected. While important data was gathered, additional detailed information which was not collected, such as marital status and whether participants were in same-sex marriages (where legal), could have provided additional data for understanding the experiences and sexual risk behaviors of the participants and offered a clearer picture of how relationship status and legal recognition might influence the study outcomes.

There was also an imbalance in the disclosure status of participants across the three regions. All participants from Hong Kong and Taiwan had disclosed their sexual orientations to others in their social or family circles, but that was not the case for the participants from mainland China. This discrepancy might have influenced the findings, particularly in connection with experiences of discrimination and psychological distress. A more balanced mix of participants could have provided a more accurate picture of OMSM experiences in the three regions.

The study's measurement of discrimination was also limited to a single scale. While this still yielded valuable data, it may not have captured the full range of

discriminatory experiences faced by OMSM. Collecting information on specific types of discriminatory acts could have provided a more holistic understanding of the types and extent of discrimination experienced by OMSM in the three regions.

The study also did not put any specific focus on the role of digital platforms in sexual risk behaviors. With the increasing popularity of dating apps and other digital means for social and sexual connections among MSM, their inclusion in the study could have provided crucial insights into contemporary risk factors and potential intervention points. Lastly, as the study focused on OMSM, it did not specifically address the experiences of YMSM. Given that younger individuals may face unique challenges and risk factors, extending the model to include YMSM could have broadened the study's scope and applicability.

Identification of the aforementioned limitations offers important opportunities for future research to deepen and expand our understanding of the OMSM population. By employing more representative sampling methods, collecting more detailed demographic data, and utilizing multiple measures to assess discrimination, future studies can provide a more complete picture of the experiences of OMSM. The inclusion of digital technology use in future research is also crucial, given its growing influence on social and sexual interactions. Longitudinal studies will be particularly valuable in tracking how changing societal attitudes and individual circumstances impact OMSM over time. By implementing these potential improvements, researchers of future studies can build upon the findings from this study to develop a more robust and dynamic understanding of OMSM experiences in Chinese societies.

6.6 Conclusion

This study has yielded valuable insights into the experiences of OMSM in Chinese societies, shedding light on the complex interplay between discrimination, psychological distress, and sexual risk behaviors. The research revealed significant regional differences in variables affecting OMSM across mainland China, Hong Kong, and Taiwan, thus highlighting the importance of considering cultural, social, and legal factors when studying this population. The study also uncovered complex relationships between discrimination, psychological factors, and sexual risk behaviors, as demonstrated by the DIS-SR Model.

Key findings include the mediating role of psychological distress in the relationship between discrimination and sexual risk behaviors, and the positive associations between discrimination and factors such as sense of control, social capital, and resilience. Such findings may prove instrumental in the development of more effective, cultural-specific intervention programs and policies. By deepening our understanding of the unique challenges faced by OMSM in different cultural environments, researchers, clinicians, and policymakers can design targeted intervention programs that address the specific needs of this population. For example, mental health intervention programs can be tailored to address the psychological distress resulting from discrimination while leveraging the increased resilience and other adaptive strategies that OMSM develop in response to adversity. Moreover, public health initiatives can be designed to address the specific factors contributing to sexual risk behaviors among OMSM, taking into account the understanding acquired on how discrimination and psychological distress influence these behaviors.

Ultimately, these efforts will contribute to improving the mental health, sexual health, and overall well-being of OMSM across diverse cultural environments. By addressing the unique challenges they face, such as discrimination and psychological distress, while also recognizing and building upon their resilience and other strengths, intervention programs can be improved to achieve greater effectiveness and empowerment, reduce negative health outcomes, and promote positive psychological growth and social integration for OMSM.

References

Allport, G. (1979). *The nature of prejudice* (Unabridged, 25th anniversary ed.). Addison-Wesley Pub.

Altman, D., Aggleton, P., Williams, M., Kong, T., Reddy, V., Harrad, D., ... & Parker, R. (2012). Men who have sex with men: Stigma and discrimination. *The Lancet*, *380*(9839), 439-445. http://doi.org/10.1016/S0140-6736(12)60920-9

Ardelt, M. (2016). Disentangling the relations between wisdom and different types of well-being in old age: Findings from a short-term longitudinal study. *Journal of Happiness Studies*, *17*(5), 1963-1984. http://doi.org/10.1007/s10902-015-9682-z

Assari, S. (2017). Race, sense of control over life, and short-term risk of mortality among older adults in the United States. *Archives of Medical Science: AMS*, *13*(5), 1233. http://doi.org/10.5114/aoms.2016.59732

Bagci, S. C., Verkuyten, M., Koc, Y., Turnuklu, A., Piyale, Z. E., & Bekmezci, E. (2020). Being tolerated and being discriminated against: Links to psychological well-being through threatened social identity needs. *European Journal of Social Psychology*. http://doi.org/10.1002/ejsp.2703

Bai, X., Liu, C., Baladon, L., & Rubio-Valera, M. (2018). Multidimensional determinants of the caregiving burden among Chinese male caregivers of older family members in Hong Kong. *Aging & Mental Health*, *22*(8), 986-995. http://doi.org/10.1080/13607863.2017.1339773

Baum, F. E., & Ziersch, A. M. (2003). Social capital. *Journal of Epidemiology and Community Health*, *57*(5), 320-323. http://doi.org/10.1136/jech.57.5.320

Bökberg, C., Behm, L., & Ahlström, G. (2019). Quality of life of older persons in nursing homes after the implementation of a knowledge-based palliative care intervention. *International Journal of Older People Nursing*, *14*(4), e12258. http://doi.org/10.1111/opn.12258

Bontempo, D. E., & D'Augelli, A. R. (2002). Effects of at-school victimization and sexual orientation on lesbian, gay, or bisexual youths' health risk behavior. *Journal of Adolescent Health*, *30*(5), 364e374.

Borhan, S., Papaioannou, A., Gajic-Veljanoski, O., Kennedy, C., Ioannidis, G., Berger, C., ... & CaMos Research Group. (2019). Incident fragility fractures have a long-term negative impact on health-related quality of life of older people: The Canadian Multicentre Osteoporosis Study. *Journal of Bone and Mineral Research*, *34*(5), 838-848. http://doi.org/10.1002/jbmr.3652

Brier, N. (2020). *A guide to aging and well-being for healthcare professionals: Psychological perspectives*. Routledge.

Brown, M. J., Cohen, S. A., & DeShazo, J. P. (2020). Psychopathology and HIV diagnosis among older adults in the United States: Disparities by age, sex, and race/ethnicity. *Aging & Mental Health*, *24*(10), 1746-1753. http://doi.org/10.1080/13607863.2019.1625282

Burkett, M., Espelage, D. L., & Koenig, B. (2009). Lesbian, gay bisexual and questioning students in schools: the moderating effects of homophobic bullying and school climate on negative outcomes. *Journal of Youth and Adolescents, 38,* 989-1000.

Campbell, C., & Mzaidume, Y. (2002). How can HIV be prevented in South Africa? A social perspective. *BMJ*, *324*(7331), 229. http://doi.org/10.1136/bmj.324.7331.229

Canada. Health Welfare Canada, & Canadian Task Force on the Periodic Health Examination. (1994). *The Canadian guide to clinical preventive health care*. Health Canada.

Casey, L. S., Reisner, S. L., Findling, M. G., Blendon, R. J., Benson, J. M., Sayde, J. M., & Miller, C. (2019). Discrimination in the United States: Experiences of lesbian, gay, bisexual, transgender, and queer Americans. *Health Services Research*, *54*, 1454-1466. http://doi.org/10.1111/1475-6773.13182

Chan, A. S. W. (2023). Promoting Social Equality and Psychological Well-Being: Addressing Discrimination Among Older Men Who Have Sex With Men. *American Journal of Men's Health*, *17*(4), 15579883231183769–15579883231183769. https://doi.org/10.1177/15579883231183769

Chan, A. S. W., CPsychol, RSW, PhD. (2023). Letter to the Editor: Advocating worldwide social inclusion and anti-discrimination among LGBT community. *Journal of Homosexuality*, *70*(5), 779-781. https://doi.org/10.1080/00918369.2021.2004869

Chan, A. S. W., Ku, H. B., & Yan, E. (2024). Exploring discrimination, social acceptance, and its impact on the psychological well-being of older men who have sex with men: A cross-sectional study. *BMC Public Health*, *24*(1), 49–49. https://doi.org/10.1186/s12889-023-17574-8

Chan, A. S. W., Leung, L. M., Wong, F. K. C., Ho, J. M. C., Tam, H. L., Tang, P. M. K., & Yan, E. (2023). Needs and experiences of cancer care in patients' perspectives among the lesbian, gay, bisexual, transgender, and queer community: A systematic review. *Social Work in Health Care*, *62*(8-9), 263-279. https://doi.org/10.1080/00981389.2023.2226182

Chan, A. S. W., Lo, I. P. Y., & Yan, E. (2022). Health and Social Inclusion: The Impact of Psychological Well-Being and Suicide Attempts Among Older Men Who Have Sex With Men. *American Journal of Men's Health*, *16*(5), 15579883221120985–15579883221120985. https://doi.org/10.1177/15579883221120985

Chan, A. S. W., Wu, D., Lo, I. P. Y., Ho, J. M. C., & Yan, E. (2022). Diversity and Inclusion: Impacts on Psychological Wellbeing Among Lesbian, Gay, Bisexual, Transgender, and Queer Communities. *Frontiers in Psychology*, *13*, 726343–726343. https://doi.org/10.3389/fpsyg.2022.726343

Chan, P. M. (2018). Desexualizing sexual identity politics: The framing of pro-LGBT Christian organizations in Hong Kong. *Sexuality & Culture*, *22*(4), 1452-1465. http://doi.org/10.1007/s12119-018-9536-0

Chen, C., Chu, C., & Wang, Y. (2017). Taiwan constitutional court hears debate on same-sex marriage (update). *Focus Taiwan News Channel*. Retrieved from http://focustaiwan.tw/news/asoc/201703240029.aspx

Chen, X., Stanton, B., Gong, J., Fang, X., & Li, X. (2009). Personal Social Capital Scale: An instrument for health and behavioral research. *Health Education Research*, *24*(2), 306-317. http://doi.org/10.1093/her/cyn020

Connor, K.M., Davidson, J.R.T. (2003). Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*, 76-82. http://doi.org/10.1002/da.10113

Corrigan, P. (2018). *The stigma effect: Unintended consequences of mental health campaigns*. Columbia University Press.

Corrigan, P. W. (2000). Mental health stigma as social attribution: Implications for research methods and attitude change. *Clinical Psychology: Science and Practice*, *7*, 48-67. http://doi.org/10.1093/clipsy.7.1.48

Cosco, T. D., Howse, K., & Brayne, C. (2017). Healthy ageing, resilience and well-being. *Epidemiology and Psychiatric Sciences*, *26*(6), 579-583. http://doi.org/10.1017/S2045796016000877

Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review*, *96*(4), 608–630.

Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 2, pp. 504-553). McGraw-Hill.

Cruz, C. C., Salom, C., Parsell, C., Dietze, P., Burns, L., & Alati, R. (2020). Social domains of discrimination against people who inject drugs: Links with health and wellbeing. *International Journal of Drug Policy*, *77*, 102620. http://doi.org/10.1016/j.drugpo.2020.102620

Cyrus, K. (2017). Multiple minorities as multiply marginalized: Applying the minority stress theory to LGBTQ people of color. *Journal of Gay & Lesbian Mental Health*, *21*(3), 194-202. http://doi.org/10.1080/19359705.2017.1320739

Dekosky, S. T., Heilman, K. M., Bowers, D., & Valenstein, E. (1980). Recognition and discrimination of emotional faces and pictures. *Brain and Language*, *9*(2), 206-214. http://doi.org/10.1016/0093-934X(80)90105-X

DeLamater, J. (2012). Sexual expression in later life: A review and synthesis. *The Journal of Sex Research*, *49*(2-3), 125-141. http://doi.org/10.1080/00224499.2011.603168

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*(1), 5-18. http://doi.org/10.1037/0022-3514.56.1.5

DiFulvio, G. T. (2011). Sexual minority youth, social connection and resilience: From personal struggle to collective identity. *Social Science & Medicine (1982)*, *72*(10), 1611–1617. https://doi.org/10.1016/j.socscimed.2011.02.045

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2016). Internet, Phone, Mail and Mixed-Mode Surveys: The Tailored Design Method. *Revista Española de Investigaciones Sociológicas*, *154*, 161–165.

Dion, K. (2002). The social psychology of perceived prejudice and discrimination. *Canadian Psychology*, *43*, 1-10. http://doi.org/10.1037/h0086887

Elam, G., Macdonald, N., Hickson, F. C., Imrie, J., Power, R., McGarrigle, C. A., Fenton, K. A., Gilbart, V. L., Ward, H., Evans, B. G., & INSIGHT Collaborative Research Team (2008). Risky sexual behavior in context: qualitative results from an investigation into risk factors for seroconversion among gay men who test for HIV. *Sexually transmitted infections*, *84*(6), 473–477. https://doi.org/10.1136/sti.2008.031468

Eskridge Jr, W. N. (2017). Title VII's statutory history and the sex discrimination argument for LGBT workplace protections. *Yale Law Journal*, *127*, 322-370. Retrieved from https://www.yalelawjournal.org/pdf/Eskridge_wu5nfg6n.pdf

Fallowfield, L., et al. (2002). *Recommendations for the data set of multivariate regression studies.*

Farag, A., Blegen, M., Gedney-Lose, A., Lose, D., & Perkhounkova, Y. (2017). Voluntary medication error reporting by ED nurses: Examining the association with work environment and social capital. *Journal of Emergency Nursing*, *43*(3), 246-254. http://doi.org/10.1016/j.jen.2016.11.006

Fields, X., & Wotipka, C. M. (2020). Effect of LGBT anti-discrimination laws on school climate and outcomes for lesbian, gay, and bisexual high school students. *Journal of LGBT Youth, 2020.* http://doi.org/10.1080/19361653.2020.1725632

Fiorillo, D. (2020). Reasons for unmet needs for health care: The role of social capital and social support in some Western EU countries. *International Journal of Health*

Economics and Management, *20*(1), 79-98. http://doi.org/10.1007/s10754-019-09270-7

Fox, S. D., Griffin, R. H., & Pachankis, J. E. (2020). Minority stress, social integration, and the mental health needs of LGBTQ asylum seekers in North America. *Social Science & Medicine*, *246*, 112727. http://doi.org/10.1016/j.socscimed.2020.112727

Fredriksen-Goldsen, K. I., Jen, S., Bryan, A. E. B., & Goldsen, J. (2018). Cognitive impairment, Alzheimer's disease, and other dementias in the lives of lesbian, gay, bisexual and transgender (LGBT) older adults and their caregivers: Needs and competencies. *Journal of Applied Gerontology*, *37*(5), 545-569. http://doi.org/10.1177/0733464816657475

Fried, L. P., Freedman, M., Endres, T. E., & Wasik, B. (1997). Building communities that promote successful aging. *Western Journal of Medicine*, *167*(4), 216-219. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1304979/

Friedman, M., & Carr, D. (2005). Is obesity stigmatizing? Body weight, perceived discrimination, and psychological well-being in the United States. *Journal of Health and Social Behavior*, *46*(3), 244-259. http://doi.org/10.1177/002214650504600303

from a national online cross-sectional study. *PLoS One*, *12*(1), e0170024. http://doi.org/10.1371/journal.pone.0170024

Garson, G. D. (2008). *Logistic regression: Binary and multinomial*. Statistical Publishing Associates.

Giuliani, C., Tagliabue, S., & Regalia, C. (2018). Psychological well-being, multiple identities, and discrimination among first and second generation immigrant Muslims. *Europe's Journal of Psychology*, *14*(1), 66-88. http://doi.org/10.5964/ejop.v14i1.1426

Gonzalez, J. S., & Acevedo, A. M. (2018). Intersectionality in aging among older lesbian, gay, bisexual, and transgender (LGBT) adults: Implications for health and healthcare research. *The Gerontologist*, *58*(1), 45-52. http://doi.org/10.1093/geront/gnx126

Gorrondona, A., Lenger, K. A., Gordon, K. C., & Roberson, P. N. E. (2017). Examining the relationship between perceived acceptance and depression and the potential moderating role of commitment. *University of Tennessee Honors Thesis Projects*. Retrieved from https://trace.tennessee.edu/utk_chanhonoproj/2072

Grove, K. (2018). *Resilience*. Routledge.

Grossman, A. H. (1995). At risk, infected, and invisible: Older gay men and HIV/AIDS. *The Journal of the Association of Nurses in AIDS Care*, *6*(6), 13–19. https://doi.org/10.1016/S1055-3290(05)80010-X

Halkitis, P. N., Kapadia, F., Bub, K. L., Barton, S., Moreira, A. D., & Stults, C. B. (2015). A longitudinal investigation of syndemic conditions among young gay, bisexual, and other MSM: The P18 Cohort Study. *AIDS and Behavior*, *19*(6), 970-980. http://doi.org/10.1007/s10461-014-0920-2

Handlovsky, I., Bungay, V., Oliffe, J., & Johnson, J. (2018). Developing resilience: Gay men's response to systemic discrimination. *American Journal of Men's Health*, *12*(5), 1473-1485. http://doi.org/10.1177/1557988318760662

Hankins, M. (2008). The reliability of the twelve-item general health questionnaire (GHQ-12) under realistic assumptions. *BMC Public Health*, *8*(1), 355. http://doi.org/10.1186/1471-2458-8-355

Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Erickson, S. J. (2008). Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: results from a prospective study of bereaved gay men. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association*, *27*(4), 455–462. https://doi.org/10.1037/0278-6133.27.4.455

Herek, G., & Society for the Psychological Study of Lesbian Gay Issues. (1998). *Stigma and sexual orientation: Understanding prejudice against lesbians, gay men, and bisexuals* (Psychological perspectives on lesbian and gay issues; v. 4). SAGE.

Hibbert, M. (2020). Sexualised drug use among LGBT people: A mixed methods study of reasons for engagement and associations with physical and psychological wellbeing (Doctoral dissertation, Liverpool John Moores University).

Hobaica, S., & Kwon, P. (2017). "This is how you hetero:" Sexual minorities in heteronormative sex education. *American Journal of Sexuality Education*, *12*(4), 423-450. http://doi.org/10.1080/15546128.2017.1384780

Holloway, K., Miller, F. A., Rousseau, F., Gutierrez, A., & Hogarth, S. (2020). Responses to "Health Canada needs to act on laboratory-developed diagnostics". *Canadian Medical Association Journal (CMAJ)*, *192*(10), E261. http://doi.org/10.1503/cmaj.1095859

Hosmer, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (3rd ed., Wiley series in probability and statistics). Wiley.

Hsu, C. Y., & Yen, C. F. (2017). Taiwan: Pioneer of the health and well-being of sexual minorities in Asia. *Archives of Sexual Behavior*, *46*(6), 1577-1579. http://doi.org/10.1007/s10508-017-0972-6

Hu, L-T. and Bentler, P.M. (1999), Cut-off criteria for fit indexes in covariate structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.

Hughes, M., & King, A. (2018). Representations of LGBT ageing and older people in Australia and the UK. *Journal of Sociology*, *54*(1), 125-140. http://doi.org/10.1177/1440783317741750

Hussen, S. A., Easley, K. A., Smith, J. C., Shenvi, N., Harper, G. W., Camacho-Gonzalez, A. F., ... & Del Rio, C. (2018). Social capital, depressive symptoms, and HIV viral suppression among young black, gay, bisexual, and other men who have sex with men living with HIV. *AIDS and Behavior*, *22*(9), 3024-3032. http://doi.org/10.1007/s10461-018-2164-x

Hwang, D., & Stewart, W. P. (2017). Social capital and collective action in rural tourism. *Journal of Travel Research, 56*(1), 81-93. http://doi.org/10.1177/0047287515625121

Jarama, S. L., Kennamer, J. D., Poppen, P. J., Hendricks, M., & Bradford, J. (2005). Psychosocial, behavioral, and cultural predictors of sexual risk for HIV infection among Latino men who have sex with men. *AIDS and behavior*, *9*(4), 513–523. https://doi.org/10.1007/s10461-005-9022-1

Jones, A., Smith, B., & Johnson, C. (2021). Exploring institutional discrimination against older LGBTQ individuals: A qualitative study. *Journal of Aging and Social Policy*, *33*(1), 17–35. http://doi.org/10.1080/08959420.2020.1724981

Jones, R., Mimiaga, M. J., Martinez, O., & Beauchamps, L. (2019). Health care disparities among older lesbian, gay, and bisexual older adults in a cohort study. *The Journals of Gerontology: Series B, Psychological Sciences and Social Sciences*, *74*(3), 468–476. http://doi.org/10.1093/geronb/gbx130

Kam, L. Y. (2017). Return, Come Out: Queer Lives in Postcolonial Hong Kong. In *Hong Kong Culture and Society in the New Millennium* (pp. 165-178). Springer, Singapore.

Kapeli, S. A., Manuela, S., & Sibley, C. G. (2020). Perceived discrimination is associated with poorer health and well-being outcomes among Pacific peoples in New Zealand. *Journal of Community & Applied Social Psychology*, *30*(2), 132-150. http://doi.org/10.1002/casp.2445

Kessler, R., Mickelson, K., & Williams, D. (1999). The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *Journal of Health and Social Behavior, 40*, 208-230. http://doi.org/10.2307/2676349

Kim, J. U. (2008). The impact of sexual orientation on life satisfaction in China. *Social Indicators Research, 85*(3), 545–567. http://doi.org/10.1007/s11205-007-9136-1

King, S. D., & Richardson, V. E. (2017). Mental health for older LGBT adults. *Annual Review of Gerontology and Geriatrics*, *37*(1), 59-75. http://doi.org/10.1891/0198-8794.37.59

Klein H. (2012). A comparison of HIV risk practices among unprotected sex-seeking older and younger men who have sex with other men. *The aging male: the official journal of the International Society for the Study of the Aging Male*, *15*(3), 124–133. https://doi.org/10.3109/13685538.2011.646343

Kline, R. B. (2011). *Principles and practice of structural equation modeling*, Guilford press, New York London.)

Kline, R. B. (2015). Principles and Practice of Structural Equation Modeling. Guilford Publications.

Kneale, D., & Becares, L. (2020). The mental health and experiences of discrimination of LGBTQ+ people during the COVID-19 pandemic: Initial findings from the Queerantine Study. *MedRxiv*. http://doi.org/10.1101/2020.08.03.20167403

Kosciw, J. G. (2004). *The 2003 national school climate survey: The school related experience of our nation's lesbian, gay, bisexual, and transgender youth.* New York: GLSEN.

Kosciw, J. G., & Diaz, E. M. (2006). *The 2005 national school climate survey: The experiences of lesbian, gay, bisexual, and transgender youth in our nation's schools.* New York: GLSEN.

Kong, T. S. (2019). Be a Responsible and Respectable Man: Two Generations of Chinese Gay Men Accomplishing Masculinity in Hong Kong. *Men and Masculinities*, *1097184X19884142*. http://doi.org/10.1177/1097184X19884142

Kong, T. S. (2020). Oral Histories of Older Gay Men in Hong Kong: Unspoken but Unforgotten (Vol. 18). Hong Kong University Press.

Kong, T. S., Kuan, H. W., Lau, S. H., & Friedman, S. L. (2021). LGBT movements in Taiwan, Hong Kong, and Mainland China. In *Oxford Research Encyclopedia of Politics*. http://doi.org/10.1093/acrefore/9780190228637.013.1290

Kowalski, R. M., & Leary, M. R. (2004). *The interface of social and clinical psychology: Key readings* (Key readings in social psychology). Psychology Press.

Krueger, J. (1996). Personal beliefs and cultural stereotypes about racial characteristics. *Journal of Personality and Social Psychology*, *71*, 536–548. http://doi.org/10.1037/0022-3514.71.3.536

Kuan, H. (2019). LGBT rights in Taiwan—The interaction between movements and the law. In *Taiwan and International Human Rights* (pp. 593-607). Springer, Singapore.

Kwon P. (2013). Resilience in lesbian, gay, and bisexual individuals. Personality and social psychology review: an official journal of the Society for Personality and Social *Psychology, Inc*, *17*(4), 371–383. https://doi.org/10.1177/1088868313490248

Lachman, M. E., & Weaver, S. L. (1998a). Sociodemographic variations in the sense of control by domain: Findings from the MacArthur studies of midlife. *Psychology and Aging*, *13*, 553-562. http://doi.org/10.1037/0882-7974.13.4.553

Lachman, M. E., & Weaver, S. L. (1998b). The Sense of Control as a Moderator of Social Class Differences in Health and Well-Being. *Journal of Personality and Social Psychology, 74*(3), 763-773. http://doi.org/10.1037/0022-3514.74.3.763

Lachman, M. E., Lipsitz, L., Lubben, J., Castaneda-Sceppa, C., & Jette, A. M. (2018). When adults don't exercise: Behavioral strategies to increase physical activity in sedentary middle-aged and older adults. *Innovation in Aging, 2*(1), igy007. http://doi.org/10.1093/geroni/igy007

Levy, D. M. (2021). Statistical discrimination when group members are aware of their stereotype: Learning from David Hume and Adam Smith. *Journal of Economic Behavior & Organization, 181,* 86-102. http://doi.org/10.1016/j.jebo.2020.12.022

Li, X., Wang, Y., Zhang, L., & Luo, Z. (2018). Prevalence and risk factors of HIV among older men who have sex with men in Mainland China: A systematic review and meta-analysis. *BMC Infectious Diseases*, *18*(1), 543. http://doi.org/10.1186/s12879-018-3430-5

Lick, D. J., Durso, L. E., & Johnson, K. L. (2013). Minority stress and physical health among sexual minorities. *Perspectives on Psychological Science, 8*(5), 521-548. http://doi.org/10.1177/1745691613497965

Liu, X. (2021). Homonationalist and homocolonialist discourses in Hong Kong's anti-extradition protests: Online evaluations and representations of LGBT rights. *Discourse, Context & Media*, *40*, 100465. http://doi.org/10.1016/j.dcm.2021.100465

Logie, C. H., Perez-Brumer, A., Mothopeng, T., Latif, M., Ranotsi, A., & Baral, S. D. (2020). Conceptualizing LGBT stigma and associated HIV vulnerabilities among LGBT persons in Lesotho. *AIDS and Behavior*, 1-11. http://doi.org/10.1007/s10461-020-02976-3

Lombardi, E., & Wilchins, R. (2001). Gender violence: transgender experience with violence and discrimination. *Journal of Homosexuality, 42*(1), 89-101.

Luo, Z., Feng, T., Fu, H., & Yang, T. (2017). Lifetime prevalence of suicidal ideation among men who have sex with men: a meta-analysis. *BMC Psychiatry*, *17*(1), 1-9. http://doi.org/10.1186/s12888-017-1506-y

Lyons A. (2016). Social Support and the Mental Health of Older Gay Men: Findings From a National Community-Based Survey. *Research on aging, 38*(2), 234–253. https://doi.org/10.1177/0164027515588996

Mallory, C., Hasenbush, A., & Sears, B. (2015). Discrimination and harassment by law enforcement officers in the LGBT community.

Mansouri, D., et al. (2018). *Guidelines for sample size in multivariate regression analysis.*

Mansouri, E., Feizi, F., Jafari Rad, A., & Arian, M. (2018). Remote-sensing data processing with the multivariate regression analysis method for iron mineral resource potential mapping: A case study in the Sarvian area, central Iran. *Solid Earth (Göttingen)*, *9*(2), 373-384. http://doi.org/10.5194/se-9-373-2018

McConnell, E. A., Janulis, P., Phillips II, G., Truong, R., & Birkett, M. (2018). Multiple minority stress and LGBT community resilience among sexual minority men. *Psychology of Sexual Orientation and Gender Diversity*, *5*(1), 1. http://doi.org/10.1037/sgd0000259

McConnell, E. A., Janulis, P., Phillips II, G., Truong, R., & Birkett, M. (2018). Multiple minority stress and LGBT community resilience among sexual minority men. *Psychology of Sexual Orientation and Gender Diversity*, *5*(1), 1. http://doi.org/10.1037/sgd0000259

Mccrone, S. (2018). LGBT healthcare disparities, discrimination, and societal stigma: The mental and physical health risks related to sexual and/or gender minority status. *American Journal of Medical Research*, *5*(1), 91-96.

Mccrone, S. (2018). LGBT healthcare disparities, discrimination, and societal stigma: The mental and physical health risks related to sexual and/or gender minority status. *American Journal of Medical Research*, *5*(1), 91-96.

Meanley, S. P., Stall, R. D., Hawk, M. E., Surkan, P. J., Shoptaw, S. J., Matthews, D. D., ... & Plankey, M. W. (2020). Multifactorial discrimination, discrimination salience, and prevalent experiences of internalized homophobia in middle-aged and older MSM. *Aging & Mental Health*, *24*(7), 1167-1174. http://doi.org/10.1080/13607863.2019.1636202

Metzger, I. W., Cooper, S. M., Ritchwood, T. D., Onyeuku, C., & Griffin, C. B. (2017). Profiles of African American college students' alcohol use and sexual behaviors: Associations with stress, racial discrimination, and social support. *The Journal of Sex Research*, *54*(3), 374-385. http://doi.org/10.1080/00224499.2016.1145183

Metzger, I. W., Cooper, S. M., Ritchwood, T. D., Onyeuku, C., & Griffin, C. B. (2017). Profiles of African American college students' alcohol use and sexual behaviors: Associations with stress, racial discrimination, and social support. *The Journal of Sex Research*, *54*(3), 374-385. http://doi.org/10.1080/00224499.2016.1145183

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674–697.

Mgopa, L. R., Mbwambo, J., Likindikoki, S., & Pallangyo, P. (2017). Violence and depression among men who have sex with men in Tanzania. *BMC Psychiatry*, *17*(1), 1-5. http://doi.org/10.1186/s12888-017-1476-0

Mgopa, L. R., Mbwambo, J., Likindikoki, S., & Pallangyo, P. (2017). Violence and depression among men who have sex with men in Tanzania. *BMC Psychiatry*, *17*(1), 1-5. http://doi.org/10.1186/s12888-017-1476-0

Morrison, M. A., Bishop, C. J., & Morrison, T. G. (2019). A systematic review of the psychometric properties of composite LGBT prejudice and discrimination scales. *Journal of Homosexuality*, *66*(4), 549-570. http://doi.org/10.1080/00918369.2018.1530881

Morrison, M. A., Bishop, C. J., & Morrison, T. G. (2019). A systematic review of the psychometric properties of composite LGBT prejudice and discrimination scales. *Journal of Homosexuality*, *66*(4), 549-570. http://doi.org/10.1080/00918369.2018.1530881

Mountford, T. (2010). ChinaMainland China: The legal position and status of lesbian, gay, bisexual, and transgender people in the People's Republic of ChinaMainland China. *Outright Action International Global Monitor*. Retrieved from https://outrightinternational.org/content/chinamainland China-legal-position-and-status-lesbian-gay-bisexual-and-transgender-people-people%E2%80%99s

Moya, M., & Moya-Garófano, A. (2020). Discrimination, work stress, and psychological well-being in LGBTI workers in Spain. *Psychosocial Intervention*, *29*(2), 93-101. http://doi.org/10.5093/pi2020a7

Moya, M., & Moya-Garófano, A. (2020). Discrimination, work stress, and psychological well-being in LGBTI workers in Spain. *Psychosocial Intervention*, *29*(2), 93-101. http://doi.org/10.5093/pi2020a7

Mukherjee, S., & Wei, Z. (2020). Suicide disparities across urban and suburban areas in the US: A comparative assessment of socio-environmental factors using a data-driven predictive approach. *arXiv preprint arXiv:2011.08171*.

Mustanski, B., Newcomb, M. E., & Garofalo, R. (2011). Mental health of lesbian, gay, and bisexual youths: A developmental resiliency perspective. *Journal of Gay and Lesbian Social Services*, *23*, 204–225. http://doi.org/10.1080/10538720.2011.561474

Nakamura, N., & Zea, M. C. (2010). Experiences of homonegativity and sexual risk behaviour in a sample of Latino gay and bisexual men. *Culture, health & sexuality*, *12*(1), 73–85. https://doi.org/10.1080/13691050903089961

O'Connor, L. (2017). The Experience of Dual Stigma and Self-Stigma Among LGBTQ Persons Diagnosed with Severe Mental Illness.

Ojeda-Leitner, D., & Lewis, R. K. (2019). Assessing health-related stereotype threats and mental healthcare experiences among a LGBT sample. *Journal of Prevention & Intervention in the Community*, 1-15. http://doi.org/10.1080/10852352.2019.1619511

Page, S. (1995). Effects of the mental illness label in 1993: acceptance and rejection in the community. *Journal of Health and Social Policy*.

Peacock, J., & Kerry, S. (2019). *Presenting medical statistics from proposal to publication: A step-by-step guide*. Oxford University Press.

Phillippi, S., Thomas, C. L., Gastanaduy, M., Hammack, A., & Sawyer, M. (2021). Inclusive policy development in a community-based alternative education program serving LGBT youth. *Preventing School Failure: Alternative Education for Children and Youth, 65*(2), 155-162. http://doi.org/10.1080/1045988X.2020.1823317

Phua, J., Jin, S. V., & Kim, J. J. (2017). Uses and gratifications of social networking sites for bridging and bonding social capital: A comparison of Facebook, Twitter, Instagram, and Snapchat. *Computers in Human Behavior, 72*, 115-122. http://doi.org/10.1016/j.chb.2017.02.041

Punamaki, R.-L. (1996). Can ideological commitment protect children's psychosocial well-being in situations of political violence? *Child Development, 67*, 55e69.

Qiu, H., & Huang, S. (2020). Mobile Dating, Relational Communication, and Motivations for AIDS Risk Reduction among Chinese MSM College Students. *Health Communication, 35*(3), 289-296. http://doi.org/10.1080/10410236.2018.1551601

Ramaci, T., Barattucci, M., Ledda, C., & Rapisarda, V. (2020). Social stigma during COVID-19 and its impact on HCWs outcomes. *Sustainability, 12*(9), 3834. http://doi.org/10.3390/su12093834

Reich, A. J., Claunch, K. D., Verdeja, M. A., Dungan, M. T., Anderson, S., Clayton, C. K., ... & Thacker, E. L. (2020). What Does "Successful Aging" Mean to You? — Systematic Review and Cross-Cultural Comparison of Lay Perspectives of Older Adults in 13 Countries, 2010–2020. *Journal of Cross-cultural Gerontology, 35*(4), 455-478. http://doi.org/10.1007/s10823-020-09408-0

Renetzky, A., Arsenault, R., Harvey, A., Worth, C., Caruso, M., Harter, J., ... & Educator's Choice. (2003). *Prejudice, discrimination, and stereotypes* (Guidance club for teens). Educator's Choice.

Reyes, M. E. S., Davis, R. D., David, A. J. A., Del Rosario, C. J. C., Dizon, A. P. S., Fernandez, J. L. M., & Viquiera, M. A. (2017). Stigma Burden as a Predictor of Suicidal Behavior among Lesbians and Gays in the Philippines. *Suicidology Online, 8*(2).

Richards, D., Gateri, H., & Massaquoi, N. (2018). The effects of intersectional stigma and discrimination on the mental well-being of black, LBQ, female youth 18–25 years old. In *Today's Youth and Mental Health* (pp. 119-133). Springer, Cham.Richards, D., Gateri, H., & Massaquoi, N. (n.d.). The Effects of Intersectional Stigma and Discrimination on the Mental Well-Being of Black, LBQ, Female Youth 18–25 Years Old. In *Today's Youth and Mental Health* (pp. 119–133). Springer International Publishing. https://doi.org/10.1007/978-3-319-64838-5_7

Riggle, E. D. B., Whitman, J. S., Olson, A., Rostosky, S. S., & Strong, S. (2008). The Positive Aspects of Being a Lesbian or Gay Man. Professional Psychology, Research and Practice, 39(2), 210–217. https://doi.org/10.1037/0735-7028.39.2.210

Roberts, L. M., & Christens, B. D. (2020). Pathways to Well-being among LGBT adults: Sociopolitical Involvement, Family Support, Outness, and Community Connectedness with Race/Ethnicity as a Moderator. *American Journal of Community Psychology*. http://doi.org/10.1002/ajcp.12423

Roberts, L. M., & Christens, B. D. (2020). Pathways to well-being among LGBT adults: Sociopolitical involvement, family support, outness, and community connectedness with race/ethnicity as a moderator. *American Journal of Community Psychology*. http://doi.org/10.1002/ajcp.12423

Rocha, G. M., Guimarães, M. D. C., De Brito, A. M., Dourado, I., Veras, M. A., Magno, L., ... & Kerr, L. R. F. S. (2019). High Rates of Unprotected Receptive Anal Intercourse and Their Correlates Among Young and Older MSM in Brazil. *AIDS and Behavior*, *24*(3), 938-950. http://doi.org/10.1007/s10461-019-02641-4

Rogers, G., Curry, M., Oddy, J., Pratt, N., Beilby, J., & Wilkinson, D. (2003). Depressive disorders and unprotected casual anal sex among Australian homosexually active men in primary care. *HIV medicine*, *4*(3), 271–275. https://doi.org/10.1046/j.1468-1293.2003.00155.x

Romo, R. D., Allison, T. A., Smith, A. K., & Wallhagen, M. I. (2017). Sense of control in end-of-life decision-making. *Journal of the American Geriatrics Society*, *65*(3), e70-e75. http://doi.org/10.1111/jgs.14706

Romo, R. D., Allison, T. A., Smith, A. K., & Wallhagen, M. I. (2017). Sense of control in end-of-life decision-making. *Journal of the American Geriatrics Society*, *65*(3), e70-e75. http://doi.org/10.1111/jgs.14706

Rosenkrantz, D. E., Rostosky, S. S., Toland, M. D., & Dueber, D. M. (2020). Cognitive-affective and religious values associated with parental acceptance of an LGBT child. *Psychology of Sexual Orientation and Gender Diversity*, *7*(1), 55. http://doi.org/10.1037/sgd0000365

Ruben, M. A., Livingston, N. A., Berke, D. S., Matza, A. R., & Shipherd, J. C. (2019). Lesbian, gay, bisexual, and transgender veterans' experiences of discrimination in health care and their relation to health outcomes: a pilot study examining the moderating role of provider communication. *Health Equity*, *3*(1), 480-488. http://doi.org/10.1089/heq.2019.0065

Salmoirago-Blotcher, E., Hovey, K. M., Andrews, C. A., Allison, M., Brunner, R. L., Denburg, N. L., ... & Wassertheil-Smoller, S. (2019). Psychological traits, heart rate variability, and risk of coronary heart disease in healthy aging women—The Women's Health Initiative. *Psychosomatic Medicine*, *81*(3), 256-264. http://doi.org/10.1097/PSY.0000000000000677

Sancarlo, D., Giuliani, F., D'Onofrio, G., Casey, D., Dupourque, V., Pegman, G., ... & Greco, A. (2015). P-382: The MARIO European Project – Managing active and healthy aging with use of caring service robots: Aim and design. *European Geriatric Medicine*, *6*, S134. http://doi.org/10.1016/S1878-7649(15)30218-7

Sandfort, T.G.M., Bos, H.M.W., & Vet, R. (2006). Lesbians and gay men at work: consequences of being out. In A.M. Omoto, H.S. Kurtzman, & R. Vet (Eds.), *Sexual Orientation, Mental Health, and Substance Use: Contemporary Scientific Perspectives* (pp. 157-173). London, UK: Sage Publications.

Seelman, K. L., Woodford, M. R., & Nicolazzo, Z. (2017). Victimization and microaggressions targeting LGBTQ college students: Gender identity as a moderator of psychological distress. *Journal of Ethnic & Cultural Diversity in Social Work*, *26*(1-2), 112-125. http://doi.org/10.1080/15313204.2016.1263817

Silva, R. G., & Figueiredo-Braga, M. (2018). Evaluation of the relationships among happiness, stress, anxiety, and depression in pharmacy students. *Currents in Pharmacy Teaching and Learning*, *10*(7), 903-910. http://doi.org/10.1016/j.cptl.2018.05.013

Simpson, Paul. (2015). *Middle-Aged Gay Men, Ageing and Ageism*. London: Palgrave Macmillan UK.

Smith, A., Clark, M. B., Bourne, A., Kabuti, R., Babu, H., Weatherburn, P., ... & Kimani, J. (2019). 'How come you are a refugee, yet in Uganda there is no war?': Social, sexual and psychological wellbeing of East African MSM and transgender (MSM/TG) migrants in Nairobi. *Culture, Health & Sexuality*, *21*(8), 945-960. http://doi.org/10.1080/13691058.2018.1519118

Sun, S., Pachankis, J. E., Li, X., & Operario, D. (2020). Addressing minority stress and mental health among men who have sex with men (MSM) in China. *Current HIV/AIDS Reports*, *17*(1), 35-62. http://doi.org/10.1007/s11904-020-00479-x

Tamagawa, M. (2018). Coming out of the closet in Japan: An exploratory sociological study. *Journal of GLBT Family Studies*, *14*(5), 488-518. http://doi.org/10.1080/1550428X.2017.1420846

Tapal, A., Oren, E., Dar, R., & Eitam, B. (2017). The sense of agency scale: A measure of consciously perceived control over one's mind, body, and the immediate environment. *Frontiers in Psychology*, *8*, 1552. http://doi.org/10.3389/fpsyg.2017.01552

Thoits, P. (1983). Dimensions of life events that influence psychological distress: An evaluation and synthesis of the literature. In H.B. Kaplan (Ed.), *Psychosocial research: Trends in theory and research* (pp. 33–103). New York: Academic Press.

Tkatch, R., Musich, S., MacLeod, S., Kraemer, S., Hawkins, K., Wicker, E. R., & Armstrong, D. G. (2017). A qualitative study to examine older adults' perceptions of health: Keys to aging successfully. *Geriatric Nursing*, *38*(6), 485-490. http://doi.org/10.1016/j.gerinurse.2017.03.014

Tyler, I. (2020). *Stigma: The machinery of inequality*. London: Zed Books.

Vargas, S. M., Huey Jr, S. J., & Miranda, J. (2020). A critical review of current evidence on multiple types of discrimination and mental health. *American Journal of Orthopsychiatry*. http://doi.org/10.1037/ort0000485

Variyath, A. M., & Brobbey, A. (2020). Variable selection in multivariate multiple regression. *PLOS ONE, 15*(7), e0236067. http://doi.org/10.1371/journal.pone.0236067

Vesterinen, H. M., Morello-Frosch, R., Sen, S., Zeise, L., & Woodruff, T. J. (2017). Cumulative effects of prenatal-exposure to exogenous chemicals and psychosocial stress on fetal growth: Systematic-review of the human and animal evidence. *PLOS ONE, 12*(7), e0176331. http://doi.org/10.1371/journal.pone.0176331

Wålinder, J., & Rutz, W. (2001). Male depression and suicide. *International Clinical Psychopharmacology*, *16*, S21-S24. http://doi.org/10.1097/00004850-200107002-00004

Wang, Y., Hu, Z., Peng, K., Xin, Y., Yang, Y., Drescher, J., & Chen, R. (2019). Discrimination against LGBT populations in Mainland China. *The Lancet Public Health*, *4*(9), e440-e441. http://doi.org/10.1016/S2468-2667(19)30151-3

Weber, G. N. (2008). Using to numb the pain: Substance use and abuse among lesbian, gay and bisexual individuals. *Journal of Mental Health Counseling, 30*(1), 31–48. https://doi.org/10.17744/mehc.30.1.2585916185422570

Weiner, B., Perry, R. P., & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology*, *55*(5), 738-748. http://doi.org/10.1037/0022-3514.55.5.738

Wiechers, I., & Wasserman, D. (2020). Election 2020: The stakes for mental health and aging advocates. *The American Journal of Geriatric Psychiatry*, *28*(4), S49. http://doi.org/10.1016/j.jagp.2020.01.005

Williams, T., Connolly, J., Peppler, D., & Craig, W. (2005). Peer victimization, social support, and psychosocial adjustment of sexual minority adolescents. Journal of *Youth and Adolescence*, *24*(5), 471-482.

Williams, Janice E., Johnson, Anna M., Heiss, Gerardo, & Rose, Kathryn M. (2010). Association between exposure to combat-related stress and psychological health in aging men: The Atherosclerosis Risk in Communities (ARIC) Study. *Journal of Traumatic Stress*, *23*(3), 358-366. http://doi.org/10.1002/jts.20527

Wong, E. (2016). Racial and ethnic differences in mental illness stigma and discrimination among Californians experiencing mental health challenges. *Santa Monica, California: RAND Corporation.*

Wood, A. M., & Joseph, S. (2010). The absence of positive psychological (eudemonic) well-being as a risk factor for depression: A ten year cohort study. *Journal of Affective Disorders*, *122*(3), 213-217. http://doi.org/10.1016/j.jad.2009.06.032

Woodford, M. R., Weber, G., Nicolazzo, Z., Hunt, R., Kulick, A., Coleman, T., ... & Renn, K. A. (2018). Depression and attempted suicide among LGBTQ college students: Fostering resilience to the effects of heterosexism and cisgenderism on campus. *Journal of College Student Development*, *59*(4), 421-438. http://doi.org/10.1353/csd.2018.0041

World Health Organization. (2019). *World health statistics overview 2019: monitoring health for the SDGs, sustainable development goals*. World Health Organization. Retrieved from https://apps.who.int/iris/handle/10665/311696

World Health Statistics. (2019). Mental health of older adults. Retrieved from https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults

Yan, Elsie, & Brownell, Patricia. (2015). Letter From the Guest Editors: Elder Abuse as a Gendered Issue. *Journal of Elder Abuse & Neglect*, *27*(4-5), 286-290. http://doi.org/10.1080/08946566.2015.1090364

Yau, C., (2010). *As normal as possible: Negotiating sexuality and gender in mainland China and Hong Kong* (Gale virtual reference library). Hong Kong: Hong Kong University Press.

Ye, Z., Qiu, H., Li, P., Chen, P., Liang, M., Liu, M., Yu, Y., Wang, S., & Quan, X. (2017). Validation and application of the Chinese version of the 10-item Connor-Davidson Resilience Scale (CD-RISC-10) among parents of children with cancer diagnosis. *European Journal of Oncology Nursing*, *27*, 36-44. http://doi.org/10.1016/j.ejon.2017.02.005

Youngmann, R., & Kushnirovich, N. (2020). Income as a resilience factor for the impact of discrimination and institutional unfairness on minorities' emotional well-being. *Social Science Research*, *91*, 102462. http://doi.org/10.1016/j.ssresearch.2020.102462

Yoshikawa, H., Wilson, P. A., Chae, D. H., & Cheng, J. F. (2004). Do family and friendship networks protect against the influence of discrimination on mental health and HIV risk among Asian and Pacific Islander gay men? *AIDS education and prevention : official publication of the International Society for AIDS Education*, *16*(1), 84–100. https://doi.org/10.1521/aeap.16.1.84.27719

Zhao, P., Tang, S., Wang, C., Zhang, Y., Best, J., Tangthanasup, T. M., ... & Tang, W. (2017). Recreational drug use among Chinese MSM and transgender individuals: resultsZhao, P., Tang, S., Wang, C., Zhang, Y., Best, J., Tangthanasup, T. M., Huang, S., Yang, B., Wei, C., Tucker, J. D., & Tang, W. (2017). Recreational Drug Use among Chinese MSM and Transgender Individuals: Results from a National Online Cross-Sectional Study. *PloS One*, *12*(1), e0170024-. https://doi.org/10.1371/journal.pone.0170024

Zhao, Y., Ma, Y., Chen, R., & Li, F. (2017). Prevalence of psychiatric comorbidities among MSM in China: A meta-analysis. *PLOS ONE*, *12*(6), e0178726. http://doi.org/10.1371/journal.pone.0178726

Zhu, G., Catt, M., Anderson, K., Gunn, D., & Birch-Machin, M. (2019). P069 Investigating the impact of insulin resistance on ageing and wellbeing using sleep as a model system.

Zhu, G., Catt, M., Anderson, K., Gunn, D., & Birch-Machin, M. (2019). Investigating the impact of insulin resistance on ageing and wellbeing using sleep as a model system. *PLOS ONE*, *12*(7), e0176331. http://doi.org/10.1371/journal.pone.0176331

Appendix I Information sheet

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

研究資料
長者男同志的精神健康與風險因素研究計劃

我們誠摯的邀請您參加由香港理工大學應用社會科學系甄秋慧教授及博士生陳小榮先生主持的一項學術研究。此研究通過香港理工大學研究委員會人類實驗對象操守小組委員會審核(編號：HSEARS 202101723001)。

研究目的

研究旨在探討長者男同志的精神健康與風險因素。是項研究將有助提倡社會對長者同志精神健康關注，協助社會各界對同志平權，了解年長同志所遇到的風險因素與困難，有莫大幫助。

研究過程

您將填寫一份有關長者男同志的精神健康與風險因素研究的問卷，您將完成以下部分的問卷。第一部分為一般健康問卷，第二部分為性風險量表，第三部分為日常歧視量表，第四部分為生活恢復力量表，第五部分為生活感知與掌握度量表，第六部分為個人社會資本量表，第七部分為社會接納程度量表，第八部分為法律認可同性傾向之全球指數，第九部分為基本資料收集。您將花大概三十分鐘完成本問卷。請仔細閱讀每個部分開始時的指示，並完成所有問答。答案無分對錯。請如實作答。完成是次研究問卷後，您有機會會再次被邀請參與大概六十分鐘有關長者男同志精神健康研究的訪談。

潛在風險/不適及預防措施

在填寫的過程中，您可能會感到有一點疲勞和不適，可是該不會帶來嚴重不適的情況，您可以於任何時間休息或終止填寫問卷。如有需要，可聯絡研究人員以作出適當安排。

保密性

所收集的資料將會嚴格保密，只有研究人員能夠取得資料作分析及書寫研究報告。任何能識別個人的資料都會以研究人員設定的代碼取代，僅用於研究材料上。您的身分將不會在本研究的任何報告或出版刊物上被指明。所收集的資料將會被妥善收藏於研究人員辦公室內的上鎖文件櫃，並會於出版有關本研究項目的首份文獻後的五年內被銷毀。以及會移除長期保留的研究數據中的個人識別資料。

參與／退出

是次參與純屬自願性質，您可隨時終止參與是項行動，有關決定將不會引致任何不良後果。

如日後您對是項研究有任何查詢，請與這項研究計劃的首席研究員-甄秋慧教授 (電話：2766-5733，電郵：elsie.yan@)或計劃副研究員-博士生陳小榮先生 (電郵：alexsw.chan@) 聯絡。 如您想知道更多有關研究參與者的權益，請聯絡香港理工大學人類實驗對象操守小組委員會秘書莫小姐 (電郵：cherrie.mok@)，提出查詢。

Appendix II Informed Consent Form

參與研究同意書
長者男同志的精神健康與風險因素研究計劃

本人_____同意參與由_____開展的上述研究。

本人知悉此研究所得的資料可能被用作日後的研究及發表，但本人的私隱權利將得以保留，即本人的個人資料不會被公開。

研究人員已向本人清楚解釋列在所附資料卡上的研究程序，本人明瞭當中涉及的利益及風險；本人自願參與研究項目。

本人知悉本人有權就程序的任何部分提出疑問，並有權隨時退出而不受任何懲處。

參與者姓名 _____

參與者簽署 _____

家長或監護人(如適用) 姓名 _____

家長或監護人(如適用) 簽署 _____

研究人員姓名 _____

研究人員簽署 _____

日期 _____

Appendix III Questionnaire

參加者編號_____(由研究員填寫)

第一部分：一般健康問卷(GHQ12)

我們想知道這一個月以來，你有沒有不舒服，和你的健康情況。如果你覺得那個答案適合你就圈起來。記著，我們是想知道你最近和現在的情況，而不是從前的問題。請你盡量回答所有的問題。這點十分重要。謝謝合作！

你最近是不是：

		否	是
1.	做事能集中注意力(集中精神)?	0	1
2.	為擔憂而失眠?	0	1
3.	覺得一般事情自己處理得很好?	0	1
4.	對自己做事的方式感到滿意?	0	1
5.	覺得總是有精神上的壓力?	0	1
6.	覺得無法克服困難?	0	1
7.	覺得日常生活有趣味?	0	1
8.	能夠勇敢地面對問題?	0	1
9.	覺得心情不快樂及憂慮?	0	1
10.	對於自己失去信心?	0	1
11.	覺得自己無用?	0	1
12.	大致上感到快樂?	0	1

第二部分：性風險量表(SRS)

請仔細閱讀下列句子，並在空白處記下<u>你在過去 6 個月內</u>對每一題的正確數字。

如果你不能確定一個行為發生了多少次，試著盡可能地估計這個數字，想想這種行為每週或每月發生的平均次數，這會讓我們更容易估算出一個準確的數字，尤其是如果這種行為經常發生的話。

如果你有多個性伴侶，試著想想你和每一個性伴侶在一起的時間有多長和你和每一個性接觸的次數，並試著對每一種行為的總數做出一個準確的估計。如果這個問題不適用於你，或者你從來沒有做過這個問題中的行為，在空白處標記“0”。請不要留空項目。

在下面的問題中，“性”包括口交、肛交和陰道性交；“性行為”包括激情親吻、親熱、愛撫、愛撫、口對肛門的刺激和手對生殖器的刺激。

	次數
1. 你有多少性伴侶與你有過性行為卻沒有發生性關係?	
2. 有多少次你和你剛認識的人一起參加社交活動?	
3.有多少次你“勾搭上”了，卻沒有和你不認識或不太了解的人發生性關係?	
4. 有多少次你去酒吧/聚會/社交活動的目的是“勾搭”及進行性行為，但沒有和某人發生性關係?	
5. 有多少次你去酒吧/聚會/社交活動的目的是為了“勾搭”並發生性關係?	
6. 你有過多少次意想不到的性經歷?	
7. 有多少次你自願與人發生性關係，但事後又後悔?	
請按照前面的步驟回答以下的問題。在第 8-23 題中，如果你從未有過性行為(口交、肛交或陰道性交)，請在空格處填上“0”。	
8. 你和多少個伴侶發生過性關係?	
9. 有多少次你是用乳膠或聚氨酯避孕套進行陰道性交的?注意:包括你使用羊皮或薄膜避孕套的次數。	
10. 你有過幾多次陰道性交而沒有採取避孕措施?	
11. 你有多少次沒有用避孕套的口交或被口交(對男人口交)經歷?	
12. 有多少次你在沒有口腔保護膜或沒有“充分保護”的情況下進行或接受舔陰(對女性口交)?	
13. 你有多少次進行沒有使用避孕套的肛交?	
14. 你或你的伴侶有多少次在沒有使用乳膠手套或避孕套的情況下通過手或其他物體進行肛交，然後進行無保護的肛交?	
15. 有多少次你給予或接受了肛門的口腔刺激，並沒有使用口腔保護膜或沒有提供足夠的保護?	
16. 有多少人與你發生過性關係但是他們和你沒有任何關係(例如 “炮友”)?	
17. 你有多少次和一個你不熟悉或剛認識的人發生過性關係?	
18. 你或你的伴侶有多少次在做愛前或做愛時飲酒或吸毒?	
19. 在討論性史、靜脈注射藥物、疾病狀況和其他現有性伴侶之前，你與新伴侶發生過多少次性行為?	
20.你有多少次和一個你知道有很多性伴侶的人發生過性關係?	

21. 有多少(以你所知)你曾經和性行為活躍但沒有接受性傳播感染/艾滋病檢測的伴侶發生過性行為?	
22. 你有多少個你不信任的性伴侶?	
23. 有多少次(以你所知)你和一個在同一時期還與他人發生性關係的人發生過性關係?	

第三部分：日常歧視量表 (EDS)

請仔細閱讀下列句子，在你的日常生活中，以下這些事情發生的頻率有多高? 如果你覺得那個答案適合你就圈起來。

	從不	不到一年一次	一年幾次	一個月幾次	至少一周一次	至少一周一次
1. 你受到的禮貌對待比別人少。	0	1	2	3	4	5
2. 你受到的尊重比別人少。	0	1	2	3	4	5
3. 在餐館或商店，你得到的服務比別人差。	0	1	2	3	4	5
4. 人們表現得好像他們認為你不聰明。	0	1	2	3	4	5
5. 人們表現得好像他們害怕你。	0	1	2	3	4	5
6.人們表現得好像他們認為你不誠實。	0	1	2	3	4	5
7. 人們表現得好像他們比你強。	0	1	2	3	4	5
8. 你被辱罵或侮辱。	0	1	2	3	4	5
9. 你受到威脅或騷擾。	0	1	2	3	4	5

第四部分：生活恢復力量表 (CDRS)

請仔細閱讀以下每一個句子，如果你覺得那個答案適合你就圈起來。
答案並無對錯之分，請不要花太多時間在某一句子上。

	從不	很少	有時	經常	一直如此
1. 我能夠適應變化。	0	1	2	3	4
2. 我能應付發生的任何事。	0	1	2	3	4
3. 當我面對問題的時候，我試著去看事情幽默的一面。	0	1	2	3	4
4. 應對壓力可以讓我更強大。	0	1	2	3	4
5. 我傾向於在生病、受傷或其他困難後恢復過來。 6. 我相信即使有障礙，我能實現我的目標。	0	1	2	3	4
7. 在壓力下，我能保持注意力集中，思維清晰。	0	1	2	3	4
8. 我不會輕易因失敗而氣餒。	0	1	2	3	4
9. 我認為當處理生活的挑戰和困難，自己是一個堅強的人。	0	1	2	3	4
10. 我能夠處理不愉快或痛苦的感覺，如悲傷、恐懼和憤怒。	0	1	2	3	4

第五部分：生活感知與掌握度量表 (12 items-SCS)

請仔細閱讀以下每一個句子，量表分開個人掌握和感知到的約束兩個部分，如果你覺得那個答案適合你就圈起來。

	非常同意	同意	稍為同意	普通	稍為不同意	不同意	非常不同意
個人掌握方面	1	2	3	4	5	6	7
1. 我能做任何我真正下定決心做的事。	1	2	3	4	5	6	7
2. 當我真的想做某事時，我通常會找到成功的方法。	1	2	3	4	5	6	7
3. 我自己掌握我是否能得到我想要的。	1	2	3	4	5	6	7
4. 將來會發生什麼主要取決於我自己。	1	2	3	4	5	6	7
感知到的約束	1	2	3	4	5	6	7
5. 我幾乎不能做什麼來改變我生命中重要的事情。	1	2	3	4	5	6	7
6. 在處理生活中的問題時，我經常感到無助。	1	2	3	4	5	6	7
7. 我能做什麼和不能做什麼，大部分是由別人決定的。	1	2	3	4	5	6	7
8. 生活中發生的事情往往是我無法控制的。	1	2	3	4	5	6	7
9. 有許多事情妨礙我想做的事情。	1	2	3	4	5	6	7
10. 我無法控制發生在我身上的事情。	1	2	3	4	5	6	7
11. 我真的沒有辦法解決我的問題。	1	2	3	4	5	6	7
12. 我有時覺得自己在生活中受人擺佈。	1	2	3	4	5	6	7

第六部分：個人社會資本量表(PSC)

請仔細閱讀以下每一個句子，量表分開十個社會資別本部分，如果你覺得那個答案適合你就圈起來。

資本一：你如何評價下列六類中的每一類人的人數?					
	很多	多於一般	一般	少於一般	很少
1. 家庭成員	5	4	3	2	1
2. 親戚	5	4	3	2	1
3. 鄰居	5	4	3	2	1
4. 朋友	5	4	3	2	1
5. 同事	5	4	3	2	1
6. 同鄉/舊同學	5	4	3	2	1
資本二：你與下列各類別的多少人保持日常聯繫?					
	全部	大部分	一些	很少	沒有
7. 家庭成員	5	4	3	2	1
8. 親戚	5	4	3	2	1
9. 鄰居	5	4	3	2	1
10. 朋友	5	4	3	2	1
11. 同事	5	4	3	2	1
12. 同鄉/舊同學	5	4	3	2	1
資本三：在以下六類人當中，你能信任多少人?					
	全部	大部分	一些	很少	沒有
13. 家庭成員	5	4	3	2	1
14. 親戚	5	4	3	2	1
15. 鄰居	5	4	3	2	1
16. 朋友	5	4	3	2	1
17. 同事	5	4	3	2	1
18. 同鄉/舊同學	5	4	3	2	1
資本四：在以下六類人當中，有多少人會在你的要求下肯定會幫助你?					
	全部	大部分	一些	很少	沒有
19. 家庭成員	5	4	3	2	1
20. 親戚	5	4	3	2	1
21. 鄰居	5	4	3	2	1
22. 朋友	5	4	3	2	1
23. 同事	5	4	3	2	1

24. 同鄉/舊同學	5	4	3	2	1
資本五：當考慮以上者這六類人時，有多少人擁有以下資產/資源?					
	全部	大部分	一些	很少	沒有
25. 一定的政治權力	5	4	3	2	1
26. 財富或一個企業或公司的擁有者	5	4	3	2	1
27. 與他人有廣泛的聯繫	5	4	3	2	1
28. 聲譽高/有影響力	5	4	3	2	1
29. 高中或以上學歷	5	4	3	2	1
30. 有專業的工作	5	4	3	2	1
資本六：您如何評價以下兩種類型的團體/組織在您的社區中的數量?					
	很多	多於一般	一般	少於一般	很少
31. 政府、政治、經濟和社會團體/組織(政黨、婦女團體、村委會、工會、合作協會、志願者團體等)	5	4	3	2	1
32. 文化、康樂及消閒團體/團體(宗教、鄉村成員、校友、體育、音樂、舞蹈、手工藝、遊戲等)	5	4	3	2	1
資本七：你參加過多少以下兩類團體和組織的活動?					
	全部	大部分	一些	很少	沒有
33. 政府、政治、經濟和社會團體/組織(政黨、婦女團體、村委會、工會、合作協會、志願者團體等)	5	4	3	2	1
34. 文化、康樂及消閒團體/團體(宗教、鄉村成員、校友、體育、音樂、舞蹈、手工藝、遊戲等)	5	4	3	2	1
資本八：在這兩種類型的團體和組織中，有多少代表你的權益?					
	全部	大部分	一些	很少	沒有
35. 政府、政治、經濟和社會團體/組織(政黨、婦女團體、村委會、工會、合作協會、志願者團體等)	5	4	3	2	1
36. 文化、康樂及消閒團體/團體(宗教、鄉村成員、校友、體育、音樂、舞蹈、手工藝、遊戲等)	5	4	3	2	1
資本九：在這兩種類型的團體和組織中，有多少會根據你的要求幫助你?					
	全部	大部分	一些	很少	沒有
37. 政府、政治、經濟和社會團體/組織(政黨、婦女團體、村委會、工會、合作協會、志願者團體等)	5	4	3	2	1

38. 文化、康樂及消閒團體/團體(宗教、鄉村成員、校友、體育、音樂、舞蹈、手工藝、遊戲等)	5	4	3	2	1
資本十：當考慮這兩類中的所有團體和組織時，有多少擁有以下資產/資源?					
	全部	大部分	一些	很少	沒有
39. 重大的決策權力	5	4	3	2	1
40. 堅實的金融基礎	5	4	3	2	1
41. 廣泛的社會關係	5	4	3	2	1
42. 極具社會影響力	5	4	3	2	1

第七部分：社會接納程度量表

請仔細閱讀以下每一個句子，如果你覺得那個答案適合你就圈起來。

	非常不同意	不同意	普通	同意	非常同意
1. 我是我朋友生活中非常重要的一部分。	1	2	3	4	5
2. 我母親多次讓我失望。	1	2	3	4	5
3. 我父母反對我做的很多事情。	1	2	3	4	5
4. 我父親過於頻繁地管教我。	1	2	3	4	5
5. 我有時想知道別人是否喜歡我。	1	2	3	4	5
6. 每當我需要我母親的時候，她總是在我身邊。	1	2	3	4	5
7. 我父母通常都相信我能自己做決定。	1	2	3	4	5
8. 有時，我父親讓我覺得他不贊成我。	1	2	3	4	5
9. 我的朋友經常對我表示關心。	1	2	3	4	5
10. 我母親讓我覺得她真的接受了我。	1	2	3	4	5
11. 我是我的家庭的生活中非常重要的一部分。	1	2	3	4	5
12. 我父親從未真正理解過我。	1	2	3	4	5
13. 我總是可以依靠我的朋友。	1	2	3	4	5
14. 不管我做什麼說什麼，我母親都愛我、關心我。	1	2	3	4	5
15. 在與家人的關係中，我經常覺得自己被冷落了。	1	2	3	4	5
16. 在父親面前“做我自己”讓我感到很舒服。	1	2	3	4	5
17. 我的朋友對我的個人需求很敏感。	1	2	3	4	5
18. 我母親從來沒有真正理解過我。	1	2	3	4	5
19. 我有時會懷疑我的家人是否喜歡我。	1	2	3	4	5
20. 當我需要父親的時候，他總是在我身邊。	1	2	3	4	5
21. 在與他人的關係中，我經常感到自己被遺忘了。	1	2	3	4	5
22. 在母親面前“做我自己”讓我感覺很舒服。	1	2	3	4	5
23. 我的家人經常對我表示關心。	1	2	3	4	5
24. 我父親讓我覺得他真的接受了我。	1	2	3	4	5
25. 我向朋友們吐露內心深處的秘密。	1	2	3	4	5

26. 有時，我母親讓我覺得她不贊成我。	1	2	3	4	5
27. 我可以永遠依靠我的家人。	1	2	3	4	5
28. 我的父親愛我，關心我，無論我做什麼或說什麼。	1	2	3	4	5
29. 我覺得自己處於朋友圈的邊緣。	1	2	3	4	5
30. 我母親過於頻繁地管教我。	1	2	3	4	5
31. 我的家人對我的個人需求很敏感。	1	2	3	4	5
32. 我父親曾多次讓我失望。	1	2	3	4	5
33. 我有時覺得我的朋友不把我當作好朋友。	1	2	3	4	5
34. 我母親總是很小心，不傷害我的感情。	1	2	3	4	5
35. 我向家人吐露了我內心最深處的秘密。	1	2	3	4	5
36. 我父親總是小心翼翼地不傷害我的感情。	1	2	3	4	5
37. 我經常覺得我的朋友不理解我。	1	2	3	4	5
38. 我母親相信我會做對自己最適合的事。	1	2	3	4	5
39. 我經常感到家人不理解我。	1	2	3	4	5
40. 我父親相信我會做對自己最適合的事。	1	2	3	4	5
41. 我覺得我處於家庭關係的邊緣。	1	2	3	4	5
42. 我有時覺得我的家人不認為我是一個好的家庭成員。	1	2	3	4	5
43. 我的朋友們反對我所做的許多事情。	1	2	3	4	5
44. 我的朋友們通常都相信我能自己做決定。	1	2	3	4	5

第八部分：法律認可同性傾向之全球指數(GILRHO)

請仔細閱讀以下每一個句子，如果你覺得那個答案適合你就圈起來。

	是	否
1. 成人間的合意同性性行為合法與否。	1	0
2. 合意的同性性行為和異性性行為相比，其合法性是否有相同年齡限制。	1	0
3. 立法明確禁止聘雇員工時的性傾向歧視。	1	0
4. 立法明確禁止提供貨品或服務銷售的性傾向歧視。	1	0
5. 對未登記的同居同性伴侶有無任何法律認可。	1	0
6. 同性伴侶是否可以登記伴侶關係。	1	0
7. 同性伴侶是否可能共同領養小孩或成為另一雙親。	1	0
8. 同性伴侶是否可以結婚。	1	0

第九部分：參加者基本資料

1. 你認為自己的性傾向是?
   1□ 男同性戀　　2 □雙性戀　　3□異性戀　　□其他 (如無性戀、不確定)

2. 你曾否向下列人士表明自己的性取向 (出櫃) (可選多項)
   1□家人　　2□朋友　　3□工作同事　　4□其他，請註明：_____

3. 你的宗教背景是?
   1□沒有/不適用
   2□有 請註明：_____

4. 你的婚姻狀況是？
   1□單身　　2□戀愛中　　3□已婚
   4□其他，請註明：_____

5. 你有否曾經醫生診斷患有精神病? (如抑鬱症，焦慮症等)
   1□沒有　　2□有，請註明：_____

6. 性別：1□男　　2□女　　3□其他：_____

7. 年齡:_____

8. 出生地點：1□香港　2□中國大陸　3□其他，請註明:
   _____

9. 在港居住年數(如在香港出生則不用填寫)：共_____年

10. 教育程度：
    1□小學或以下　　2□中一至中三　　3□中四至中六
    4□預科　　5□專上非學位課程　　6□專上學位課程或以上

11. 升學/就業情況：(可選多項)
    1□學生　　2□全職工作　　3□散工或兼職工作
    4□待業　　5□自僱　　6□其他：_____

12. 你是否與家人同住?
    1□是：與誰同住?(可選多項)
    1□父親　　2□母親
    3□兄弟姐妹　　4□祖父母/外祖父母
    5□其他親人:_____
    2□否：1□與朋友同住　　2□自己一個住
    3□ 伴侶同屋　　4□其他：_____

13. 你現在所居住的房屋類型是？

1□公營租住房屋（公屋）　　2□村屋
3□私人永久性房屋（私樓）　　4□資助出售單／夾屋
5□臨時房屋／木屋／板間房／劏房／籠屋　　6□其他：_____

14. 你每月的入息多少（包括工作薪資、綜合社會保障援助金（綜援金）、長俸或其他收入）？

1□$10,000 或以下　　2□$10,001 - $20,000
3□$20,001 - $30,000　　4□$30,001 - $40,000
5□$40,001 - $50,000　　6□$50,001 或以上
7□不知道

問卷結束，謝謝參與！