Discrimination, Personal Discrimination, and Group Discrimination Among Chinese Canadians/Immigrants During the COVID-19 Pandemic – Results From an Online Cross-Section Survey

by

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Abstract

Background: Pre-existing racial discrimination has been exacerbated, particularly among Chinese immigrants in Canada since 2020, during the outbreak of the COVID-19 pandemic.

Method: Data for this cross-section 2021 study were collected via an anonymous online survey in both English and Chinese, with 739 participants aged 16 or older of Chinese origin residing in Canada for at least six months. Voluntary participation was ensured, with informed consent obtained prior to questionnaire access. The study utilized descriptive statistics for sociodemographic and mental health variables, Chi-square analysis for pre- and during-pandemic comparisons, correlation analyses for examining relationships among variables, and confirmatory factor analysis (CFA) on outcome variables. Mediating effects of perceived group discrimination were tested using model analysis and Bootstrap estimation procedure in AMOS.

Results: There was a significant increase in reported discrimination experiences, with over half of participants experiencing discrimination, a 16.67-fold increase since the pandemic's onset. Public places were the most common sites for discrimination incidents. Only 7% of victims reported incidents to authorities, citing barriers such as lack of knowledge (30.96%), safety concerns (28.60%), and language barriers (27.41%). Both personal and group discrimination predicted poorer mental health outcomes, with over 80% reporting strong negative emotions, primarily anger (95.33%). Perceived group discrimination partially mediated the relationship between personal discrimination and negative emotions. Covariates revealed that higher education and English proficiency were associated with lower perceived

group discrimination, while employment was linked to higher perceived group discrimination. Perceived discrimination positively correlated with perceived group discrimination, and both were associated with negative emotions.

Conclusion: The study's findings underscore a concerning trend of escalating and widespread anti-Asian discrimination in Canada. Chinese immigrants lack awareness of available anti-discrimination resources, hindering effective response to incidents. Over 80% of respondents express skepticism about imminent change. Those experiencing discrimination exhibit deteriorating mental health and diminished optimism. Many attribute the surge in discrimination to COVID-19 and suggest ad hoc laws as a solution; however, establishing a reliable reporting system emerges as a top priority from our discussion.

General Summary

Racial discrimination against Chinese immigrants in Canada has worsened since 2020 when the COVID-19 pandemic outbreak. This study explores the surge in racial discrimination against Chinese immigrants in Canada. Surveying 739 Chinese participants, the research reveals a 16.67-fold increase in discrimination risk since the outbreak. Public spaces are most common for verbal and physical discrimination, yet only 7% of victims report incidents. Barriers to reporting include knowledge gaps (30.96%), safety concerns (28.60%), and language barriers (27.41%). Both personal and perceived group discrimination predict poorer mental health outcomes, with over 90% of participants experiencing strong negative emotions. Perceived group discrimination partially mediates the relationship between personal discrimination and negative emotions. Additionally, higher education and English proficiency are associated with lower levels of perceived group discrimination. The study highlights the widespread and escalating anti-Asian discrimination, with over 80% of participants expressing pessimism about improvement. The findings stress the urgent need for awareness and intervention, advocating for a reliable reporting system to address the issue effectively.

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Chapter 1. Introduction

1.1 Background

Coronavirus Disease 2019 (COVID-19) is caused by a virus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In December 2019, the first known case was found in Wuhan, China. Since then, the disease has spread quickly worldwide. The World Health Organization (WHO) declared the COVID-19 outbreak a public health emergency of international concern on January 30, 2020 and classified it as a pandemic on March 11, 2020 (World Health Organization, 2020). In Canada, the first case was reported on January 25, 2020, in Toronto. The incident involved a Chinese Canadian in his 50s recently returning from Wuhan, China, the outbreak's epicentre. From that time until December 12th, 2023, the pandemic caused 4,843,627 confirmed cases and 56,534 deaths in Canada.

As the pandemic swept across the world, another concern, racial discrimination against Asians, was thrust to the forefront of the conversation. The recent surge in anti-Asian sentiment can be attributed to the origins of COVID-19 in Wuhan, China, where the first case was reported in 2019 (Mamuji et al., 2021). There are numerous reports of physical violence experienced by members of Chinese diaspora communities worldwide (Human Rights Watch, 2020). However, most instances of anti-Asian discrimination manifest in the form of "micro-aggressions," which are subtler but equally harmful. These stories include the emergence of Twitter hashtags such as #ChineseDontComeToJapan (Della-Cava & Lam, 2020) and petitions to prevent the entry of Chinese citizens, such as the one observed in Singapore with tens of thousands of signatures

(Campbell, 2020). In France, the term "Yellow Alert," accompanied by images of Chinese people, appeared as a racially charged symbol." (Rich, 2020). In the United States, the former president referred to the illness as the "China Virus" and "Kung Flu" (Griffiths, 2020; Nakamura, 2020).

Racism against Asian Canadians encompasses both explicit and implicit discrimination. The former, or overt or blatant discrimination, occurs when individuals or groups openly and consciously express discriminatory attitudes or engage in discriminatory actions based on specific characteristics such as race, gender, ethnicity, or other protected attributes. The latter, known as subtle or unconscious discrimination, refers to biases that operate at a subconscious level, often unintentionally influencing an individual's thoughts, attitudes, or behaviours toward` others based on specific characteristics. Regarding explicit discrimination, data from the Vancouver Police Department (2021) reveals a 717% increase in reports of hate crimes targeted at Asian Canadians in 2020 compared to 2019. As examples of implicit discrimination, individuals refused care from Asian healthcare professionals or weaponized the virus in verbal harassment. Despite the COVID-19 pandemic exacerbating anti-Asian prejudice, these discriminatory behaviours are not new; they stem from a little-discussed history of the early years of Asian immigration (Angus Reid Institution, 2020). The alarming uptick in anti-Asian discrimination can be seen as a second public health crisis, parallel to the infectious epidemic with more profound social, psychological, and economic implications. The Director-General of the World Health Organization (WHO), Dr. Tedros Ghebreyesus, acknowledged this global problem by stating, 'The greatest enemy we face is not the virus itself; it is the stigma that turns

us against one another' (Ghebreyesus, 2020 in Munich Security Conference). This reality emphasizes the urgency and importance of disseminating accurate information and fostering awareness to mitigate the effects of discrimination through intervention and prevention programs.

1.2 Historical Context and Current Context

The racialization of diseases is not new. Infectious diseases have long been used as a tool for racial discrimination. For example, the Spanish flu and the Mexican flu were designated 'Spanish' and 'Mexican,' not because the diseases originated in Spain or Mexico. The former was named after Spanish King Alfonso XIII, who was infected with the flu, and the latter received its name because the H1N1 virus originated in pigs in central Mexico. Another example is the Ebola virus, named because it was initially identified near the River Ebola in Africa, though its exact origin remains unclear. The Middle East Respiratory Syndrome (MERS) is named based on the first reported case in Saudi Arabia.

To mention a particular race or region in the spread of diseases is a natural human reaction to the anxiety and panic accompanying a public health emergency rather than being intrinsically malicious (Dionne & Turkmen, 2020). However, this practice intensifies biases and preconceptions, while immigrants and other minority groups have historically been the victims of victimization. Using the Ebola example above, after a Liberian man was diagnosed with Ebola in Dallas, Texas, in October 2014, the public in the United States began to link the disease more extensively with African immigrants (Centers of Diseases Control and Prevention, 2019).

The fact that the first case of COVID-19 was discovered in China has contributed to its racialization. However, the rapid propagation of anti-Asian discrimination is not new and has historical roots in the racial discrimination Field (World Health Organization, 2020). Chinese immigrants have long been the target of discrimination in both the US and Canada, especially during earlier periods. In the early stages, Chinese immigrants were seen as a disposable source of cheap labour (Chan, 2017). During that time, the double-edged dread and prejudice of Asian immigrants in light of their exploitation had been dubbed 'yellow peril' by some academics (Lee, 2007).

In the contemporary context, the term "model minority" gained popularity as a tactic to downplay racism's impact on the ongoing problems of other racial and ethnic minorities. American sociologist William Petersen first applied this term to Japanese Americans in 1966; it has expanded to include East and South Asian Americans and Canadians with similar cultural backgrounds (Kasinitz et al., 2011). The majority group constructed a shared frame of "yellow peril" and "model minority"; the former was considered threatening and disposable, and the latter was allowed more chances because of their obedience. The power to toss the coin between the "yellow peril" and "model minority" is held by the majority group. During the COVID-19 pandemic, blaming China or Chinese as the source of the virus could be seen as a using of the "yellow peril" side of the coin. It served to separate Asian Americans from other communities of colour and deflect blame away from the government's inadequate response to the outbreak (Siu & Chun, 2020).

The spread of racial misinformation surrounding the virus spread comparably, or even faster, to the disease. Since the early stage of the pandemic, some media have falsely claimed that cultural practices contributed to COVID-19. For example, some media suggested that the wet market, an important source of food and income in many Asian countries, was responsible for the spread of COVID-19. Some celebrities, politicians, and other prominent public figures, including the U.S. president, propagated the unsubstantiated hypothesis, e.g., a Wuhan laboratory produced the virus. This misinformation was a small component of the overall disinformation but attracted a large majority of all social media engagements in the sample due to these people's high popularity (Brennen et al., 2020). What makes matters worse is that media platforms' hesitation and lack of urgency to delete ambiguous material hampered public health initiatives to restrict the infection and created an environment for harmful rhetoric (Brennen et al., 2020). This rhetoric contributed to an 800% increase in anti-Asian sentiment on social media and news outlets. It redirected the negative emotions caused by the pandemic in a way that promoted racism and xenophobia (Hswen et al., 2021).

1.3 Chinese Canadians/Immigrants in Canada

Chinese Canadians are people born or naturalized in Canada and have full or partial Chinese heritage (Tian, 1999). The Chinese Canadian community is the largest ethnic group of Asian Canadians, representing approximately 40% of the Asian Canadian population. According to demographic studies, the term "Chinese Canadians" is frequently used to refer to immigrants from the People's Republic of China, Taiwan, Hong Kong, and Macau, as well as overseas Chinese who have relocated from Southeast Asia and South America (Statistics Canada, 2016).

According to the Canadian Census 2021, 1.71 million or 4.63% of the Canadian population identify as being of Chinese ethnic heritage (Statistics Canada, 2022a). Ontario and British Columbia are home to most Canadians of Chinese origin. Character Literature Review will describe the brief history of Chinese Canadians.

In brief, over a quarter of a million Chinese people have immigrated to Canada every decade since 2000, more than doubled from 1991 to 2000 (Statistics Canada, 2017). 78% of the nearly one million Chinese people who have settled in Canada since 1980 are initially from either mainland China, Hong Kong, Taiwan, or Macau (Statistics Canada, 2017). Seven in ten Chinese Canadians were foreign-born in 2016, with 649,265 being born in mainland China, 208,935 in Hong Kong, and 63,770 in Taiwan (Statistics Canada, 2017). Chinese immigrants to Canada comprise a heterogeneous group with marked subgroup differences. Because of the differences in language, culture, religion, and political relations between regions, many sub-ethnic groups exist, such as Mainlanders, Taiwanese, and Hong Kong Chinese (Yan et al., 2019). While most Chinese Canadians feel a deep pride in their country, only 13% think they are truly seen as Canadian by the rest of the country (Angus Reid Institution, 2020).

1.4 Objectives and Organization

This thesis aims to assess the prevalence and types of anti-Asian discrimination, to understand how discrimination has negatively affected Asian immigrants and Canadian residents since the COVID-19 pandemic, and to explore ways to prevent future discrimination against Asian immigrants and Canadian residents.

The present study aims to understand better the psychosocial correlates of Chinese Canadian's discrimination during the COVID-19 pandemic.

1) The first objective of this study was to confirm whether anti-Asian discrimination among Chinese Canadians/immigrants increased during the COVID-19 pandemic and whether the incidences varied with demographic variables, such as age, gender, education level, etc. The hypothesis is that anti-Asian discrimination increased during the pandemic and occurred more among middle-aged, lower-educated female Chinese Canadians/immigrants who have lived in Canada for more than ten years.

2) The second aim of the study was to describe where and what kind of anti-Asian discrimination and how people cope with it. My suggestion is that in public places, it will be more difficult for people to take action due to safety worries. I want to identify the barriers people face in coping and thus give more targeted suggestions.

3) The third aim is to explore the relation between experienced discrimination and negative emotions (path A, as shown in Figure 1) and whether the perceived group discrimination mediated the relation (path B & path C, as shown in Figure 1). I hypothesized that experienced personal discrimination was associated with negative emotions, and perceived group discrimination had a mediated effect on experienced personal discrimination and negative emotions because individuals often internalize perceived group discrimination, leading to heightened sensitivity and susceptibility to experiencing personal discrimination, which in turn triggers negative emotional responses (Armenta & Hunt,2009). The model

is shown in Figure 1 (adapted from Preacher & Hayes, 2004). I also wanted to test whether the mediation effect of perceived group discrimination on perceived personal discrimination and negative emotions would be changed after controlling for covariates, such as age, education, and career. I hypothesized that the mediation effect would not change after controlling the covariates.

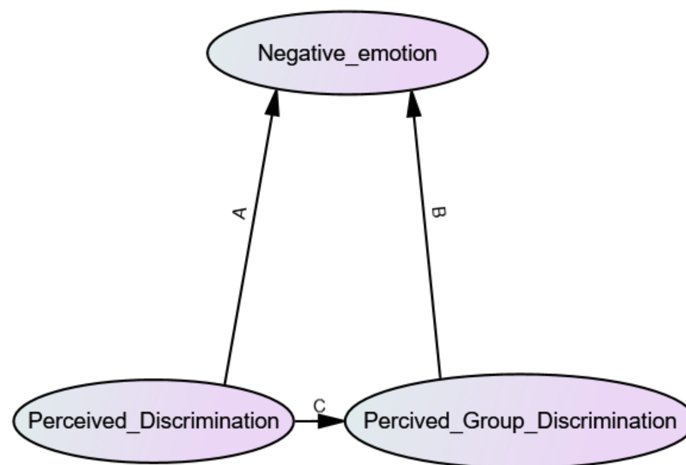

Figure 1 Conceptual model of Perceived individual discrimination and negative emotions, mediating by perceived group discrimination (adapted from Preacher & Hayes, 2004)

The thesis consists of five chapters. The introduction chapter gives background information about the study and describes the study's objectives. The second chapter is a literature review which includes a definition of related terms, a detailed history and current context, and the connection between immigrants' discrimination against minority status and their experience of discrimination. The third chapter includes information on the study's methodology, such as the research design and the analytical procedures. The fourth chapter offers the population's demographics and the descriptive and analytic outcomes. The fifth chapter is the discussion and conclusion part. The study's limitations can also be found in the fifth chapter.

Chapter 2. Literature Review

Even though equity, diversity, and inclusiveness are highly promoted in a multicultural society like Canada, discrimination still exists in a diverse society, and discrimination can have negative consequences for individuals (Dion, 2002). This literature review aims to explain racial discrimination in Canada and focuses on the following central topics:

1) Defining discrimination, including racial discrimination, personal discrimination, and group discrimination.
2) Examining the history of anti-Asian discrimination in Canada.
3) Discussing anti-Asian discrimination in relation to disease stigma.
4) Investigating the relationship between anti-Asian discrimination and health.

2.1 Defining Racial Discrimination, Personal and Group Discrimination

"Discriminate" derives from the Latin root discriminate, which means "to split, separate, differentiate," according to the *Oxford English Dictionary*. This definition means "a distinction (formed with the mind or in action)." When people are involved, "to discriminate against" means "to make an unpleasant distinction with reference to; to distinguish negatively from others."

Discrimination included many types, such as race, gender, sex orientation, age, disability, etc. Racial discrimination is defined as 1) “differential treatment based on race that disadvantages a racial group” and 2) “treatment based on inadequately justified factors other than race that

disadvantages a racial group (Blank et al., 2004). ” This definition differs from the differential treatment and disparate impact: treating people differently based on race is known as differential treatment. When a set of rules and procedures favours members of one group over those of another, it is said to have a disparate impact on those persons (Pager & Shepherd, 2008).

An “Iceberg” figure describes the visible and invisible parts of discrimination. The iceberg's base is more dangerous than its top. What is underneath the surface influences the iceberg's direction and velocity and, if undetected, can cause catastrophes. It means that although hate crimes and poor treatment are more easily observed, more subtle, symbolic, and mundane types of discrimination in daily life may be as damaging as more overt ones, and institutionalized discrimination is a primary cause of health and health disparities.

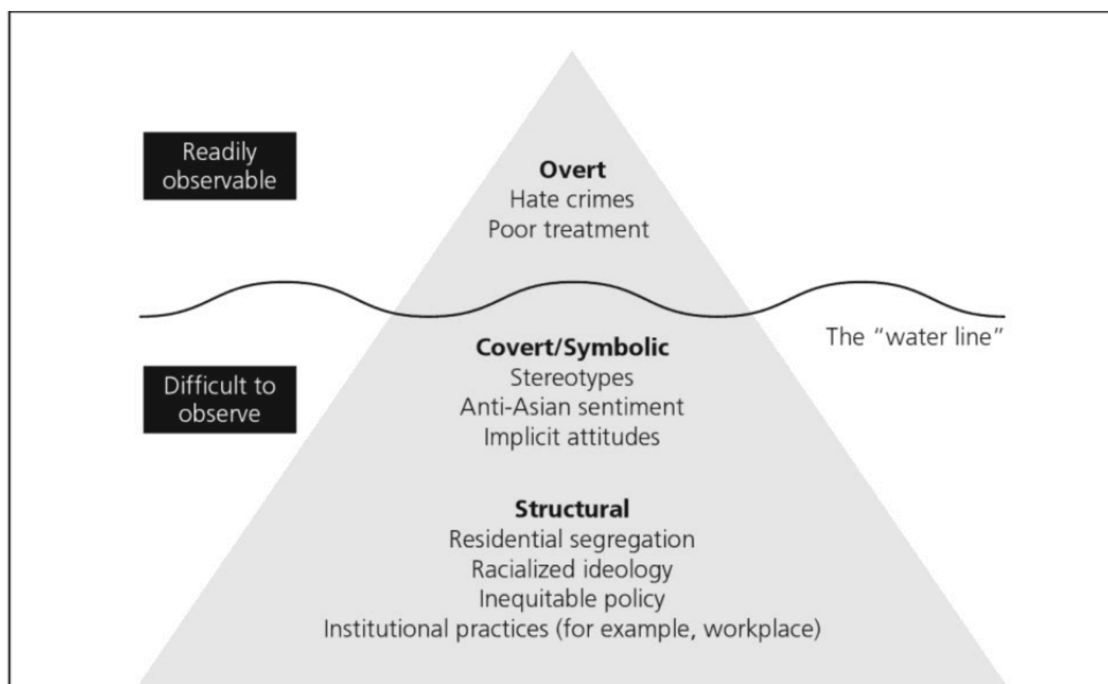

Figure 2 The discrimination iceberg. Adapted from Asian American Communities and Health: Context, Research, Policy and Action (Trinh-Shevrin et al., 2009)

The “Iceberg” figure makes it easier to understand how invisible discrimination affected observed discrimination. Thus, racial discrimination is rooted in a more covert ideology, which suggests that one race is better than others (Denga, 2019). However, it is not a biological category for humans but a taxonomic term for groups of people who share heritable physical traits like skin and hair colour that set them apart from other groups (Denga, 2019). According to the discrimination iceberg, it will be helpful to understand the whole structure of discrimination and how it affects people’s health. In contrast, for an analysis of how racism negatively affects health, it is necessary to look at how people live out these determinants. Thus, most research only focuses on the individual's experiences (i.e., personal discrimination).

While individuals may not personally experience discrimination, the perception of unfair treatment directed at their entire group, referred to as "group discrimination," can still have detrimental effects (Hagiwara et al., 2016). Group discrimination reflects individuals' internalization of societal and cultural stereotypes and beliefs about their group (Dion, 2002). The stigma-conscious theory claims that one's perception of being a potential victim of discrimination will affect one's well-being, which is altered by perceived group discrimination. In contrast, personal discrimination has a more direct impact on one's mental health (Pinel, 1999; Schmitt et al., 2014). Group discrimination incidents are more cognitively accessible, as they are frequently observed via media and news. Since the beginning of the COVID-19 pandemic, reports and social media posts about racial attacks and anti-Chinese sentiment have increased dramatically. This makes Chinese Canadians and Chinese immigrants more likely to be aware of the discrimination experiences reported by their community and, consequently,

more likely to perceive discrimination themselves. Therefore, in addition to direct experiences of discrimination, Chinese Canadians and Chinese immigrants' perceptions of group discrimination will alter their personal discrimination experience.

2.2 History of anti-Chinese racism in Canada

The first Chinese immigrants to settle in Canada were a group of fifty artisans who travelled with Captain John Meares in 1788. Their mission was to assist in constructing a trading post and to promote the exchange of sea otter pelts between Guangzhou, China, and Nootka Sound, British Columbia (Arlene Chan, 2017). Most of the earliest Chinese immigrants arrived in Canada from the western coast of the United States around 1858. This was when Canada required cheap labour for gold mining in the Fraser Valley of British Columbia (Li, 1988). Later during the construction of the Canadian Pacific Railway between the years 1881 and 1885, approximately 15,700 Chinese workers were recruited from China through the coolie trade as indentured labourers. Of those 15,700 workers, 6,500 were directly employed to build the western section of the Canadian Pacific Railway.

At the beginning of Chinese immigration to Canada, they were welcomed as "useful and inoffensive labour" despite being "socially inferior." They were forced to take on hazardous professions that whites would not touch despite being paid a quarter to half as less as their white colleagues and subjected to deplorable living conditions (Mooten, 2021). However, Chinese labourers came to be viewed as a threat to the White working class in the workplace, particularly as the gold rush ended and economic hardship set in. Europeans' belief in racial

superiority led them to exclude the Chinese and blame them for economic and social problems, and cultural differences, such as eating habits and burial[1], exemplify this view (Li, 1988). The completion of the Canadian Pacific Railway in 1885 resulted in the displacement of tens of thousands of Chinese workers, prompting the federal government to initiate legislative efforts to regulate Chinese immigration.

Immigration exclusion laws, such as *The Chinese Immigration Act of 1885*, resulted from this wave. Under this Act, all Chinese immigrants had to pay a $50 "head tax" and this tax was increased to $100 and $500 in 1900 and 1903, respectively, equaling two decent homes or 200 acres of prime property in Montreal then (Dere, 2019). It soon became apparent that the punitive entry charge had not achieved its goal of reducing Chinese immigration. Thus, in 1902, the act with the same name that replaced the *Chinese Immigration Act* effectively suspended Chinese immigration (Arlene Chan, 2017).

In 1923, the federal government passed the *Chinese Immigration Act 1923*, often known as the "Chinese Exclusion Act," to restrict immigration from China further. Diplomats, children born in Canada to parents of Chinese race or descent, merchants, and students were a few exceptions to the ban on Chinese immigration to Canada (Arlene Chan, 2017). Since then, until 1946, only fifteen Chinese immigrated to Canada. Thus, the Chinese community renamed July

[1] For example, if Europeans encountered Chinese people's burial customs that differed from their own traditions, such as burial rituals involving cremation or burial in familial ancestral tombs, they might have viewed these practices through a lens of cultural superiority. Instead of realizing these rituals' cultural significance and complexity, some Europeans may have dismissed them as primitive or uncivilized.

1st, when the act was passed, as "Humiliation Day" instead of “Dominion Day” or “Canada Day” (Dere, 2019).

Although migration into Canada from most countries was controlled or restricted in some way, as Li (1998) claimed, “no other immigrant group was subjected to the same legislative controls” based on race. From 1931 to 1951, the Chinese population in Canada dropped from 46,619 to 32,528 due to the head tax and the *Exclusion Act* (Li, 1988). It was not until 1947 that the Canadian Government finally repealed *the Chinese Exclusion Act* due to a series of movements. It ended “sixty-two years of official state racism against the Chinese (Dere, 2019).”

The *1962 Immigration Law* was the first law to prohibit discrimination based on race, which allowed “a person who because of his education, training, skills and other special qualifications is likely to establish himself successfully in Canada and who has the means to support himself until he is established or has come with employment arrangements or has come under approved arrangements for establishment in a business, trade or profession or agriculture (Green & Green, 2004).” Many Asian and African people were admitted to Canada in the 1960s and 1970s to fill low- and middle-skilled jobs, even though most of them were overqualified. The influx of skilled non-European immigrants to Canada in the 1980s prompted an increase in Asian immigrants working in professional, technical, and management jobs; many of these newcomers were of Chinese origin. Despite their improved professional and financial conditions, Chinese Canadians are attacked for their lack of proficiency in English and their incompatibility with traditional Canadian values and consumption habits, and they are also held responsible for escalating housing costs and traffic jams (Dere, 2019; Li, 1988).

There has been a growth in covert and insidious forms of racism in modern Canada because of growing resentment against the economic power and success of Asian immigrants. Although Canada's legal framework endorses the democratic principles of equality and anti-discrimination *(the Canadian Charter of Rights and Freedoms, the Multiculturalism Act,* and *the Employment Equity Act)*, Canadians "tolerate and at times promote a softer version that maintains racial distinctions as natural and as immutable differences of people (Li, 2001). " Thus, Chinese Canadians are regularly picked out, not because their cultural features are incompatible with Canadian traditions and practise, but rather because racial minorities have always been seen as foreign to white Canadian hegemony, historically and culturally (Li, 2001).

2.3 Anti-Chinese Discrimination during the COVID-19 Pandemic Period

When there were just three confirmed COVID-19 cases in Canada in January 2020, Chinese Canadians began to detect the "wave of racism" (Cecco, 2020). Hate crimes against Asians increased by over 700% in 2020 compared to 2019, according to Vancouver police data. Toronto, Ottawa, and Montreal police also reported an increase in incidents of hate crime towards Asian Canadians (Wells, 2021; CBC News, 2021). The true incidence of hate crimes may be far higher. Over 90% of hate crime victims did not disclose their offences to the authorities due to fears that the police would not believe them or, in other cases, because they thought the police were biased. For example, A Montreal resident complained to police about a racist neighbour, but officers were eager to remind her that her neighbour have the right and freedom of expression (Chung, 2021). Across Canada, reports of racial harassment increased beginning in the spring of 2020. Chinese students in Ontario were the target of threats and

harassment at schools; Chinese people were the target of verbal and physical assaults in multiple cities; Chinatown buildings were defaced in Vancouver, Victoria, and Montreal; and Chinese restaurants in Calgary were threatened, defaced, or damaged by fire (CityNews, 2020; Kelly, 2020; Kirkey, 2020; Lam, 2020; Little, 2020; The Canadian Press, 2020; White, 2020). People who were not Chinese but were misidentified as such were also a target. South Korean Consulate in Montreal issued a warning to all Korean Canadians two days later on its website (Rowe, 2020). There have been multiple cases of extreme brutality. On April 1, 2020, for instance, two Korean men were stabbed in Montreal, while on March 15, 2020, an Asian man with dementia, aged 92, was insulted and physically beaten in Vancouver (Chiu, 2020).

2.4 Anti-Asian Discrimination in Relation to Disease in Canada

The immigrant population has frequently been portrayed as a health risk due to allegations that they spread lethal communicable diseases like tuberculosis (TB), HIV/AIDS, hepatitis, Ebola, and Chagas disease (Reitmanova et al., 2015). Attributing a health issue to a minority group increases racial tensions by fueling exaggerated worries and discrimination (Adeyanju & Oriola, 2010). Since the 19th century, the Chinese in Canada have been stereotyped as the moral, physical, and economic embodiment of danger who spread disease and threaten "legitimate" Canadians.

Canadians of Asian (Chinese, Japanese, and Hindu) or Middle Eastern (Arab or Levantine) descent have been stereotyped at various points in the country's history. Leaving their homes due to fear of contracting an infectious disease was commonly cited as one of the main reasons

these immigrants left their countries (Beiser, 2005). It was widely held that they represented a significant public health risk to white Canadian settlers due to the widespread belief that their homeland, the Orient, "was plagued by deadly, loathsome diseases." Their squalid homes in late nineteenth-century Canadian cities, where people slept three or four in a bed out of miserliness or depravity, were widely viewed as nests of illness (Ward, 2002). The newspapers portrayed these households as the origins of alarming outbreaks of diseases, including pestilence, smallpox, cholera, and leprosy.

The actions of racism committed against these non-white immigrants were aided by this lousy portrayal. The colonists called Vancouver's Chinatown a reeking mass of filth, leading the city sanitary inspector to request the demolition of numerous homes in the area. Following a news article published in the Toronto Mail in 1891 that falsely claimed Chinese immigrants in British Columbia were responsible for the development of leprosy among the indigenous population (Simich et al., 2003). To eliminate diseases that may have been brought to the city by Chinese immigrants, the municipal council mandated mandatory vaccinations for all Chinese residents (sometimes against their will) and instituted stringent disinfection procedures, although physicians testified before the Royal Commission on Chinese Immigration that leprosy among the Chinese was scarce (Simich et al., 2003; Ward, 2002). Vancouver established a lazaretto on D'Arcy Island to house 43 Chinese men, all of whom were misdiagnosed as lepers after years of allegations fueled widespread panic. Special sanitary measures, including sewerage, slaughterhouses, and pig ranches, have been used in Vancouver's Chinatown since the mid-1890s. From this brief historical perspective, Chinese Canadians have long been considered a

threat to Canadian society. These and similar discourses about the health and moral threats posed by immigrants in Canadian society made it easier to enforce quarantine and other public health control policies. These policies ingrained anti-Asian discrimination in public life and social interactions, frequently rendering it imperceptible to those it benefits. Anti-Asian discrimination in contemporary Canada is often much more subtle, reserved, and rationalized. It does not manifest itself through blatantly unpleasant thoughts or actions such as physical attacks but by everyday glances, gestures, encounters, and actions. For example, in 2003, by labelling SARS as an Asian virus, the public panic toward Asian Canadian populations had been rationalized and, therefore, justified.

With 251 cases and 41 fatalities, Toronto was the only city outside Asia to experience a large SARS outbreak (Oh & Zhou, 2012). Canadian media perpetuated racial stereotypes about SARS by repeatedly linking the disease to Asia, identifying it as a virus unique to Asia, and revealing the patients' Chinese ancestry (Oh & Zhou, 2012). As a result of increased widespread hostility, Chinese and Southeast Asian Canadians experienced increased levels of racism, discrimination, and harassment; Chinese-owned firms lost 40% to 80% of their income; and Asian Canadians either lost their employment or were isolated in the office (Leung, 2008; Oh & Zhou, 2012).

Canadian Chinese people had to deal with the stereotype that they were responsible for the spread of sickness or that they were infected with it simply because of their racial origin. Respondents revealed an understanding that SARS was being racialized and a fear that they

would be the target of people's anger and terror in light of their prior experiences with discrimination and harassment during this time.

2.5 Literature Review of Anti-Asian Discrimination and Health

Inequality hurts, and discrimination poses a threat to health. While these ideas may seem straightforward, it was not until 1993 that the link between discrimination and its impact on health was first reviewed (Krieger, 1999). Despite the burgeoning research in this area over the last two decades, the scope and the number of empirical studies still need to be expanded. Krieger in 2014 found that current studies focus primarily on interpersonal discrimination (e.g. unequal or unfair treatment of individuals based on their personal characteristics), and few study the health implications of structural discrimination (e.g. broader societal or systemic practices that systematically disadvantage certain groups based on their social identities), a gap consistent with the minimal epidemiologic research on political systems and population health (Krieger, 2014).

Relationships between self-reported discrimination and worsening health outcomes have been observed, especially in several African American' research (Krieger, 2014). The self-reported discrimination has been positively correlated with depression, smoking, psychological distress, hypertension, cholesterol, and hemoglobin A1C (Piette et al., 2006). Even after adjusting for factors such as socioeconomic status and other potential confounders, the link between self-reported discrimination and health outcomes in African Americans remains strong (George et al., 2015). For studies on Latino Americans and Mexicans, positive associations between

discrimination and poorer mental and physical health were observed (Paradies et al., 2015). Fewer studies were about other minority groups, such as Asian immigrants.

Concerning each specific area, it will be found that there is even an inequality in the research area itself. For example, in the first epidemiologic review article on discrimination and health, the author identified 20 empirical studies. Of these, 15 focused on racial discrimination (13 on African-Americans, two on Hispanics and Mexican-Americans), three studies investigated discrimination based on sexual orientation, one study addressed gender discrimination and one concerned disability discrimination (Krieger, 1999). No studies discussed the Asian population, although the 1990 Federal Census Bureau census counted 6.9 million Asians (Barnes & Bennett, 2002). Even after 20 years, relatively few studies have examined discrimination and health among Asian populations.

This part will try to have a big picture by reviewing the literature reviews on Anti-Asian discrimination and health. I used traditional methods, including searching for key phrases important to the targeted population's health and conducting supplementary searches on specific themes that arose in the literature.

The initial search strategies were: “discrimination OR bias OR prejudice” AND “health OR disease” AND “racism OR racial OR race OR ethnic OR ethnicity” AND “Chinese immigrant OR Chinese Canadians”. They were searched in PubMed and Web of Science databases. Forty-two articles were found in PubMed and 93 in Web of Science. After reviewing the abstracts, titles, and tables of these articles, studies were excluded if they were 1) not assessing empirical

associations between self-reported discrimination and a health or behavioural outcome among our target population; 2) conducted in countries other than Canada; 3) written in languages other than English; and 4) published before Jan 1, 1990, and after June 30, 2022. However, no articles directly related discrimination experience and health outcomes among Chinese Canadians or Chinese immigrants in Canada.

Thus, I conducted new searching on the same databases using an expanded searching strategy, which was "discrimination OR bias OR prejudice" AND "health OR disease" AND "racism OR racial OR race OR ethnic OR ethnicity" AND "Asian immigrant OR Asian American". 840 articles were found in PubMed and 1117 in Web of Science. One person cannot go through such a number of papers in a short time. So, I decided to narrow my scope to review articles. Seventy-five reviews were found in PubMed and 66 in Web of Science. Additional inclusion criteria are: 1) identified by the database as a "review"; 2) reviewed empirical investigations that explicitly used measures of discrimination to analyze health outcomes; 3) related racial discrimination among the Asian population to health outcomes. Seven reviews were selected for further analysis after reviewing the whole context of the papers.

All the reviews but one published after 2010 and most of the studies remained U.S.-based, with only one review focus on Canada immigrants. 340 studies were reviewed, and the health outcomes included physical health, mental health, health behaviour, and health care. Mental health, such as depression or psychological distress, was the most common outcome when analyzed in relation to self-reported exposure to discrimination. The second most frequent was physical outcomes, such as blood pressure and obesity, and other outcomes considered health

behaviours, such as smoking and drinking and inadequate health care. All review papers were listed in Table 1 by Author (year), targeted population, study countries, health outcomes, studies included (study years) and key findings. Among the 141 review papers, only seven directly included an analysis of the Asian population, which is a surprise. This result not only indicates limited research on Asian discrimination but also disparities of studies on inequality research areas.

From the selected review, it can be found that on mental health, most studies use self-report tools in observational studies to quantify discrimination as a stressor (i.e., a sort of social trauma). The findings that refer to positive relationships between discrimination and psychological distress are the most solid etiologic findings. However, evidence for associations between discrimination and physical health needs to be more consistent and potent. The evidence is more robust for cardiovascular reactivity than hypertension, while there are few studies for immunological and hormonal biomarkers of stress response and non-communicable and infectious disease outcomes. Only one review focuses on drinking behaviours, although there a growing body of evidence suggests that being subjected to discrimination is associated with an increased likelihood of engaging in behaviours that are harmful to one's health. Evidence also supported the concept that individual or institutional discrimination could create a barrier to adequate health care due to linguistic disparities, biased health-related attitudes, cultural incompetence of health systems, and discrimination among practitioners.

Table 1 Empirical review articles on racial discrimination and health outcomes.

Article	Characteristics reviewed on discrimination and health	Key findings
(Gee et al., 2009)	Population: Asian immigrants Countries: US, UK, Canada, NZ, Australia, Finland, Japan Health Outcomes: Physical health, Mental health, Health behavior No. of Studies involved: 62 Study Time:1960-2009	Most research has focused on mental health, and the majority of these studies find associations in the hypothesized direction. Discrimination may itself be a key risk factor for illness. Discrimination prompts a reinterpretation of existing risk factors. Most of these studies focus on self-reported discrimination. Research on discrimination at other ecologic levels, however, remains a noticeable gap.
(Nadimpalli & Hutchinson, 2012)	Population: Asian-Americans Countries: US Health Outcomes: Physical health, Mental health No. of Studies involved:14 Study Time: 2002-2011	Discrimination was significantly associated with depression or depressive symptoms in seven studies. Other mental health outcomes significantly associated with self-reported discrimination included psychological distress, anxiety, and other mental health problems Three studies in this review revealed positive links between self-reported discrimination and physical health issues, such as cardiovascular and respiratory conditions, obesity, headaches, and diabetes. Yet, no associations were observed between self-reported discrimination and pain, being overweight, and diabetes. Controlling for social desirability in studies on discrimination and health may be especially important for Asian Americans and their subgroups.
(Clough et al., 2013)	Population: Asian-Americans Countries: US Health Outcomes: Health Care No. of Studies involved: 7 Study Time: 1980-2011	There are four main barriers among Asian immigrants: Access to health services linguistic discordance and health communication between patient and provider. Health-related beliefs of patients and cultural incompetency of health systems. Perceived discrimination in the health care setting.

(Viruell-Fuentes et al., 2012)	Population: US immigrants Countries: US Health Outcomes: Physical health, Mental health, Health behavior No of Studies involved: 14 Study Time:2000-2011	There is growing evidence that perceived discrimination is associated with lower levels of physical and mental health; poor access to quality health care; and certain deleterious health behaviors. The strength of the association between discrimination and health among immigrants appears to vary both by length of time in the United States and age at migration. Although research on the health effects of immigration policies is sparse, several studies point to their importance for health
(George et al., 2015)	Population: Canada immigrants Countries: Canada Health Outcomes: Mental health, Health care No of Studies involved:165 Study Time:1990-2013	Racial discrimination has been found to be an important risk factor for the mental health of diverse immigrant groups. The result emphasized the salience of subtle discrimination for the mental health of migrants. When participants encountered discrimination from medical practitioners it added to their stress and discouraged them from utilizing support in the future.
(Gilbert & Zemore, 2016)	Population: Muti-population Countries: US Health Outcomes: Health Behavior No of Studies involved:71 Study Time: 1980-2015	9 among the 71 studies reported the relation between racial discrimination and drinking among Asian-Americans. 5 of these studies found no association while the other four studies observed a positive association.
(M. T. Williams et al., 2022)	Population: Canada immigrants Countries: Canada Mental health, Health care	Themes of anti-Asian discrimination include alienation, intelligence ascription, exoticization of women, neglect of inter-ethnic diversity, denial of reality, cultural value pathologizing, ascribing second-class citizenship, and invisibility. Despite widespread anti-Asian discrimination, there is limited research on its mental health impact in Canada. East Asian Canadians, including Chinese, Japanese, and Korean Canadians, exhibit a significant mental health gap compared to White Canadians. The myth of the model minority reinforces stereotypes, yet existing research suggests significant mental health impacts, coupled with lower utilization of mental health services, leaving racial trauma unaddressed.

Two of the reviews mentioned the tools used to measure self-reported racial/ethnic discrimination among Asian Americans. One of the most common tools is the Everyday Discrimination Scale, developed to examine routine and mundane experiences of discrimination among African Americans and adapted for studies of Asian Americans' health outcomes (Gee et al., 2007). However, the Everyday Discrimination Scale does not cover items about discrimination based on an individual's language level, which proves as common as other discrimination experiences among the Asian population (Yoo et al., 2009).

One review mentioned that social desirability among the Asian population should be noticed according to the "saving face" culture[2]. Asian people may underreport their discrimination experience to avoid "losing face" or "shaming families" or to deflect criticism by claiming that discrimination does not exist (Zane & Yeh, 2002). These people would be under added stress when they were victimized by discrimination (Williams, 2018).

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[2] Saving face culture: Saving face is a concept deeply ingrained in many cultures, particularly in East Asian societies such as China, Japan, and Korea, though variations exist in other cultures. At its core, saving face refers to preserving one's dignity, honour, and reputation, as well as that of others, especially in social interactions. It involves avoiding embarrassment, maintaining harmony, and upholding social standing. In saving face cultures, individuals are often mindful of their actions and words to prevent causing shame or humiliation to themselves or others. They may go to great lengths to avoid confrontation, criticism, or public embarrassment. This can manifest in various ways, such as avoiding direct disagreement, using subtle communication cues, or displaying deference and respect towards others, especially in public settings.

All review articles suggest that perceived discrimination is associated with a variety of mental health outcomes, such as depression, psychological distress, and anxiety. At the same time, other studies link perceived discrimination to specific types of physical health problems, such as hypertension, self-reported poor health, and breast cancer, as well as potential risk factors for disease, such as obesity, high blood pressure, and substance use (Benner et al., 2018; Carter et al., 2017; Paradies et al., 2015; Williams, 2018).

Researchers have sought a deeper understanding of the interconnected factors underlying the connections between discrimination and mental health to intervene in these associations. Berkowitz described in the frustration-aggression model that perceived discrimination elicits emotions of scare and anger, thereby leading to an escalation in reactive aggression. Previous studies have found that discrimination is correlated with adverse mental health outcomes like depression, anxiety, and stress (Assari et al., 2017; Hamilton et al., 2014; Lowe et al., 2019; Schmitt et al., 2014). More research on Asian groups shows that personal experience of discrimination is linked to psychological distress (Fang et al., 2016; Juang et al., 2018; Woo et al., 2020). Perceived discrimination is viewed as a trigger to a cascade of physiological responses (such as increased blood pressure), all of which can have downstream effects on health over time (Clark et al., 1999). Long-term effects on health and social functioning have also been linked to the stress caused by encounters with discrimination that go unaddressed (Gee et al., 2007; Berger & Sarnyai, 2015; Chou et al., 2020)

Although racial discrimination exists independently of infectious disease outbreaks, it is hypothesized that the widespread panic that follows such events exacerbates existing biases (Pappas et al., 2009). The COVID-19 pandemic has posed difficulties for many people and fueled xenophobia and racism. Statistics Canada (2020) has shown disturbing increases in anti-Asian sentiment and harassment cases. For instance, 59.6% of Chinese Canadians reported experiencing discrimination during the pandemic, which poses a severe threat to their health (Statistics Canada, 2020). However, it has not been tested yet if Chinese Canadians have felt more discrimination since COVID-19 than they did before. Like previous infectious disease outbreaks, COVID-19 has coincided with reports of increased anxiety, depression and stress (Flentje et al., 2020). This unease could be due to worries about contracting an illness, sudden changes to daily routines, running out of necessities, or losing one's job.

Moreover, many Chinese Canadians face not only direct, personal discrimination in their daily life but also indirect, group-based racism they perceive from the context (Croucher et al., 2020). People's perception of the frequency with which their group is discriminated against is called “perceived group discrimination” and may also be correlated with psychological strain (Branscombe et al., 1999; Hagiwara et al., 2016; Stevens & Thijs, 2018). Even people who have not experienced racism in their own lives may think that their group is still being mistreated. Nonetheless, studies among Latinx (Armenta & Hunt, 2009) and Black Americans (Molina et al., 2019) have shown that discrimination against an individual is more harmful than discrimination against a

group (Bourguignon et al., 2006; Schmitt et al., 2014). One study conducted during the pandemic showed that before and after controlling for all related sociodemographic covariates, both perceived and experienced discrimination predicted higher psychological distress (Yang et al., 2022). Before the COVID-19 pandemic, Asians commonly experienced group discrimination (Dion, 2002). However, it remains unclear if Chinese or Asian Canadians have distinct emotional responses compared to those facing individual discrimination rather than discrimination at a group level.

Chapter 3. Methodology

3.1 Introduction

This study intends to examine the current status of the Chinese community in Canada to gain insights into anti-Chinese discrimination associated with COVID-19, exploring Chinese Canadians' personal and group feelings regarding the discrimination and how these feelings influence their health. To gather information related to these objects, we conducted five anonymous online surveys in collaboration with university scholars in April 2020 as part of a CIHR (Canadian Institute of Health Research) research project assessing the impact of COVID-19 on Chinese Canadians and immigrants in Canada, including anti-Asian discrimination. The survey for anti-Asian discrimination was one of the five surveys approved by Memorial University of Newfoundland's Medical Research Ethics Committee [20201772-ME].

3.2 Study Population

In the United States, there are constituent dominant and subordinated social groups. The dominant group refers to White Euro-Americans, while the subordinated group refers to people of colour. The terms listed are the major classifications employed since 1997 by the U.S. government, including in the census (Office of Management and Budget (175)). Examples (far from exhaustive) of sub-groups include: 1) Black: African American, Afro-Caribbean, and Black African; 2) Latino/a & Hispanic: Chicano, Mexican American, Cuban, Puerto Rican, Central and South American; 3)

Native Hawaiian and Pacific Islander: Native Hawaiian, Samoan, Guamanian; 4) Asian: Chinese, Japanese, Filipino, Korean, Laotian, Hmong, Samoan; American Indian and 5) Alaska Native: 565 federally recognized American Indian tribes and additional state-recognized tribes and tribes not recognized by either the U.S. federal or state governments and also Aleuts and Eskimos.

In Canada, the *Employment Equity Act* defines visible minorities as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour." Canada Statistics defined thirteen visible minority populations: South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, and Japanese. South Asian, Chinese, Filipino, Southeast Asian, West Asian, Korean, and Japanese are the seven Asian population sub-groups. Asian populations have been historically misrepresented as a monolithic group while each of the origin groups has unique histories, cultures, and languages. Thus, disparities at the subgroup level may be obscured by the blanket classification of a monolithic group and further hidden by poor reporting.

Most research employed the US definition of the Asian population. This thesis will follow the US definition while referring to Canada's visible minorities definition. Chinese Canadians are people who were born or were naturalized in Canada; this refers to overseas Chinese who have relocated from other parts of Asia as well as immigrants from China mainland, Hong Kong, and Macau, as well as international students and people who hold valid working permits in Canada and US (Statistics Canada, 2016;

Tian, 1999). It is worth mentioning that this broad category has a wide range of diversity in terms of perspectives, history, and culture. Compared to Chinese immigrants from the mainland, Hong Kong and Macau individuals have more things in common.

In the early 1980s, most immigrant mainland Chinese labourers were employed in blue-collar service, sales, and industrial jobs. Since then, there has been a dramatic shift in the number of people who immigrated to Canada from mainland China. The most recent wave of immigrants from China is comprised, in disproportionate proportion, of highly educated professionals and highly skilled employees (Statistics Canada, 2022b). The People's Republic of China is the place of birth for the majority of Chinese Canadian immigrants (50.9%), followed by Hong Kong (37.5%), and then Taiwan (12.4%) (Statistics Canada, 2022b).

Canada's immigration policies can encourage or discourage Chinese immigration to Canada. The Canadian government is committed to multiculturalism on both a social and a legal level (Woodsworth, 1972). The multicultural principle emphasizes equal treatment and equal protection under the law of all individuals while respecting and valuing their differences (Act, 1988). For Chinese immigrants in Canada, adjusting to life in this country comes with a unique set of challenges. They plan to keep in touch with people there because they believe they can find the safety, prosperity, and belonging they seek in China. Migrants of different generations may have dramatically different experiences after migration, especially those who leave their homes due to persecution for their political or religious convictions, compared to others who leave

their homes merely for better prospects (Castelli, 2018). All the factors, including education, citizenship, and the environment, are essential motivators for Chinese to immigrate to Canada and influence response at the individual and population levels to the anti-Asian discrimination during the COVID-19 epidemic.

Statistics showed that over 90% of Chinese Canadians resided in the provinces of Ontario, British Columbia, and Alberta in 2016 (Statistics Canada, 2021). Ontario was home to over 48% of China's population, while British Columbia was home to about 31%. British Columbia had the greatest percentage of Chinese residents at 12.33%, followed by Nova Scotia at 10.11%, Ontario at 6.54%, and Alberta at 4.88% (Statistics Canada, 2021). According to the 2016 census, the two cities with the highest concentrations of Chinese Canadians were Toronto (40.4%) and Vancouver (28.67%). There were also sizable Chinese communities in several other Canadian metropolises: 7.6% of Calgarians, 5.6% of Edmontonians, and over 5% of Victorians are of Chinese ancestry, making Victoria the Canadian city with the most extended history of Chinese immigration (Statistics Canada, 2021).

3.3 Study Design

The survey on anti-Asian discrimination was conducted from April 11 to 30, 2021. The sample primarily included Chinese immigrants from the Greater Toronto Area (GTA). However, we assume the results also apply primarily to other Asian immigrants or Chinese Canadians across Canada (Ontario, in particular). The Exclusion criteria are 1)

people who are not Chinese immigrants or residents in North America, 2) people who are less than 16 years old, and 3) people who do not consent to participate.

Potential participants would read a summary of the study. This brief consent explains the anonymity nature of the participants and their rights as participants, and they choose to click the "yes" button to start the survey. Participation is voluntary, and no incentive was provided. IP addresses were collected to prevent repeated entries and promote honest responses. IP addresses and other potentially personally-identifying information were removed before data cleaning and analysis.

This survey was developed as a community extension of a COVID-19 project funded by the CIHR, which includes several Chinese community organizations. Detailed information can be found in the appendix. The questionnaire consisted of five parts. The research group drafted and reviewed the survey, including epidemiology, public health, psychology, and sociology professors. Some questions are adapted from CCHS (Canadian Community Health Survey), and some are adapted and modified based on the Depression, Anxiety and Stress Scale - 21 Items (DASS-21) and the COVID-19 Peritraumatic Distress Index (CPDI) (Lovibond, 1995; Chandu et al., 2020; Qiu et al., 2020).

In the first part, participants completed some multiple-choice sociodemographic questions, such as age, gender, education, religion, live length in Canada, residence province, marriage status, employment status, English skills, or whether their careers

were health-related and public-related. For example, the question on age was “What is your age?” and the options were “16-25”, “25-34”, “35-44”, “45-54”, “55-64”, “>65”. For some questions, we also have an “other” option with a blank for people to enter specific text. For example, the question “What is your native language?” has options of “Mandarin,” “Cantonese,” “English,” and “Other.” If people choose “Other,” they can enter their specific answers to fill in the blank.

The second part included items assessing the extent and nature of participants being treated differently due to race or ethnicity. Participants were asked to describe their experiences with discrimination in Canada before and during the COVID-19 outbreak, including “I have experienced language discrimination since the COVID-19 pandemic”, “I have experienced physical discrimination since the COVID-19 pandemic,” and “I have experienced economic discrimination since the COVID-19 pandemic”. Then, participants were asked how they cope with the discrimination when it occurred and what barriers prevented them from coping appropriately. Each item was rated based on a 3-point Likert scale ranging from 1 to 3 (1= never, 2=once or twice, and 3= more than twice). Mean scores are calculated to yield a composite ranging from 1 to 4 (as in Benner & Kim, 2009), with higher scores indicating more significant discrimination. In the present study, Cronbach's alpha showed high reliability for the scale (α= 0.94).

In the third part, the questionnaire measured the level of negative emotions on a 5-item scale, including anxiety, fear, depression, stress and anger. Participants rated the level

they felt each emotion about the current anti-Asian discrimination situation with a 5-point Likert-type response format (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). The items with higher values indicated stronger negative emotions. Cronbach's alpha indicated excellent reliability with the present sample (α = 0.97).

In the fourth part, perceived group discrimination of participants was measured with a 4-item scale. Participants completed four questions: "I think Asian people experienced more discrimination during the COVID-19 pandemic", "I think Asian people experienced more discrimination than other minority groups," "I think my family or I will experience discrimination in the next six months" and "I think anti-Asian discrimination will not decrease in next few years". A 5-point Likert-type scale was used for each question (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=Strongly agree). The five items with higher scores indicated a lower level of optimism. Items are summed to yield a total score between 5 and 25, with higher scores indicating greater levels of perceived group discrimination. Cronbach's alpha indicated excellent reliability with the present sample (α = 0.97).

The last part primarily assesses individuals' responses to discrimination, including actions taken in response to discrimination, familiarity with anti-discrimination resources, measures deemed necessary for addressing societal needs, and strategies for effectively curbing discriminatory behaviours.

The survey was built in Qualtrics and delivered in simplified or traditional Chinese. The survey link was distributed through social media such as WeChat, websites, and emails. Participants were informed at the beginning of the survey that their participation was anonymous and was used only for research purposes. Interested participants may refuse to answer any questions they do not wish to answer or withdraw their participation at any time before they click the "Submit" button.

3.4 Statistical Analysis

The data analysis was conducted in IBM SPSS 27.0 and AMOS 26.0 (IBM, NY, USA). The sociodemographic variables were recoded as binary or three-level categorical variables based on the distribution inspection of the outcome variables across each sociodemographic variable. Descriptive statistics were used for all outcomes. Chi-square analysis was used to compare each sociodemographic factor as well as the mental health variables among Chinese Canadians/immigrants who faced discrimination before and during the COVID-19 pandemic. We also used chi-square tests to compare the types and locations of self-reported experienced discrimination across time points, specifically before and during the COVID-19 pandemic.

Correlation analyses also examined relationships between potential covariates (continuous variables only) and main outcome variables (in continuous scores). After selecting the covariates, confirmatory factor analysis (CFA) was performed on the outcome variables of the research. To assess the model fit, we used the following cut-

off criteria: 1) the ratio of chi-square statistic to degree of freedom ($\chi2/df$) ≤ 5.00; 2) goodness fit index (GFI) ≥ 0.90; 3) Adjusted Goodness of Fit Index (AGFI)≥ 0.90; 4) comparative fit index (CFI) ≥0.90; 5) standardized root mean square residual (SRMR) ≤ 0.1; and 6) root mean square error of approximation (RMSEA) ≤ 0.08. The mediating effects of perceived group discrimination between perceived discrimination and negative emotions were tested for significance by adopting the Bootstrap estimation procedure in AMOS (a Bootstrap sample of 2000 was specified). The bias-corrected bootstrap confidence interval (CI) method examined the hypothesized indirect association. According to this approach, a 95% CI that does not cross zero would indicate a statistically significant indirect effect. Finally, the model was tested again after controlling for all the potential covariates.

Chapter 4. Results

4.1 Sociodemographic Characteristics of the Study Population

There were 742 respondents to the survey, with 98 being excluded due to a failure to meet the selection criteria. The sample included 47% males and 53% females. Almost half of the participants were 45 years or older, and 86.7% had a bachelor's degree or higher. 97.5% were born in Mainland China, 88.5% lived in Ontario, and 77.7% had lived in Canada for at least ten years. The sample sociodemographic characteristics are displayed in Table 2.

Table 2 Sociodemographic Characteristics of the Sample

Variable	Groups	**N**	**%**	**95% CI**
Gender	Male	312	47.0	43.2-50.8
	Female	351	53.0	49.2-56.8
Age	<45	141	21.1	18.0-24.2
	45-54	317	47.5	43.7-51.3
	55+	210	31.4	27.9-35.0
Education	Lower than University	87	13.3	10.7-15.9
	University or higher	567	86.7	84.1-89.3
Religion	Yes	265	40.6	36.8-44.4
	No	388	59.4	55.6-63.2
Length in Canada	<10 Years	140	22.3	18.1-24.3
	10 years or more	520	77.7	75.7-81.9
Residence	Ontario	594	88.5	86.1-90.0
	Other places in Canada	77	11.5	9.1-13.9
Marriage	Married	560	85.6	82.9-88.3
	All others	94	14.4	11.7-17.1
Employment	Students	19	2.9	1.6-4.2
	Employed	504	76.7	73.5-80.0
	Unemployed	77	11.7	9.3-14.2

	Others	57	8.7	6.5-10.8
Mother Tongue	Mandarin	558	92.5	90.4-94.6
	Other	45	7.5	5.4-9.6
Birthplace	Mainland China	585	97.5	96.2-98.8
	Other places	15	2.5	1.2-3.8
English Skills	Good/Very good	407	60.9	57.2-64.6
	Fair/Not good	261	39.1	35.4-42.8

4.2 Personal Experienced Discrimination among the Study Population

According to the results, 53.3% of participants reported that they had experienced discrimination since moving to Canada, while 27.43% said they were unsure. Only 19.28% had never faced discrimination since moving to Canada. More than half (53.22%) of females and more than half (53.38%) of males in Canada reported experiencing racial discrimination without significant gender differences detected. It was found that 57.0% of respondents aged between 16 and 44, 55.48% aged between 45 and 54, and 47.24% aged 55 or over reported experience in the past of being the target of racial discrimination, with no age differences detected. Individuals who had been in Canada for more than ten years, with higher education, and with better English language skills experienced significantly more discrimination than their counterpart groups ($p < .05$). Furthermore, there were no significant differences between the groups in experienced discrimination status across other sociodemographic characteristics such as religious affiliation, employment status, residence location, and marital status. Table 3 presents the distribution of those who have experienced discrimination since coming to Canada across each sociodemographic characteristic variable.

Table 3 The distribution of ever experienced discrimination since coming to Canada stratified by sociodemographic variables

Variable	Group	Ever experienced discriminations（N/%） since moved to Canada			P-value
		Yes	Not Sure	No	
Gender	Male	158(53.38%)	77(26.01%)	61(20.61%)	0.805
	Female	182(53.22%)	98(28.65%)	62(18.13%)	
Age	16-44	77(57.04%)	37(27.41%)	21(15.56%)	0.070
	45-54	172(55.48%)	83(26.77%)	55(17.74%)	
	55+	94(47.24%)	58(29.15%)	47(23.62%)	
Education*	Lower than university	29(35.80%)	30(37.04%)	22(27.16%)	0.001
	University or higher	314(55.77%)	148(26.29%)	101(17.94%)	
Religion	Yes	139(52.65%)	78(29.55%)	47(17.80%)	0.964
	No	204(53.68%)	100(26.32%)	76(20.00%)	
Length in Canada*	<10 Years	61(41.50%)	52(35.37%)	34(23.13%)	0.003
	10 years or more	282(56.74%)	126(25.35%)	89(17.91%)	
Residence	Ontario	308(54.13%)	151(26.54%)	110(19.33%)	0.653
	Other provinces	35(46.67%)	27(36.00%)	13(17.33%)	
Marriage Status	Married	285(52.10%)	152(27.79%)	110(20.11%)	0.091
	Others	58(59.79%)	26(26.80%)	13(13.40%)	
Employment	Student	11(55.00%)	7(35.00%)	2(10.00%)	0.528
	Employed	280(57.73%)	127(26.19%)	78(16.08%)	
	Unemployed	38(51.35%)	19(25.68%)	17(22.97%)	
	Other	14(25.93%)	25(46.30%)	15(27.78%)	
English Skills*	Good/Very good	235(58.75%)	94(23.50%)	71(17.75%)	0.002
	Fair/Not good	108(44.26%)	84(34.43%)	52(21.31%)	
Health-related Occupation	Yes	23(51.11%)	14(31.11%)	8(17.78%)	0.868
	No	320(53.51%)	164(27.42%)	114(19.06%)	
Public-oriented Occupation	Yes	69(55.65%)	36(29.03%)	19(15.32%)	0.379
	No	272(52.61%)	142(27.47%)	103(19.92%)	

*: significant group difference in the experienced discrimination status ($p < 0.05$)

Since the outbreak of the pandemic, 53.6% of Chinese women and 53.4% of Chinese men have experienced personal discrimination. There were no significant gender differences detected. 57.0% of participants between the ages of 16 and 45 and 52.3% of participants older than 45y had experienced discrimination. Furthermore, no significant differences were found in other sociodemographic characteristics such as religious affiliation, employment status, residence location, and marital status. The findings suggest that no significant difference in "length in Canada" exists among individuals. Instead, employment status has emerged as a significant factor distinguishing people from each other. Each sociodemographic variable among people who have experienced discrimination since the COVID-19 pandemic is shown in Table 3.

Table 4 The distribution of ever experienced discrimination since the outbreak of the pandemic stratified by sociodemographic variables

Variable	Group	Ever experienced discriminations(N/%)			P-value
		Yes	Not Sure	No	
Gender	Male	78(26.26%)	90(30.30%)	129(43.43%)	0.370
	Female	96(27.83%)	113(32.75%)	136(39.42%)	
Age	16-44	43(31.85%)	40(29.63%)	52(38.52%)	0.185
	45-54	85(27.33%)	104(33.44%)	122(39.23%)	
	55+	48(23.65%)	61(30.05%)	94(46.31%)	
Education*	Lower than university	17(20.24%)	24(28.57%)	43(51.19%)	0.040
	University or higher	159(28.19%)	181(32.09%)	224(39.72%)	
Religion	Yes	72(27.17%)	93(35.09%)	100(37.74%)	0.322
	No	104(27.15%)	112(29.24%)	167(43.60%)	

Length in Canada	<10 Years	39(26.53%)	47(31.97%)	61(41.50%)	0.882
	10 years or more	137(27.35%)	158(31.54%)	206(41.12%)	
Residence	Ontario	157(27.40%)	184(32.11%)	232(40.49%)	0.645
	Other provinces	19(25.33%)	21(28.00%)	35(46.67%)	
Marriage Status	Married	143(25.95%)	179(32.49%)	229(41.56%)	0.303
	Others	33(34.02%)	26(26.80%)	38(39.18%)	
Employment*	Student	10(50.00%)	7(35.00%)	3(15.00%)	0.010
	Employed	137(27.45%)	155(31.06%)	207(41.48%)	
	Unemployed	20(27.03%)	28(37.84%)	26(35.14%)	
	Other	9(16.36%)	15(27.27%)	31(56.36%)	
English Skills*	Good/Very good	129(32.17%)	113(28.18%)	159(39.65%)	0.015
	Fair/Not good	47(19.03%)	92(37.25%)	108(43.72%)	
Health-related Occupation	Yes	13(28.26%)	15(32.61%)	18(39.13%)	0.788
	No	163(27.12%)	190(31.61%)	248(41.26%)	
Public-oriented Occupation	Yes	36(28.57%	41(32.54%)	49(38.89%)	0.572
	No	139(26.78%)	164(31.60%)	216(41.62%)	

If we treated "Not Sure" as people did not experience racial discrimination and merged the data into a binary variable, it was found that since the COVID-19 pandemic, racial discrimination has increased 16.70 times (95% CI: 9.43-29.56) according to the Odds Ratio value.

Table 5 Comparation of the incidence of racial discrimination before and during the pandemic

		95% CI	
	Value	Lower	Upper
Odds Ratio for the incidence of racial discrimination before the pandemic (No / Yes)	16.693	9.426	29.564
For cohort the incidence of racial discrimination during the pandemic =No	2.914	2.517	3.373
For cohort the incidence of racial discrimination during the pandemic = Yes	0.175	0.108	0.281
N of Valid Cases	644		

4.3 Discrimination Types and Place of Occurrence

1. Discrimination Types

There were 374 and 391 respondents who reported that they had experienced verbal and physical discrimination since the pandemic, respectively. Among these people, verbal discrimination was more common than physical discrimination. 55.6% of these people had experienced verbal discrimination more than once, and 48.7% had experienced physical discrimination more than once. The comparison between these two types of discrimination revealed that verbal discrimination was 11.30 times higher than physical discrimination (95% CI: 6.79-18.81), as displayed in Table 6.

Table 6 Comparation of the incidence of verbal and physical discrimination during the pandemic

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for Verbal discrimination (No / Yes)	11.298	6.786	18.811
For cohort Physical discrimination = No	2.993	2.343	3.823
For cohort Physical discrimination = Yes	.265	.190	.369
N of Valid Cases	348		

We analyzed verbal and physical discrimination experiences during the pandemic across each sociodemographic character. The results showed no group differences in either of these two types of discrimination across all sociodemographic variables (e.g., gender, age, education, religion, live length in Canada, residence province, marriage

status, employment status, English skills, or whether their career was health-related and pubic-related). The results are shown in Table 7.

Table 7 The distribution of ever experienced verbal and physical discrimination since the outbreak of the pandemic stratified by sociodemographic variables

Variable	Group	Ever experienced physical discriminations		P-value	Ever experienced verbal discriminations		P-value
		Yes	No		Yes	No	
Gender	Male	88	74	0.067	76	81	0.843
	Female	107	95		84	96	
Age	16-44	47	35	0.648	41	39	0.285
	45-54	96	84		89	82	
	55+	53	52		42	57	
Education	Lower than university	21	20	0.779	21	19	0.638
	University or higher	174	151		159	150	
Religion	Yes	85	75	0.885	75	75	0.816
	No	111	95		97	102	
Length in Canada	<10 Years	44	38	0.938	42	36	0.361
	10 years or more	152	134		131	142	
Residence	Ontario	176	153	0.793	154	159	0.926
	Other provinces	20	19		19	19	
Marriage Status	Married	155	156	0.013	139	158	0.050
	Others	39	15		32	20	
Employment	Student	10	8	0.607	10	5	0.572
	Employed	154	130		131	138	
	Unemployed	20	24		21	21	
	Other	12	12		11	13	
English Skills	Good/Very good	129	104	0.288	118	104	0.057
	Fair/Not good	67	68		55	74	
Health-Occupation	Yes	17	19	0.294	14	12	0.629
	No	179	162		159	141	
Public-Occupation	Yes	46	29	0.180	41	33	0.286
	No	149	143		131	145	

2. Place of Discrimination Occurrence

Public places were found to be the most common place for verbal and physical discrimination, with a rate of 45.43% and 48.18%, respectively. Verbal discrimination was more often prevalent among workplaces (15.46%) and online (19.24%), while physical discrimination occurred more often in the community (12.62%)and workplaces (14.60%) (as shown in Figure 3). When comparing the discrimination incidence between places, we found that there was more verbal discrimination which occurred in public places ($\chi2 = 25.95$, $p < 0.05$), workplace ($\chi2 = 23.37$, $p < 0.05$), and online ($\chi2 = 18.71$, $p < 0.05$), while more physical discrimination occurred at community places ($\chi2 = 31.88$, $p < 0.05$). Due to limited responses in these categories, we did not include study places and others.

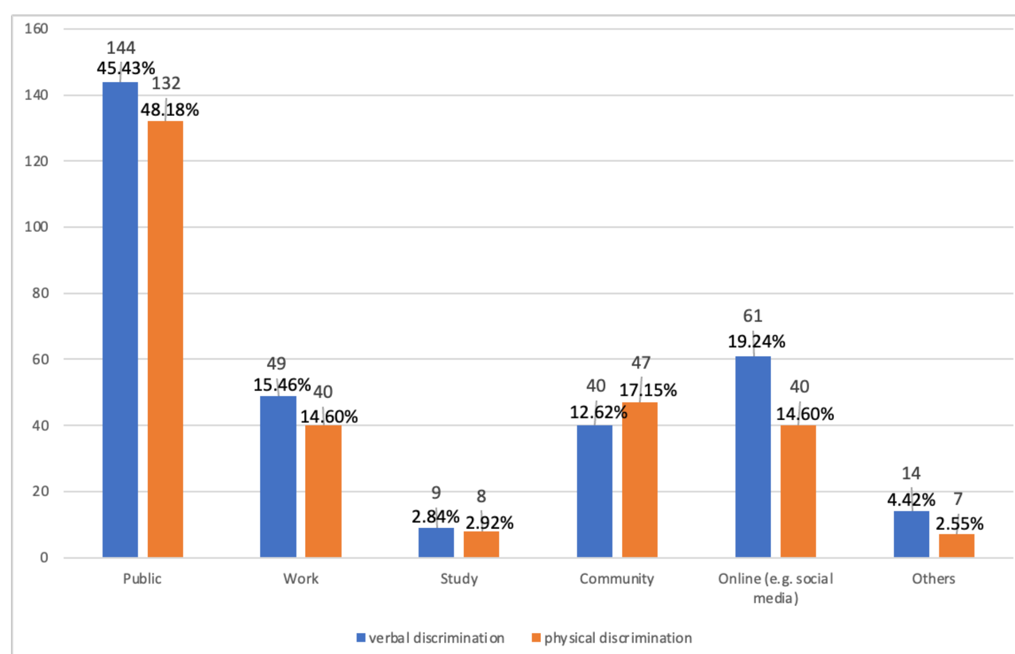

Figure 3 Number and Percentage of Verbal and Physical Discrimination Across Different Occurrence Places.

3.4 Coping with Discrimination and Barriers to Cope Appropriately

In the second part, we asked how people coped with discrimination when they experienced it. In the third part, we asked how they would respond/act when the discrimination happened to them and what they think might be the barriers for them to take appropriate action. For the question, “If you have experienced discrimination, are you confident that you will take appropriate action?” only 16% of the participants reported that they would feel confident that they can cope appropriately if they experience discrimination. For the question “What do you think are the barriers for you to cope appropriately with discrimination?”, lack of relevant knowledge (30.96%), safety concerns (28.60%), and language challenges (27.59%) are the most common reasons participants reported. The survey further revealed that only 2.83% of participants believed that they had a good understanding of discrimination, whereas 21.50% believed that they had some understanding of discrimination. For the actions they expected to take if they experienced discrimination, more than 40% of the participants reported that they did not respond to verbal or physical discrimination or were just left with silence (as shown in Figure 4).

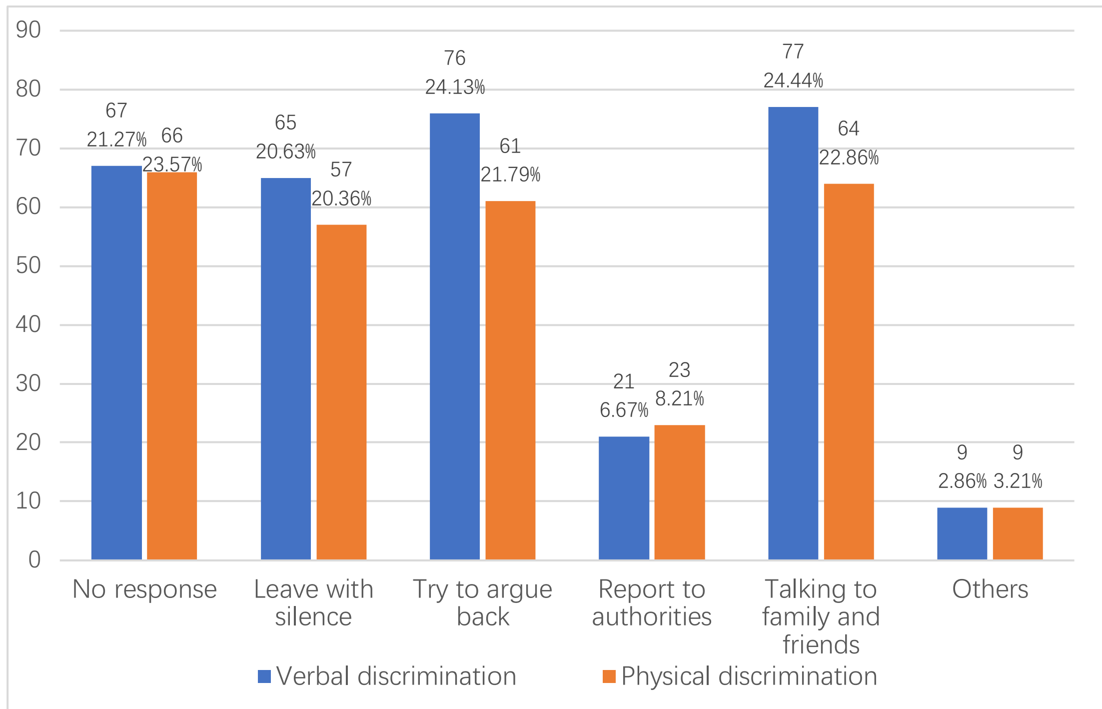

Figure 4 Number and percentage of different coping approaches in response to verbal and physical discrimination

When comparing how people coped and their expectations to cope, the result showed that one-third of the participants said they would report to authorities and police. However, only 6.67% and 8.21% of the participants did so when they experienced verbal and physical discrimination, respectively. When faced with discrimination, only 2.7% of the participants said they would keep silent, while 41.9% and 43.7%, respectively, gave no response or left without saying anything when they experienced discrimination.

4.5 Perceived Group Discrimination

Participants believed that the Asian group suffered more discrimination than other minorities, especially during the COVID-19 pandemic, with more than half believing

that their families and themselves would face discrimination in the next six months. About 80% of participants also reported that they felt anti-Asian discrimination had increased in both frequency and intensity after the COVID-19 pandemic. About 70% of participants thought that Asians faced more discrimination than other minority groups. People who experienced discrimination were more likely to endorse this option ($p < 0.001$). 92.6% of participants believed themselves or their family members were likely to experience discrimination in the next six months, and 72% believed the situation would not improve in the next year. Again, those who experienced discrimination were more likely to endorse this option ($p < 0.001$).

For the question, “What do you think is the main reason for the recent increase in incidents of discrimination against Asian residents in Canada?” 65% of people blamed the rise in anti-Asian discrimination on COVID-19, followed by the included geopolitical conflicts (32.7%). To reduce or eliminate discrimination against Asian Canadians, it was viewed that introducing new ad-hoc laws was helpful by 38% of respondents while working with mainstream media and educating the public were seen as helpful by 16% and 13.2%, respectively (as shown in Figure 5).

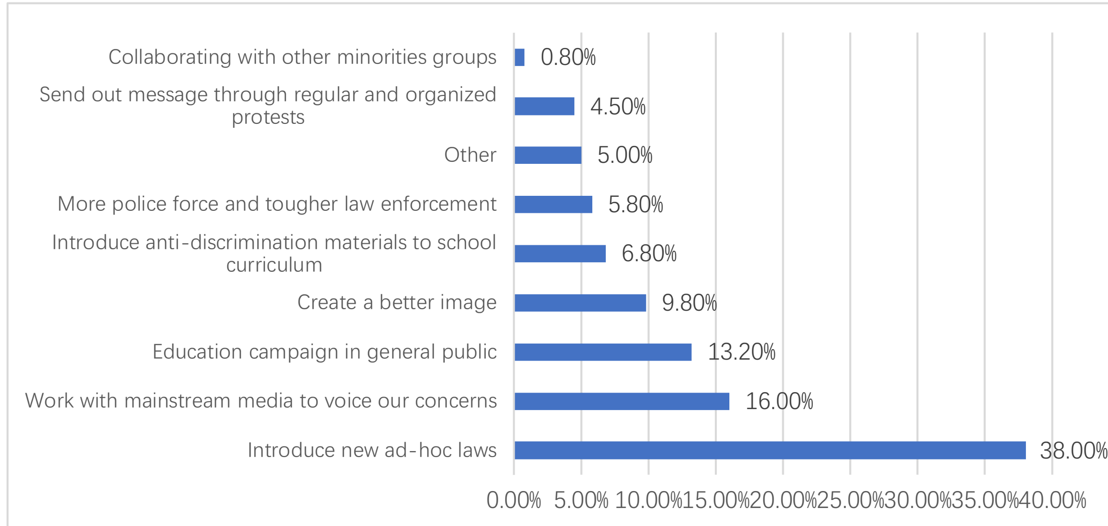

Figure 5 The ways that can most effectively prevent discrimination against Asian immigrants

4.6 Mental Health Impact of Discrimination

Over 80% of the participants reported feeling scared, anxious, depressed, stressed, and angry because of the discrimination. The most predominant feeling about the discrimination is “anger” - 95.33% of participants rated "natural, agree, or completely agree" for the item assessing the level of anger. The other results are shown in Table 7. In our study, we identified that those who chose "agree or completely agree" as a high level of each negative feeling, as well as those with three or more high levels of negative feelings would be at a high risk of mental health outcomes. People who had experienced discrimination reported stronger negative feelings and were at a higher risk of mental health problems than people who had not experienced discrimination.

Table 8 The level of negative emotions among those who did or did not experience discrimination.

Negative Emotions	Level	Ever experienced discriminations since the pandemic outbreak (N/%)		χ^2 value	P-value
		Yes	No		
Scared	High	251(36.38%)	131(18.99%)	27.93	<0.001
	Low	103(14.93%)	131(18.99%)		
Anxious	High	290(47.08%)	166(26.95%)	26.98	<0.001
	Low	64(10.39%)	96(15.58%)		
Depressed	High	212(34.42%)	91(14.77%)	38.112	<0.001
	Low	142(23.05%)	171(27.76%)		
Stressed	High	136(22.08%)	76(12.34%)	48.42	<0.001
	Low	126(20.45%)	278(45.13%)		
Angry	High	312(52.09%)	57(9.52%)	18.99	<0.001
	Low	33(5.51%)	197(32.89%)		

4.7 Correlation analysis

We further identified those with three of five high-level negative emotions with high negative emotions and others with low negative emotions. Correlation analysis results in Table 8 showed significant positive correlations between experienced personal discrimination and negative emotions ($r = 0.31$, $p < 0.001$). Perceived group discrimination was correlated with experienced discrimination ($r = 0.340$, $p < 0.01$) and negative emotions ($r = 0.639$, $p = 0.0012$). COVID-19 Outbreak was correlated with three outcome variables (experienced personal discrimination: $r = 0.599$, $p < 0.005$; negative emotions: $r = 0.367$, $p < 0.01$; perceived group discrimination: $r = 0.408$, $p < 0.01$).

Regarding hypothesized covariates, correlation analyses showed that females reported stronger negative emotions than males ($r = 0.10$, $p < 0.05$). Perceived group discriminations showed significant correlation with age ($r = -0.105$, $p < 0.05$), education

($r = 0.144$, $p < 0.01$), employment status ($r = 0.093$, $p < 0.01$) and English level ($r = -0.121$, $p < 0.01$). Thus, in subsequent analysis, for a path with negative emotions as the dependent variable, gender was included as covariates and for a path with perceived group discriminations as the dependent variable, age, education, employment status and English level were included as covariates.

Table 9 Correlations analysis between study variables

	COVID-19[h]	Gender	Age	Education	Years in Canada	Employment Status	Health-related Work	Public-oriented Work	English Skills	Perceived Discrimination	Negative Emotions
Gender [a]	-0.004										
Age [b]	-.097*	-.081*									
Education [c]	.125**	.275**	0.018								
Years in Canada [d]	.136**	.204**	.326**	.362**							
Employment Status [e]	.128**	-.121**	-.107*	.202**	.290**						
Healthcare-related Work [f]	0.007	0.055	0.045	-0.018	.100*	0.015					
Public-oriented Work [g]	0.042	-0.02	-0.037	-.133**	0.074	.101*	.257**				
English Skills	-.184**	.253**	.115**	.176**	.129**	-.321**	-.093*	-0.04			
Experienced Discrimination	.383**	-0.015	-0.097	-0.009	0.001	-0.022	-0.04	0.054	-0.087		
Negative Emotions	.303**	.101*	0.005	0.04	0.013	0.003	-0.056	0.049	0.02	.311**	
Perceived group discriminations	.385**	0.03	-.105*	.144**	0.014	.093*	-0.016	-0.005	-.121**	.340**	.639**

Note: *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.005$.a: 1=male, 2=female; b:1=under 45yr, 2=45-55,3=above 55yr; c: 1=under bachelor's degree, 2=bachelor's degree or above; d: 1=under 10 years, 2=10 years or longer; e: 1=unemployed, 2=employed; f: 1=no, 2=yes; g: 1=no, 2=yes; h: 0=before,1=during.

4.8 The Mediating Effect of Perceived Group Discrimination

The initial measurement model included three latent constructs (experienced personal discrimination, negative emotions, and perceived group discriminations) and 12 observed variables. The initial test of the measurement model revealed a good fit to the data: $\chi 2/df = 3.500$, GFI=0.954, AGFI=0.928, RMSEA = 0.063, SRMR = 0.0352, and CFI = 0.987. The factor loadings for the indicators on the latent variables are shown in Figure 6. They were all significant ($p < 0.05$), indicating that all the latent constructs were well represented by their indicators.

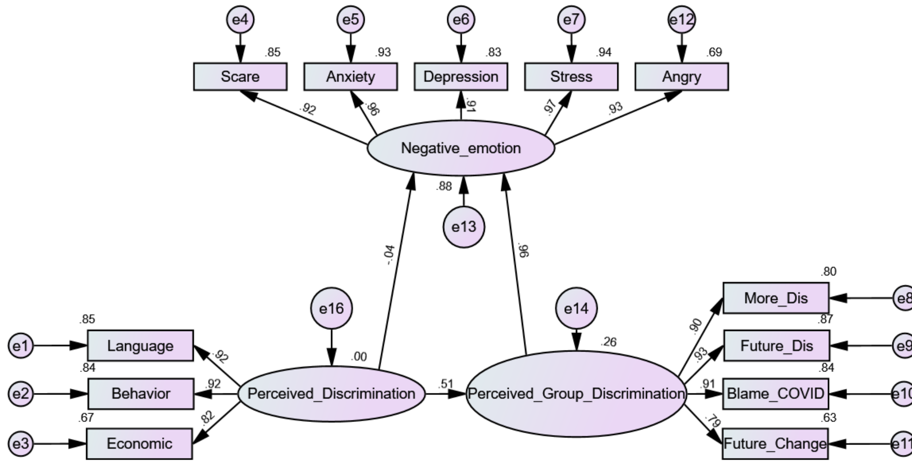

Illustration: Latent constructs were shown in ellipticals, and observed variables were rectangular. 1) Negative_emtoion: negative emotions level; 2) Perceived_discrimination: experienced personal discrimination; Language: verbal discrimination; Behavior: physical discrimination; Economic: economic discrimination;3) Perceived_Group_Discrimination: perceived group discrimination; More_Dis: the answers of item “I think Asian people experienced more discrimination than other minority groups”; Future_Dis: the answers of item “I think my family, or I will experience discrimination in the next six month”; Blame_Covid: the answers of “I think COVID-19 pandemic is the reason of the increase of anti-Asian discrimination”; Future_Change: the answers of item “I think anti-Asian discrimination will not decrease in next few years”

Figure 6 Path analytic model testing relations from experienced personal discrimination to negative emotions, with mediation effect from perceived group discrimination, controlling for covariates.

Table 10 shows the direct and indirect effects and their 95% confidence intervals. As shown in Table 9, all paths' direct and indirect effects were significant. From the result, the perceived group discrimination partially mediates the experienced personal discrimination and negative emotions.

Table 10 Direct and indirect effects and 95% confidence intervals for the measurement model

Model pathways	Estimated effect	95% Confidence Intervals	
Direct effect		lower bonds	upper bonds
Perceived Discrimination → Negative Emotions	-0.071	-0.144	-0.004
Perceived Discrimination → Perceived group discriminations*	0.609	0.522	0.696
Perceived group discriminations → Negative Emotions*	1.330	1.261	1.404
Indirect effect			
Perceived Discrimination → Perceived group discriminations → Negative Emotions*	0.697	0.600	0.798

*: significant difference

4.9 Path Analyses Testing

In the analytic model (Figure 6), the effect of gender on negative emotions was controlled, and the effect of age, education, employment status and English level on perceived group discrimination was controlled. The model fitted the data well (χ^2/df=3.670, GFI=0.937, AGFI=0.908, RMSEA = 0.065, SRMR = 0.0886, and CFI = 0.974). In terms of covariates, higher education and higher English level were significantly associated with a lower level of perceived group discrimination (β=0.526, p <0 .001; β=0.165, p < 0.001), and employed people had significantly a higher level of perceived group discrimination then unemployed people (β = 0.381, p < .001). Gender and age showed no significant relationship with negative emotions and perceived group discrimination. Controlling for covariates, experienced personal discrimination was associated with greater perceived group discriminations (β=0.609, p < 0.001), which in turn was associated with significantly negative emotions (β=1.222, p < 0.001). Experienced personal discrimination also showed a significant direct relationship with negative emotions (β =0.071, p =0.024).

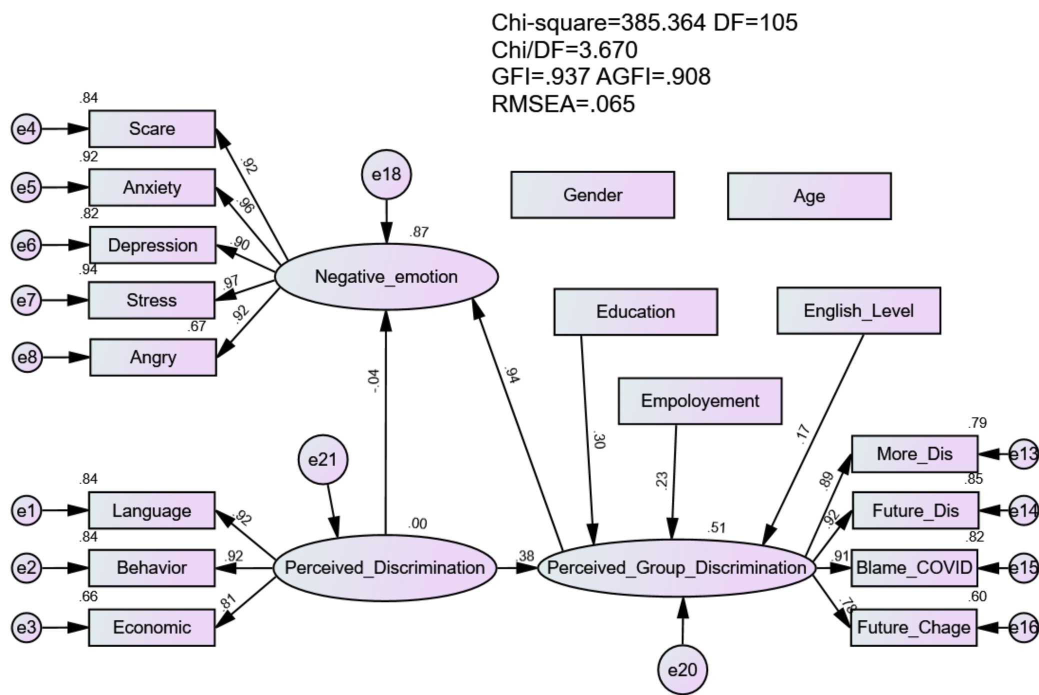

Illustration: latent constructs were shown in ellipticals and observed variables or covariates were shown in rectangulars. 1) Negative_emtoion: negative emotions level; 2) Perceived_discrimination: experienced personal discrimination; Language: verbal discrimination; Behavior: physical discrimination; Economic: economic discrimination. 3) Perceived_Group_Discrimination: perceived group discrimination; More_Dis: the answers to item "I think Asian people experienced more discrimination than other minority groups"; Future_Dis: the answers to item "I think my family, or I will experience discrimination in the next six month"; Blame_Covid: the answers of "I think COVID-19 pandemic is the reason of the increase of anti-Asian discrimination"; Future_Change: the answers of item "I think anti-Asian discrimination will not decrease in next few years"

Figure 7 Path analytic model testing relations from perceived discrimination to negative emotions, with mediation effect from perceived group discrimination, controlling for covariates.

According to the former result, we removed age and gender from the model. We put one more path as "perceived group discrimination→personal experienced discrimination" to test whether personal and group discrimination was interrelated. The final model fitted data better than the analytic model ($\chi 2/df=3.044$, GFI=0.949, AGFI=0.925, RMSEA = 0.057, SRMR = 0.0333, and CFI = 0.984). In terms of covariates, higher education and higher English level were significantly associated with a lower level of perceived group discrimination ($\beta=0.639$, $p < .001$; $\beta=0.181$, $p < .001$), and employed people had a significantly higher level of perceived group discrimination than unemployed people ($\beta=0.415$, $p < .001$). Controlling for covariates, perceived discrimination was associated with higher perceived group discrimination ($\beta=0.120$, $p=0.017$), and perceived group discrimination also showed a significant relationship with perceived discrimination ($\beta=0.42$, $p < 0.00$). Both experienced personal discrimination, and perceived group discrimination was significantly associated with negative emotions ($\beta=-0.04$, $p=0.034$; $\beta=0.96$, $p < 0.001$, respectively).

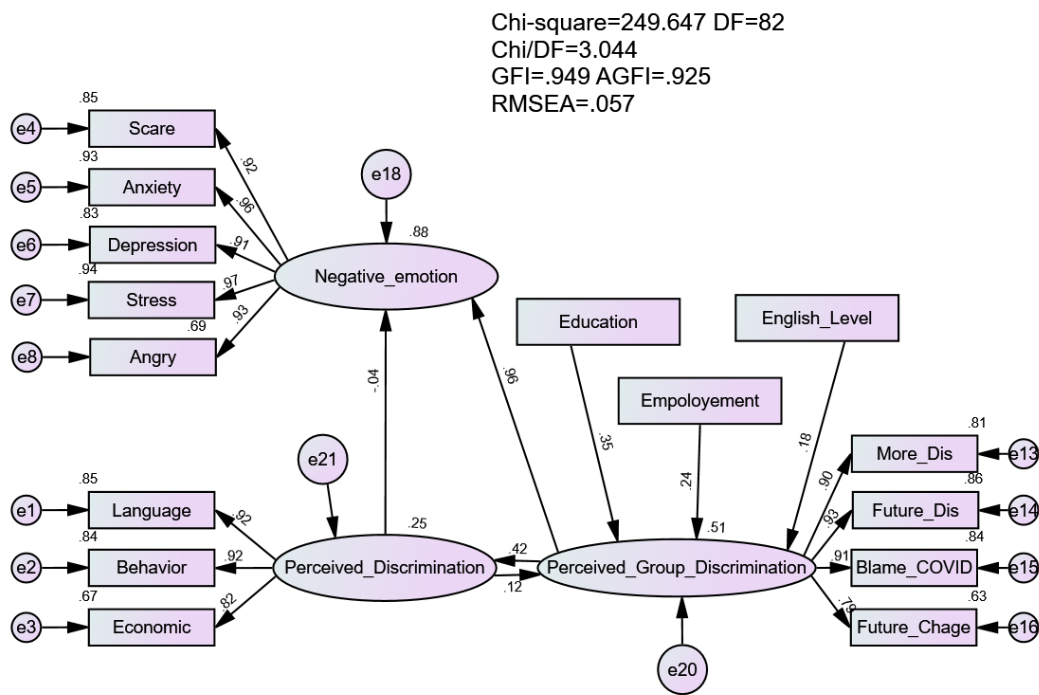

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Figure 8 Final model testing relations from perceived discrimination to negative emotions, with mediation effect from perceived group discrimination, controlling for covariates.

Table 11 showed that the direct and indirect effect results were significant after controlling for the covaries. From the result, the perceived group discrimination was a partial mediator between the experienced personal discrimination and negative emotions.

Table 11. Direct and indirect effects and 95% confidence intervals after controlling the covaries

Model pathways	Estimated effect	95% Confidence Intervals	
Direct effect		lower bonds	upper bonds
Experienced Personal Discrimination → Negative Emotions	0.064	0.002	0.132
Experienced Personal Discrimination → Perceived group discriminations*	0.352	0.306	0.403
Perceived group discriminations → Negative Emotions*	1.239	1.177	1.309
Perceived group discriminations →Experienced Personal Discrimination	0.140	0.045	0.231
Indirect effect			
Experienced Personal Discrimination → Perceived group discrimination → Negative Emotions*	0.180	0.055	0.303

Chapter 5. Discussion and Conclusion

To our knowledge, this is the first large population-based study to examine the prevalence and types of anti-Asian discrimination and to understand how discrimination has negatively affected Asian immigrants and Canadian residents since the COVID-19 pandemic in Canada. This exhaustive investigation explores various issues related to anti-Asian discrimination in Canada. These findings may also apply to mainland Chinese immigrants from other Western nations.

This chapter connects data and analyses to answer the research questions. The first three sections provide a discussion of each research question. Then, the final section discussed the limitations and outlook.

5.1 The Anti-Asian Discrimination among Chinese Canadians/Immigrants during the COVID-19 Pandemic

The results showed that the incidence of anti-Asian discrimination increased dramatically during the COVID-19 pandemic, as hypothesized. Surprisingly, discrimination incidents did not differ across most sociodemographic variables, except for education level and English proficiency. Many studies have reported a positive relationship between the level of education and the experience of discrimination. For example, one study found that immigrants with post-secondary education were more likely to experience workplace discrimination than their less educated counterparts (Preston, 2011). Similarly, a study conducted in the United States indicated that non-

white immigrants with higher levels of education were more likely to experience discrimination (Abramson et al., 2015). In a working paper on immigrants from 14 European countries, immigrant status was positively correlated with immigrant educational attainment (André et al., 2008). It was also found among New Zealand immigrants that those with a higher level of education were more likely to report experiencing prejudice than those with a lower level of education (Daldy et al., 2013).

It is speculated that obtaining a higher level of education requires more time commitment, and consequently, immigrants are more likely to be subjected to discrimination if they are employed or enrolled in school because doing so increases the likelihood of interacting with majority member coworkers, clients, or pupils (Steinmann, 2019). There is limited research on the relationship between the language proficiency of immigrants and discrimination. One study in America reported that language proficiency was related to perceived or experienced discrimination: Adolescents who reported being discriminated against by school staff or society were also more likely to say they spoke and read English "very well" (Medvedeva, 2010). The results showed a similar pattern: people with better language proficiency showed a higher level of experienced discrimination, maybe because they are more likely to be exposed to or understand discrimination.

Contrary to my prediction, there was no significant relationship between gender and anti-Asian discrimination among Chinese Canadians/immigrants. One previous study found that male immigrants are marginally more likely to perceive discrimination than

the female population (Preston, 2011). However, from a macro perspective, women have suffered the double burden of gender and racial discrimination and related intolerance (United Nations, 2001). One possible explanation is that when compared to the discrimination men suffered, the discrimination women suffered is more systemic and pervasive but less easily perceived on an individual level. Also, as women suffer double discrimination, there may be some confusion of classification. For instance, the lower wage of minority group female employees is more likely to be attributed to gender discrimination than racial discrimination, although there is evidence showing that racial and gender discrimination exist simultaneously (United Nations, 2001).

Another surprising result is that there was no significant relationship between age and experienced anti-Asian discrimination. According to research conducted in the United States, when making any form of comparison, people younger and older than the middle-aged are more likely to report experiencing age discrimination (Garstka et al., 2005). Another study found that perceived age discrimination is high in the twenties, declines in the thirties, and peaks in the fifties (Gee et al., 2007).

The results found that immigrants' years in Canada will significantly predict their experience of discrimination. Before the pandemic outbreak, there was a significant difference between people who had lived in Canada for more than ten years and those who had not. However, the difference disappeared after the pandemic outbreak. Some research has established a correlation between the length of time an immigrant has been in the country and their experience with discrimination. A study in Spain found that the

longer a group had been in the country, the less likely they were to report experiencing discrimination (Briones et al., 2012). The researchers suggested that discrimination decreases as immigrants integrate into their new communities. Positive responses from mainstream society and a better understanding of their responses will likely result from adolescents' increasing fluency in the language over time, increased familiarity with the host culture's norms, values, and practises, and increased frequency of contact with native Spaniards (Briones et al., 2012). Another study found an inverse result: the longer an immigrant has been in the United States, the more likely they are to experience discrimination (Brondolo et al., 2015).

5.2 Types and Locations of Anti-Asian Discrimination and How People Cope with Them

The results of this study confirmed that experiencing racial discrimination was associated with poorer mental health and lower optimism for further, with no difference between subgroups of sociodemographic variables or forms of racial discrimination.

Although there is little research about the impact of different locations of anti-Asian discrimination, some studies indicated that racial discrimination in some locations can be more detrimental to health than in others. Studies showed that racial discrimination in public places and workplaces would cause higher levels of damage than in other settings. Studies found that racial discrimination in public places such as shops not only caused a high level of damage to mental health but may also reflect social isolation and

exclusion from participants' local regions, as well as presented a barrier to accessing everyday goods and resources (Ferdinand et al., 2013; Forman et al., 1997; Vichealth, University of Australia, 2007). Racial discrimination in employment settings may represent a particularly severe danger to Chinese Canadians/immigrants in terms of access to opportunities and resources. This finding is consistent with other literature. Research shows that applicants with names from China have much lower chances of getting an interview than those with names from the English-speaking world (Booth et al., 2012).

The findings are conflicting about using coping techniques to alter the health impacts of racial discrimination. The tacit “keep silence,” the most common coping technique in the current investigation, was linked to very stressful or extremely stressful in some research. At the same time, other studies imply that this coping reaction makes the mental health consequences of racism worse (Brondolo et al., 2009; Paradies, 2006; Ziersch et al., 2011). These seemingly opposite results could stem from two contexts in which this coping mechanism was employed. As a kind of " keep silence " in which "the individual does not directly address the problem and participates in activities that lead to withdrawal from day-to-day activities (Liang et al., 2007)," while another explanation is a purposeful decision to disregard racist acts, laying the responsibility...squarely on the shoulders of the perpetrators", which can be pretty helpful (Ziersch et al., 2011). However, considering other indicators in our questionnaires, such as the level of anger, the confidence in coping appropriately, and

the discrepancy between what people expect and what they do, the former explanation was more likely to apply to most participants. Thus, it leads to damaging health consequences.

The results confirmed one potential general suggestion: hate crimes were underestimated because many people would not report to the police or related authorities when they experienced racial discrimination. Many instances were probably not recorded for a variety of reasons. Some people briefly input answers about why they were not reported to the police. There were five types of answers: 1) they believed it would not help with their situation; 2) some people worried or their previous experience, no matter whether it related to discrimination, proved that the attitudes of police may cause secondary injuries; 3) they were not sure where to report or whether it necessary to report, especially when the discrimination is minor and disappeared in a short time; 4) some participants did not realized the discrimination after a long time of its occurrence; 5) some people felt too humiliated to report. These answers suggested a "remaining at a distance" attitude toward the police or authorities, which makes it difficult for them to learn about or receive the benefits or help from government programmes. Racial discrimination in government institutions is also likely to obstruct the ability of Chinese Canadians/immigrants to interact with police or social workers (Hackwell & Howell, 2002). This may restrict the number of people from those groups who are included in formulating government policies and programmes, leading to insufficient civic and social life (Hackwell & Howell, 2002).

There was widespread agreement that incorporating new ad-hoc strategies and collaborating with established media outlets would help reduce or eliminate discrimination against Asian Canadians. However, this discussion shows that creating a reliable reporting system is the top priority. Not everyone may be aware of electronic reporting methods, even though they exist. Moreover, considering that language difficulties and lack of understanding are the main obstacles for people to deal with effectively, it may be helpful to have the reporting system be bilingual (e.g., Mandarin and English) and work with local Chinese communities. Furthermore, some victims may lack internet access or face language or technology barriers, which should also be considered.

5.3 The Relation Between Experienced Personal Discrimination, Perceived Group Discrimination and Negative Emotions

The findings showed that individuals who participated in the study endorsed significantly greater perceived discrimination and negative emotions during the COVID-19 pandemic. Additionally, it was found that the discrimination experiences of Chinese Canadians, along with their perceptions of discrimination towards them, contributed to adverse effects and concerns about long-term racism.

As expected, Chinese Canadians experienced more discrimination during the COVID-19 pandemic, and people reported a higher level of negative emotions. There are several possible explanations. First, with social distancing measures and cancelling social

events, COVID-19 hampered people's ability to rely on buffers like social support. Thus, this setting may correlate strongly with discrimination perception and negative emotions. Second, the present survey was conducted during the COVID-19 pandemic. People perceived discrimination more from the media or the internet due to social distancing measures and cancelling social events. The context of COVID-19 has led to increased instances of discrimination perceived through online sources. Internet images and articles with discriminatory content can be viewed repeatedly, which can lead to rumination and the development of internalizing symptoms.

The results confirmed the mediation effect of perceived group discrimination. The results indicate that during the COVID-19 pandemic, the negative emotions were more influenced by perceived group discrimination rather than experienced personal discrimination. During the COVID-19 pandemic, there were increasing reported incidences of anti-Asian hate crimes. This might have the unintended psychological consequence of being more psychologically potent and harmful. The findings also reveal that personal and group discrimination are interrelated. According to the findings of the study, the negative effect that Chinese Canadians felt during the COVID-19 pandemic was associated with the Chinese Canadians' individual experiences of discrimination and less so with the degree to which Chinese Canadians believe that their group is discriminated against.

On the other hand, concerns about future racism among Chinese Canadians were found to be significantly more tied to experiences of group discrimination. Because perceived

group discrimination is based on vicarious experiences and normative beliefs (Hackwell & Howell, 2002), it reflects confidence in future discrimination more directly. For example, even if Chinese Canadians have never experienced discrimination events, they have still felt its effects when they observed increasing incidences of anti-Asian hate crimes in the news or on social media (Croucher et al., 2020).

Some studies suggested whether perceived group discrimination has effects on individual-level discrimination. The first hypothesis is that attributing unfair treatment to racial discrimination rather than to intrinsic personal characteristics such as personality or ability deficits (e.g., "I did not get the job not because I did not meet the qualifications, but because the interviewer was racist") can protect mental health (Major et al., 2003). Suppose individuals perceive that their cohort members are experiencing the same unfair treatment. In that case, they are more likely to attribute unfair treatment to discrimination than their personalities (Major et al., 2003). Another hypothesis is that positive individual results are related to the subjective belief that one's situation is better than that of others, and people frequently make downward comparisons in order to preserve or increase their self-esteem and positive affect (Smith et al., 2012). For example, people tend to believe that the other group members experienced more discrimination to preserve or increase their classes in the community. Finally, people's perception of group discrimination may relax them, knowing they are not alone (Armenta & Hunt, 2009).

Overall, the results are consistent with widely reported increases in perceived discrimination and negative emotions after the COVID-19 outbreak. Perceived group discrimination fully mediated the relationship between negative emotions and perceived discrimination. The findings suggest that focusing only on one type of discrimination may not be able to fully uncover the impact of discrimination that ethnic minority members experience. As both interpersonal and structural racism against Chinese Canadians is prevalent, researchers and policymakers must consider how they experience both personal and group discrimination when assisting Chinese Canadians who have experienced discrimination. The findings contribute to the understanding of the importance of group discrimination on Chinese Canadians' experiences during the COVID-19 pandemic.

5.4 Limitation

Several limitations of the present study should be considered when interpreting the results. First, like other COVID-19 studies, the current results should be interpreted considering the context of the pandemic. For example, the participants would consider "coughing in front of people" discrimination during COVID-19. In contrast, it would be considered inappropriate rather than racial discrimination in regular times. Second, the study was cross-sectional, and it was impossible to infer the direction of relationships between constructs. Although we examined perceived group discrimination as one pathway that may affect negative emotions, many other variables were not included. For example, the COVID-19 pandemic, as a significant global event,

could influence individuals' emotions by breaking peoples' routine lives. Although we conceptualize negative emotions as an outcome of perceived personal/group discrimination, these variables may have bidirectional relationships. Third, all items were self-reported. In the context of COVID-19, this may cause an overestimation of the strength of associations between variables because of the shared method variance. Also, the results were susceptible to recall bias. Fourth, we distrusted questionnaires online. Due to the nature of the online survey, only respondents with electronic devices and internet/WIFI access can complete the survey and send responses back to the data collection portal. This would increase the bias of the sample population. It was impossible to test the validity of responses as well.

Additionally, generalizability concerns have been raised since most respondents are Chinese immigrants from mainland China. Fifth, discrimination is a concept that can be interpreted in several ways. The focus of this survey was interpersonal racial discrimination; however, systematic discrimination may occur in more concealed ways and have more severe consequences. Finally, as the survey was conducted during the middle period of the COVID-19 pandemic, the results could be underestimated as the relations had become more assertive as the pandemic progressed or overestimated, given that the outbreak period entailed more uncertainty and potentially more substantial effect.

Chapter 6. Conclusion

The historical context of anti-Chinese racism in Canada provides a rich tapestry for understanding the persistent challenges faced by Asian communities. Since the mid-1800s, when the first Chinese immigrants arrived in Canada, they have encountered systemic discrimination and marginalization. Initially brought in to work on the construction of the Canadian Pacific Railway, Chinese immigrants faced hostility and discriminatory laws, such as the Chinese Head Tax and the Chinese Immigration Act, which aimed to restrict their entry and settlement in Canada.This history of exclusion and scapegoating has left a lasting imprint on Canadian society, shaping attitudes towards Asian Canadians and contributing to the perpetuation of stereotypes and biases. The cyclical nature of discrimination, where periods of prosperity are often followed by backlash and scapegoating during times of economic downturn or crisis, highlights the vulnerability of minority groups in times of societal upheaval.

The COVID-19 pandemic served as a catalyst for the resurgence of anti-Asian sentiment, echoing historical patterns of blaming marginalized groups for perceived societal ills. The confluence of public health concerns, economic uncertainty, and geopolitical tensions exacerbated existing prejudices, leading to a surge in discrimination and hate incidents targeting Asian Canadians.

Understanding the historical roots of racism in Canada sheds light on the systemic nature of discrimination and the need for comprehensive strategies to address it. Efforts

to combat anti-Asian discrimination must acknowledge historical injustices and work towards dismantling entrenched inequalities in education, employment, and social institutions.

According to the results of this thesis study, several noteworthy conclusions can be drawn. Firstly, there has been a concerning rise in anti-Asian discrimination since the onset of the COVID-19 pandemic. Individuals with higher levels of education and English proficiency are more prone to experiencing racial discrimination. The occurrences of discrimination were prevalent in public places, manifesting as both verbal and physical abuse, with language discrimination being rampant. Secondly, the responses to discrimination were less anticipated. A notable obstacle hindering participants' ability to respond appropriately was a lack of relevant knowledge. Thirdly, both experienced and perceived discrimination robustly predicted heightened negative emotions. Those who participated in the study reported significantly greater perceived discrimination and negative emotions during the COVID-19 pandemic. The discrimination experiences of Chinese Canadians, along with their perceptions of group discrimination, contributed to adverse effects and concerns about long-term racism.

In light of these findings, several recommendations for the future have been proposed. Firstly, there is a need to develop a public awareness campaign that promotes diversity and inclusion. Additionally, an education campaign to enhance media literacy would raise public awareness about discrimination and the resources available to the targeted population. Secondly, it is emphasized that community support and mental health

assistance are essential for those who have experienced discrimination. Thirdly, urgent actions are required to restore people's confidence in addressing this issue. Advocating for policy and legal changes is a viable strategy to rebuild confidence in the current environment. Establishing a reliable and effective reporting system is a top priority.

Since the first Chinese immigrants arrived in the mid-1800s, Canada has been home to a pervasive culture of anti-Chinese racism. Over a century, their fortunes have risen and fallen with migratory patterns and international and national events. Racism develops and persists when one social group is disproportionately influential in setting societal standards. Then, when that dominating group is under threat, like in the case of the COVID-19 pandemic, fear spurs bigotry against groups who rank lower in the power hierarchy of society, particularly those who are more easily scapegoated for the crisis. The pandemic outbreak is a prime illustration of the dangers of racial discrimination and public panic mixture that can result.

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Appendix I Questionnaire

1. Chinese Version

因新冠疫情引起的歧视问卷调查

A0_引言* 您可以使用右上角的“X”鍵頭來切換到繁體中文或英文。

本问卷是目前由加拿大健康研究院（CIHR）所资助的《新冠疫情对华人影响》项目的社区研究延展，并获得纽芬兰纪念大学医学科研伦理委员会【20201772-ME】的批准。该问卷由多个华人社区联合发起，其目的是：1）评估当前针对亚裔居民的歧视的频发程度和类别；2）了解针对亚裔的歧视给亚裔居民带来的负面影响；3）探讨阻止这些歧视的有效方法。

此问卷的填写仅需 3 分钟。问卷采用匿名的方式，您的回答仅会被用于数据分析以及支持相关反对歧视的社区项目的开展，以及探究如何在疫情之下为亚裔提供最好的支持和帮助。选项并无对错之分，请您按照自己的真实情况如实回答即可。您的参与完全自愿，若您想退出问卷参与，关闭问卷窗口即可。若您提交问卷，则表明您同意参与此项调查并将您的数据用于分析。您的参加与否不会影响您与研究人员及您所在社区的关系。 如果您想阅读完整的知情同意书，请点击以下链接：。

如有疑问请电邮 info@cniw.org.

A1_Consent 您是否同意参加本次问卷调查？

- 是 （您的回答将以匿名的方式收集） (1)

- 否 （您将直接结束本次问卷调查） (2)

Skip To: End of Survey If 您是否同意参加本次问卷调查？=否（您将直接结束本次问卷调查）

A2_Screening_Age 请先回答下面的筛查问题：您是否是已年满 16 岁生活在加拿大的华人？

- 是 (1)
- 否 (您将直接结束本次问卷调查) (2)

Skip To: End of Survey If 请先回答下面的筛查问题：您是否是已年满 16 岁生活在加拿大的华人？ = 否 （您将直接结束本次问卷调查）

A3_Screening_Time 您是否在加拿大累计生活了至少六个月？

- 是 (1)
- 否 （您将直接结束本次问卷调查） (2)

Skip To: End of Survey If 您是否在加拿大累计生活了至少六个月？=否（您将直接结束本次问卷调查）

End of Block: Default Question Block

Start of Block: A 部分：您的背景信息

A.部分：您的背景信息

A1. 您目前的身份？

- 加拿大公民或永久居民　(1)
- 国际留学生　(2)
- 探亲/旅游　(3)
- 商务　(4)
- 其它　(5) 可填写：______________

A2. 请选择您当前居住的国家：

- 加拿大　(1)
- 其它国家和地区　（请输入国家和省州的名称）　(2) ____________________

A3. 请选择您现居于加拿大的省份：

- 加拿大安大略省　（Ontario）(1)
- 加拿大魁北克省　（Quebec）　(2)
- 加拿大英属哥伦比亚省　（British Columbia / BC）　(3)
- 加拿大阿尔伯特省　（Alberta）　(4)
- 加拿大萨省及曼省　（Saskatchewan and Manitoba）　(5)
- 加拿大海洋四省（P.E.I, Nova Scotia, New Brunswick, and Newfoundland）　(6)

- 加拿大其它省份 (7)

A3. 请输入您现居加拿大地址的前三位邮政编码（比如 L3R）________________。

A4. 请选择您的母语：

- 国语/普通话
- 粤语
- 英文
- 其他：____________。

A5. 请选择您的性别：

- 男性 (1)
- 女性 (2)
- 其它 (3)
- 选择不回答 (4)

A6. 请选择您的年龄：

- 小于25岁　(1)
- 25-34岁　(2)
- 35-44岁　(3)
- 45-54岁　(4)
- 55-64岁　(5)
- 65岁及以上　(6)

A7. 您的出生地：

- 中国大陆　(1)
- 香港　(2)
- 台湾　(3)
- 加拿大　(4)
- 其它地区或国家，请提供：　(5) ________________________________。

A8. 请选择您在加拿大所居住的时长：

- 小于5年　(1)
- 5年及以上 - 10年以下　(2)

- 10 年及以上　(4)

A9. 请选择您现在的婚姻状况：

- 单身　(1)
- 已婚/同居　(2)
- 其它　(5)

A10. 请选择您的最高学历：

- 高中或高中以下　(1)
- 大学专科 （College）　(2)
- 大学本科（University）　(3)
- 研究生 （硕士或博士）（Postgraduate）　(4)
- 其它　(5)

A11. 以下哪项最能描述您目前的就业状况?

- 学生　(1)
- 受雇 （包括全职、兼职、因疫情在家办公）　(2)

- 自雇　(3)
- 待业　(4)
- 退休　(5)
- 其它　(6)

A12. 您是否是医疗专业人员 （医生，护士，医院员工，急救人员，药剂师，护理人员等）？

- 是　(1)
- 否　(2)

A13. 您的工作是否需要与公众接触（如商店服务员、公共交通工作者、警察、安全部门等）？

- 是　(1)
- 否　(2)

A14. 您的宗教信仰？

- 无信仰　(1)
- 基督教　(2)

- 天主教 (3)
- 伊斯兰教 (4)
- 佛教 (5)
- 其它 (6)

A15. 您感觉自己英文的听和说的总体水平是：

- 非常好 (1)
- 好 (2)
- 一般 (3)
- 不好 (4)
- 非常不好 (5)

End of Block: A 部分： 您的背景信息。

Start of Block: B 部分：自新冠疫情以来对亚裔居民的歧视

B0. 自您到加拿大以来，您是否曾经受到过任何形式的歧视？

- 是 (1)
- 否 (2)
- 不确定 (3)

B1. 自新冠疫情暴发以来，您是否曾经受到过任何形式的歧视？

- 是 (1)
- 否 (2)
- 不确定 (3)

Skip To: B2 If B1 自新冠疫情暴发以来，您是否曾经受到过任何形式的歧视？ = 否

B2. 自新冠疫情暴发以来，您经历过多少次语言歧视？

- 零次 (1)
- 一次 （2）
- 两次及以上 (3)

Skip To: B3 If B2. 自新冠疫情爆发以来，您经历过多少次语言歧视？ = 零次

B2.1 您都是在什么场合受到过语言歧视? (可选多项）

- 公共场所 (1)
- 工作场所 (2)
- 学习地点 (3)
- 居住的社区 (4)
- 网络（包括社交平台、在线游戏等） (5)
- 其他（请注明） (6)__________________________

B2.2 您是如何应对语言歧视的？(可选多项）

- 没有采取任何行动 (1)
- 一言不发并离开现场 (2)
- 试图与对方辩论 (3)
- 报告有关部门 (4)
- 事发之后向亲朋好友倾述 (5)
- 其它，请注明： (6) ____

B3. 自新冠疫情暴发以来，您经历过多少次行为歧视？

- 零次 (1)
- 一次 （2）
- 两次及以上 (3)

Skip To: B4 If B3. 自新冠疫情爆发以来，您经历过多少次行为歧视？ = 零次

B3.1 您都是在什么场合受到过行为歧视? (可选多项）

- 公共场所 (1)
- 工作场所 (2)
- 学习地点 (3)
- 居住的社区 (4)
- 网络（包括社交平台等） (5)
- 其他（请注明） (6)________________________

B3.2 您是如何应对行为歧视的？(可选多项）

- 没有采取任何行动 (1)

- 一言不发并离开现场 (2)
- 试图与对方辩论 (3)
- 报告有关部门 (4)
- 事发之后向亲朋好友倾述 (5)

其它，请注明： (6) ______________________________

B4. 自新冠疫情暴发以来，您经历过多少次经济歧视？

- 零次 (1)
- 一次 （2）
- 两次及以上 (3)

Skip To: B5. If B4 自新冠疫情爆发以来，您是否遭受过经济上的歧视？ = 否

B4.2 您是否对经济方面的歧视采取了任何措施？

- 是 (1)
- 否 (2)
- 其它，请注明： (3) ____

B5. 自新冠疫情爆发以来，您是否经历过其它类型的歧视？如果是的话，请在下面提供简短说明：____。

End of Block: B 部分：自新冠疫情以来对亚裔居民的歧视。

Start of Block: C 部分：对歧视的认知，请如实地给出您的看法。

C 部分：对歧视的感受，请在以下说法中，请勾选您认为正确的说法：

C1. 对于目前针对亚裔居民的歧视状况，您是否感到害怕？

- 完全不害怕 (1)
- 有些不害怕 (2)
- 一般 (3)
- 有些害怕 (4)
- 非常害怕 (5)

C1.1 如果您有正在上学的孩子，您是否会害怕他们受到歧视？

- 完全不害怕 (1)
- 有些不害怕 (2)

- 一般 (3)
- 有些害怕 (4)
- 非常害怕 (5)
- 不适用 (6)

C2. 对于目前针对亚裔居民的歧视状况，您是否感到焦虑？

- 完全不焦虑 (1)
- 有些不焦虑 (2)
- 一般 (3)
- 有些焦虑 (4)
- 非常焦虑 (5)

C3. 对于目前针对亚裔居民的歧视状况，您是否感到抑郁？

- 完全不抑郁 (1)
- 有些不抑郁 (2)
- 一般 (3)
- 有些抑郁 (4)

- 非常抑郁 (5)

C4. 对于目前针对亚裔居民的歧视状况，您是否感到压力？

- 完全没有压力 (1)
- 没有压力 (2)
- 一般 (3)
- 有些压力 (4)
- 非常有压力 (5)

C5. 对于目前针对亚裔居民的歧视状况，您是否感到很愤怒？

- 完全不愤怒 (6)
- 不愤怒 (7)
- 一般 (8)
- 有些愤怒 (9)
- 非常愤怒 (10)

End of Block: C 部分：对歧视的感受，请如实地给出您的看法

Start of Block: D 部分：您对目前环境中的歧视的感受和预期

D1. 自新冠疫情爆发以来，针对亚裔居民的歧视事件显著上升。

- 非常不同意 (1)
- 不同意 (2)
- 中立 (3)
- 同意 (4)
- 非常同意 (5)

D2. 自新冠疫情爆发以来，针对亚裔居民的歧视事件的严重程度明显增加。

- 非常不同意 (1)
- 不同意 (2)
- 中立 (3)
- 同意 (4)
- 非常同意 (5)

D3.一般来说和在加拿大的其他少数族裔相比，针对亚裔居民的歧视事件的数量是：

- 更少 (1)
- 基本一样 (2)
- 更多 (3)

D4. 您认为您自己或您的家人在未来六个月内会受到歧视的可能性是？

- 完全不可能 (1)
- 不可能 (2)
- 不确定 (3)
- 可能 (4)
- 完全可能 (5)

D5. 您认为最近加拿大针对亚裔居民的歧视事件增加的主要原因是？

- COVID-19 (1)
- 加中之间的地缘政治冲突 (2)
- 其它，请注明 (3) ____

D6. 和其他少数族裔相比，您是否认为华裔更有可能被歧视？

- 非常同意 (1)
- 同意 (2)
- 中立 (3)
- 不同意 (4)
- 非常不同意 (5)

D7. 同目前的状况相比，您觉得一年以后加拿大对华裔歧视的程度会怎么样？

- 明显改善 (1)
- 改善 (2)
- 不会有啥变化 (3)
- 变坏 (4)
- 明显变坏 (5)

End of Block: D 部分：对目前环境中的歧视的感受和预期

Start of Block: E 部分：面对歧视您会采取的行动

E1. 如果您遭遇了歧视，您是否有信心采取适当的行动？

- 非常有信心 (1)

- 有些信心 (2)
- 不确定 (3)
- 有些没信心 (4)
- 完全没有信心 (5)

E2. 从整个社会的角度来看，您认为以下的哪个方法可以最有效地遏制针对亚裔居民的歧视？

- 引入新的有针对性的法规 (1)
- 在学校的教材中引入反歧视的内容 (2)
- 公众教育活动 (3)
- 与其他少数族裔合作 (4)
- 创造更好的亚裔形象 (5)
- 充分利用主流媒体来表达我们的关注 (6)
- 投入更多的警方力量 (7)
- 通过组织集会和游行来向社会传达我们的声音 (8)
- 其它方式, 请注明 (9) ____.

E3. 现在加拿大有很多反种族歧视的资源，您认为自己对这些资源的熟知程度是：

- 非常清楚 (1)
- 有些清楚 (2)
- 不确定 (3)
- 不清楚 (4)
- 完全不清楚 (5)

E4. 如果您遭遇了歧视，您最有可能的做法是：

- 保持沉默 (1)
- 与家人和朋友诉说 (2)
- 和对方当场对峙 (3)
- 报告警察或有关部门 (4)
- 取决与歧视的性质和程度而定 (5)

E5. 您认为是什么因素阻碍了您采取适当行动？

- 语言障碍 (1)
- 不想给自己待来不必要的麻烦 (2)

- 缺乏相关知识 (3)
- 其它，请注明 (4) ____.

End of Block: E 部分：面对歧视您所采取的行动.

2. English Version

Survey on the anti-Asian Discrimination due to the COVID-19 Pandemic

A0_Introduction*: You can use the "X" button at the upper right corner to switch to Traditional Chinese or English.

This questionnaire is an extension of the community-based study of the "Impact of the COVID-19 Pandemic on Chinese" project currently funded by the Canadian Institutes of Health Research (CIHR) and approved by the Memorial University of Newfoundland Medical Research Ethics Committee [20201772-ME]. The questionnaire was jointly sponsored by several Chinese communities with the objectives of 1) assessing the current prevalence and types of anti-Asian discrimination, 2) understanding the negative impact of Asian-specific discrimination on Asian residents, and 3) exploring practical ways to stop these discriminations.

This questionnaire takes only 3 minutes to complete. The questionnaire is anonymous. Your responses will only be used for data analysis, to support the development of

relevant anti-discrimination community projects, and to explore how best to support and assist Asians in the face of the epidemic. No right or wrong choice exists, so please answer as you see fit. Your participation is entirely voluntary. If you wish to withdraw from the survey, simply close the window. By submitting the questionnaire, you agree to participate in this survey and to use your data for analysis. Participation or non-participation will not affect your relationship with the researcher or community. If you would like to read the complete informed consent form, please click on the following link: Memorial University of Newfoundland Informed Consent Form.

If you have questions, please email info@cniw.org or peizhong.wang@utoronto.ca.

Screening Question: Do you agree to participate in this survey?

- Yes (Your responses will be collected anonymously) (1)
- No (You will simply end this survey) (2)

Skip To: End of Survey Do you agree to participate in this survey? = No (You will end the survey directly)

Screening_Question: Please answer the following screening question first: Are you a Chinese person over the age of 16 living in Canada?

- Yes (1)
- No (You will end this survey directly) (2)

Skip To: End of Survey If Please answer the following screening question first: Are you a Chinese person 16 years of age or older living in Canada? = No (You will end this survey directly)

Screening Question: Have you lived in Canada for a total of at least six months?

- Yes (1)
- No (You will end this survey) (2)

Skip To: End of Survey If Have you lived in Canada for a total of at least six months? =No (You will end this survey directly)

End of Block: Default Question Block

Start of Block: Section A: Your Background Information

Section A.: Your Background Information

A1. Your current citizenship is：

- Canadian citizen or permanent resident (1)
- International student (2)
- Visiting family/traveling (3)
- Business (4)
- Other (5), please input ______________________________

A2. Please select your current country of residence.

- Canada (1)
- Others (Please enter the name of the country and state) (2)__________________

A3. Please select the province in which you currently live in Canada.

- Ontario (1)
- Quebec (2)
- British Columbia / BC (3)
- Alberta (4)
- Saskatchewan and Manitoba (5)
- Maritime provinces (P.E.I, Nova Scotia, New Brunswick, and Newfoundland) (6)
- Other Canadian Provinces (7)

A3. Please enter the first three postal codes of your current Canadian address (e.g. L3R).

A4. Please select your native language.

- Mandarin/Mandarin

- Cantonese
- English
- Other: Please input________________________________

A5. Please select your gender：

- Male (1)
- Female (2)
- Other (3)
- Prefer not to answer (4)

A6. Please select your age group.

- Less than 25 years old (1)
- 25-34 years old (2)
- 35-44 years old (3)
- 45-54 years old (4)
- 55-64 years old (5)
- 65 years old and above (6)

A7. Your place of birth.

- Mainland China (1)
- Hong Kong (2)
- Taiwan (3)
- Canada (4)
- For other regions or countries, please provide: (5) ________________________.

A8. Please select the length of time you have lived in Canada.

- Less than five years (1)
- Five years or more - less than ten years (2)
- Ten years or more (3)

A9. Please select your current marital status.

- Single (1)
- Married/cohabiting (2)
- Other (3)

A10. Please select your highest level of education.

- High School or below (1)
- College (2)
- Undergraduate (University) (3)
- Postgraduate (Master or Doctor) (4)
- Other (5)

A11. Which of the following best describes your current employment status?

- Student (1)
- Employed (including full-time, part-time, work from home due to epidemic) (2)
- Self-employed (3)
- Unemployed (4)
- Retired (5)
- Other (6)

A12. Are you a medical professional (doctor, nurse, hospital employee, EMT, pharmacist, paramedic, etc.)?

- Yes (1)
- No (2)

A13. Does your job require contact with the public (e.g., store attendants, public transportation workers, police, security services, etc.)?

- Yes (1)
- No (2)

A14. Your religious belief is?

- No religious (1)
- Christian (2)
- Catholicism (3)
- Islam (4)
- Buddhism (5)
- Other (6)

A15. Do you think that your overall level of English listening and speaking is：

- Very good (1)
- Good (2)
- Fair (3)
- Not good (4)
- Very bad (5)

End of Block: Part A: Your background information.

Start of Block: Part B: Discrimination against Asians since the pandemic outbreak

B0. Have you ever been discriminated against in any way since you arrived in Canada?

- Yes (1)
- No (2)
- Not sure (3)

B1. Have you ever been discriminated against in any way since the pandemic outbreak?

- Yes (1)
- No (2)
- Not sure (3)

Skip To: B2 If B1 Have you ever been discriminated against in any way since the outbreak? = No

B2. How many times have you experienced verbal discrimination since the outbreak?

- Zero (1)
- Once (2)
- Twice or more (3)

Skip To: B3 If B2. How many times have you experienced verbal discrimination since the outbreak? = Zero

B2.1 On what occasions have you experienced verbal discrimination? (Multiple choice)

- Public places (1)
- Workplace (2)
- Place of study (3)

- Community where you live (4)
- Internet (including social networking platforms, online games, etc.) (5)
- Other (please specify) (6)

B2.2 How do you respond to verbal discrimination? (Multiple choice)

- Did not take any action (1)
- Did not say a word and left the place (2)
- Tried to argue with the other person (3)
- Reported the incident to the authorities (4)
- Talked to family and friends after the incident (5)
- Other, please specify: (6) ____.

B3. How many times have you experienced physical discrimination since the outbreak of the new crown epidemic?

- Zero (1)
- Once (2)
- Two or more times (3)

Skip To: B4 If B3. How many times have you experienced behavioural discrimination since the outbreak? = Zero

B3.1 On which occasions have you experienced physical discrimination? (Multiple choice)

- Public places (1)
- Workplace (2)
- Place of study (3)
- Community where you live (4)
- Internet (including social networking platforms, etc.) (5)\
- Other (please input your answers) (6).

B3.2 How do you respond to physical discrimination? (Multiple choice)

- Did not take any action (1)
- Did not say a word and left the place (2)
- Tried to argue with the other person (3)
- Reported the incident to the authorities (4)

- Talked to family and friends after the incident (5)
- Other, please specify: (6) ____.

B4. How many times have you experienced economic discrimination since the outbreak of the new crown epidemic?

- Zero (1)
- Once (2)
- Twice and more (3)

Skip To: B5. If B4 Have you experienced economic discrimination since the outbreak? = No

B4.2 Have you taken any measures against economic discrimination?

- Yes (1)
- No (2)
- Other, please specify: (3) ____

B5. Have you experienced any other type of discrimination since the outbreak of the new crown epidemic? If so, please provide a brief description below: ____

End of Block: Part B: Discrimination against Asians since the pandemic outbreak

Start of Block: Part C: Your feelings of discrimination, please give your opinion honestly.

Part C: For your feelings of discrimination, please check the statement you think is true among the following statements.

C1. Do you feel afraid of the current situation of discrimination against Asian residents?

- Not at all (1)
- Not afraid in somewhat (2)
- Fairly (3)
- Somewhat afraid (4)
- Very afraid (5)

C1.1 If you have children who are attending school, are you afraid that they will be discriminated against?

- Not at all (1)
- Not afraid in Somewhat (2)
- Fairly (3)
- Afraid in somewhat (4)
- Very afraid (5)
- Not applicable (6)

C2. Do you feel anxious about the current situation of discrimination against Asian residents?

- Not at all (1)
- Not anxious in somewhat (2)
- Fairly (3)
- Anxious in somewhat (4)
- Very anxious (5)

C3. Do you feel depressed about the current situation of discrimination against Asian residents?

- Not at all depressed (1)
- Not depressed in somewhat (2)
- Fairly depressed (3)
- Somewhat depressed (4)
- Very depressed (5)

C4. Do you feel stressed about the current situation of discrimination against Asian residents?

- Not at all (1)
- Not stress in somewhat (2)
- Fairly (3)
- Stressed in somewhat (4)
- Very stressed (5)

C5. Do you feel angry about the current situation of discrimination against Asian residents?

- Not at all (6)
- Not angry in somewhat (7)
- Fairly (8)
- Angry in somewhat (9)
- Very angry (10)

End of Block: Section C: Your feelings of discrimination, please give your opinion honestly.

Start of Block: Part D: Your expectations about discrimination in the current environment

D1. There has been a significant increase in incidents of discrimination against Asian residents since the outbreak of the new crown epidemic.

- Strongly disagree (1)
- Disagree (2)
- Neutral (3)
- Agree (4)
- Strongly Agree (5)

D2. The severity of incidents of discrimination against Asian residents has increased significantly since the outbreak of the new crown epidemic.

- Strongly disagree (1)
- Disagree (2)
- Neutral (3)
- Agree (4)
- Strongly agree (5)

D3. Compared to other minorities in Canada, the number of incidents of discrimination against Asian residents is

- Fewer (1)
- About the same (2)
- More (3)

D4. How likely do you think it is that you or your family will be discriminated against in the next six months?

- Not at all likely (1)
- Unlikely (2)

- Unsure (3)
- Likely (4)
- Completely likely (5)

D5. What do you think are the main reasons for the recent increase in incidents of discrimination against Asian residents in Canada?

- COVID-19 (1)
- The geopolitical conflict between Canada and China (2)
- Other, please specify (3) ____

D6. Compared to other ethnic minorities, do you think Chinese people are more likely to be discriminated against?

- Strongly agree (1)
- Agree (2)
- Neutral (3)
- Disagree (4)
- Strongly disagree (5)

D7. Compared to the current situation, how do you think the level of discrimination against ethnic Chinese in Canada will be in a year?

- Significantly better (1)
- Improved (2)
- Not much change (3)
- Worse (4)
- Significantly worse (5)

End of Block: Part D: Your expectations about discrimination in the current environment

Start of Block: Section E: Actions you would take to cope with discrimination

E1. If you experienced discrimination, are you confident that you would take appropriate action?

- Very confident (1)
- Confident in somewhat (2)
- Not sure (3)
- Not confident in somewhat (4)

- Not confident at all (5)

E2. From the perspective of society, which of the following do you think would be the most effective way to curb discrimination against Asian residents?

- Introduce new targeted legislation (1)
- Introduce anti-discrimination content in school textbooks (2)
- Public education campaigns (3)
- Cooperate with other ethnic minorities (4)
- Create a better image of Asians (5)
- Leverage mainstream media to voice our concerns (6)
- Investing more police force (7)
- Organize rallies and marches to make our voices heard (8)
- Other ways, please specify (9) ____.

E3. There are many anti-racism resources in Canada right now; how familiar do you think you are with them?

- Very well aware (1)

- Somewhat familiar (2)
- Not sure (3)
- Not sure (4)
- Not at all clear (5)

E4. If you experienced discrimination, you would most likely do the following?

- Keep quiet (1)
- Talk about it with family and friends (2)
- Confront the person on the spot (3)
- Report it to the police or authorities (4)
- It depends on the nature and extent of the discrimination (5)

E5. What factors do you think prevented you from taking appropriate action

- Language barrier (1)
- Not wanting to get yourself into unnecessary trouble (2)
- Lack of relevant knowledge (3)
- Other, please specify (4) ____.

End of Block: Section E: Actions you have taken to cope with discrimination.

Appendix II Informed Consent Form

1. Chinese Version

纽芬兰纪念大学知情同意书

阅读完毕，请按浏览器窗口顶部的“X”关闭键或 “WeChat”返回键（如果通过手机微信登录问卷的话）回到问卷页面继续。

调查项目：新冠疫情以来加拿大亚裔所面临的歧视的在线问卷调查

项目主要负责人:王培忠博士（纽芬兰纪念大学医学院教授）。请您仔细阅读该知情同意书以便在同意参与之前，确保您充分了解参与该问卷调查的性质和内 容。如果有任何问题，请联系本次项目的研究团队：info@cniw.org

调查目的：这项研究旨在通过匿名问卷来评估目前针对亚裔居民的歧视的频发程度和类别，了解 自新冠疫情爆发以来歧视给加拿大亚裔居民带来的负面影响，并探索有效的应对方法以便更有效地制止这种歧视的进一步发生。

参与者招募：现招募符合以下条件的志愿者： 1）年满 16 岁生活在北美的华人；2）在北美（加拿大或美国）生活了至少 6 个月

内容：该问卷大约需要 3 分钟。首先需要您回答三个筛查问题以确保您满足参加资格。问卷将要 求您尽可能真实地回答所问的问题，研究结果将帮助加拿大亚裔居民更有效地应对疫情以来所面临的偏见和歧视，并减少这些偏见和歧视所造成的影响，也有助于各级政府机构对亚裔社区提供更好的支持。研究成果不报告任何个人结果。群体结果的报告将通过相关大学官方网站、北美华人健康网站、

北美华人健康微信公众号、加拿大中国高校校友会联合总会网站等渠道发布。如有需要，可以电邮（info@cniw.org）索取报告群体结果。您的参与完全自愿。您参与与否将不会影响您与我们、与所在社区或相关大学的关系。

潜在收益：a）对于参与者：参与者将有机会审视他们接受的相关知识，这有助于他们更好地采取对传染病的有效预防措施； b）对于科学/学术界/或社会：研究结果将以多种方式向专业人士传递，比如研究报告、学术会议及专业期刊杂志论文发表。

可能的风险：参加这项研究的潜在风险非常小。问卷里的问题是社会学及心理学调查中的标准或常见问题。如果有些问题引起您不舒服，或者您不想回答，可以选择“不便回答”“不确定”以转向下一个问题，或点击浏览器窗口顶部的“X”退出问卷。完成问卷后您提供的用以抽奖的个人信息，我们会严格保密。为了最大限度地降低信息泄露的风险，所有问题都是匿名回答。数据只在加密的 Qualtrics 网站和纽芬兰大学医学院服务器上保存。抽奖和领取礼券提供的个人信息将单独保存，和参与者的数据不会有任何关系。

保密性原则：保护参与者的隐私非常重要。问卷中关于年龄和在加拿大/美国居住时长等数据是用以确保样本的代表性。虽然可以跟踪您的 IP 地址，但我们不会收集这些信息。所有数据都将存储在纽芬兰纪念大学医学院的安全服务器上或加密的谷歌网上。只有研究团队成员才有权限访问。一般在数据发表 6 年后永久销毁。Qualtrics 是一家总部设在美国的公司，根据美国自由法案，如果有必要，Qualtrics 或美国当局保留依法获取调查数据的权利。

研究参与者的权利：参与这项研究完全自愿。您可以随时退出。如果有任何问题引起您的不适，您可以选择“不确定”“不便回答”，也可以随时点击浏览器窗口顶部的“X”关闭键退出问卷。如果您在按“提交”之前退出问卷，将无法参加抽奖。您是否参与本研究不会影响您与我们、所在社区或相关大学的关系。一旦“提交”，我们将无法从最终数据中识别或排除个人数据。

如果您需要心理健康方面的信息和帮助，可以联系以下机构：

●WeSupport 加华心理健康互助微信群；小助手微信 ID：PsychLab

●加拿大青少年心理健康咨询中心 WCCYC；电话:647-344-2192, 电邮:info@counsellingcentreforyouth.ca

如果您有任何疑问，请联系我们：info@cniw.org。请注意这样可能做会泄露您的身份信息，不过我们会对此信息严格保密。

2. English Version

Memorial University of Newfoundland and Laboratory Informed Constant Letter

When you have finished reading, please press the "X" close button at the top of the browser window or the "WeChat" back button (if you are logged into the questionnaire via WeChat) to return to the questionnaire page to continue.

Project introduction: An online Questionnaire on discrimination faced by Asians in Canada since the COVID-19 outbreak.

Project leader: Dr.Wang Pui-chung (Professor, Faculty of Medicine, Memorial University of Newfoundland) is the project leader. Please read this informed consent form carefully to ensure you fully understand the nature and content of participating in this survey before agreeing to participate. If you have any questions, please contact the research team for this project at info@cniw.org.

Project Purpose: The purpose of this study is to use an anonymous questionnaire to assess the prevalence and types of discrimination currently experienced by Asian populations, to understand the negative impact of discrimination on Asian Canadians since the outbreak of the new Crown epidemic, and to explore practical ways to respond to it in order to stop its further occurrence more effectively.

Participants: We are looking for volunteers who: 1) are at least 16 years old and living in North America; 2) have lived in North America (Canada or the U.S.) for at least six months.

Project Content: The questionnaire will take approximately 3 minutes. You will first be asked to answer three screening questions to ensure you are eligible to participate. The questionnaire will ask you to answer the questions as honestly as possible. The results of the study will help Asian Canadians cope more effectively with and reduce the impact of the prejudice and discrimination they have faced since the epidemic. They will help government agencies at all levels better support Asian communities. The study results do not report any individual outcomes. Reports of group results will be released through the official websites of the relevant universities, the North American Chinese

Health website, the North American Chinese Health WeChat public website, and the Joint Association of Chinese Universities Alumni in Canada. A copy of the reported cohort results can be requested by email (info@cniw.org). Your participation is entirely voluntary. Your participation or non-participation will not affect your relationship with us, your community, or the university in question.

Potential benefits: a) For participants: Participants will have the opportunity to review the relevant knowledge they receive, which will help them to take adequate preventive measures against infectious diseases better; b) For the scientific/academic community/or society: The results of the study will be communicated to professionals in a variety of ways, such as research reports, academic conferences, and professional journal papers for publication.

Possible risks: The potential risks of participating in this study are minimal. The questions in the questionnaire are standard or frequently asked in sociological and psychological surveys. Suppose some questions make you uncomfortable or do not want to answer them. In that case, you can select "inconvenient" or "not sure" to move on to the next question or click on the "X" at the top of the browser window to exit the questionnaire. " at the top of the browser window to exit the questionnaire. After completing the questionnaire, the personal information you provide for the lottery will be kept strictly confidential. To minimize the risk of information leakage, all questions are answered anonymously. Data is stored on the encrypted Qualtrics website and the University of Newfoundland School of Medicine servers. Personal information

provided for the prize draw and the receipt of gift certificates will be stored separately and will have no relationship to the participant's data.

Principle of confidentiality: It is essential to protect the privacy of participants. Data on age and length of residence in Canada/USA in the questionnaire is used to ensure a representative sample. While it is possible to track your IP address, we do not collect this information. All data will be stored on a secure server at Memorial University of Newfoundland School of Medicine or encrypted on Google.com. Only members of the research team will have access. Data is generally destroyed permanently six years after publication. Qualtrics is a US-based company and reserves the right under the USA Freedom Act for Qualtrics or US authorities to access survey data if necessary, as required by law.

Rights of Study Participants: Participation in this study is entirely voluntary. You may withdraw at any time. If any of the questions cause you discomfort, you may choose "Not sure" or "Not comfortable answering," or you may exit the questionnaire at any time by clicking the "X" close button at the top of your browser window. If you exit the questionnaire before pressing "Submit," you will not be entered into the sweepstakes. Participation in this study will not affect your relationship with us, your community, or the university. Once "submitted," we cannot identify or exclude personal data from the final data.

If you need information and assistance with mental health issues, you can contact the following organizations.

●WeSupport Canada-China Mental Health Support; WeChat ID: PsychLab

● Canadian Centre for Youth Mental Health Counselling WCCYC; Tel: 647-344-2192, Email:info@counsellingcentreforyouth.ca.

If you have any questions, please contact us at info@cniw.org. Please note that this may reveal your identity information, but we will keep this information strictly confidential.

Appendix III Ethics Approval

Interdisciplinary Committee on
Ethics in Human Research (ICEHR)

St. John's, NL Canada A1C 5S7
Tel: 709 864-2561 icehr@mun.ca
www.mun.ca/research/ethics/humans/icehr

ICEHR Number:	**20201772-ME**
Approval Period:	March 17, 2020 – March 31, 2021 ** For "**AIM 1**" Only
Funding Source:	CIHR [RGCS # 20201727] **Rapid Response
Responsible Faculty:	Dr. Peter Wang, Faculty of Medicine
Title of Project:	*Implementing and Assessing a COVID-19 Outbreak Response Plan in the GTA Chinese Community*

March 17, 2020

Dr. Peizhong Peter Wang
Division of Community Health and Humanities, Faculty of Medicine
Memorial University of Newfoundland

Dear Dr. Wang:

Thank you for your correspondence of March 12, 2020 addressing the issues raised by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) for your research project. ICEHR has re-examined the proposal with the clarifications and revisions submitted. In accordance with the *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (TCPS2)*, "AIM 1" [survey assessing GTA Chinese immigrants' knowledge, attitudes / beliefs, and adherence to the protection practices toward COVID-19] of the project has been granted *ethics clearance* for one year. However, you must submit ethical protocols for AIM 2 [evaluating a mutual support self-quarantine network model] and AIM 3 [assessing the psychological impacts of the COVID-19 outbreak and identifying the associated predictors] to ICEHR for review before you can proceed with those. ICEHR approval applies to the ethical acceptability of the research, as per Article 6.3 of the *TCPS2*. Researchers are responsible for adherence to any other relevant University policies and/or funded or non-funded agreements that may be associated with the project.

The *TCPS2* **requires** that you submit an Annual Update to ICEHR before March 31, 2021. If you plan to continue the project, you need to request renewal of your ethics clearance and include a brief summary on the progress of your research. When the project no longer involves contact with human participants, is completed and/or terminated, you are required to provide an annual update with a brief final summary and your file will be closed. If you need to make changes during the project which may raise ethical concerns, you must submit an Amendment Request with a description of these changes for the Committee's consideration prior to implementation. If funding is obtained subsequent to ethics approval, you must submit a Funding and/or Partner Change Request to ICEHR so that this ethics clearance can be linked to your award. All post-approval event forms noted above must be submitted from your Researcher Portal account by selecting the relevant event form from the *Applications: Post-Review* link on your Portal homepage. We wish you success with your research.

Yours sincerely,

Russell J. Adams, Ph.D.
Chair, Interdisciplinary Committee on
Ethics in Human Research
Professor of Psychology and Pediatrics
Faculties of Science and Medicine

RA/th

cc: Supervisor – Director, Research Grant and Contract Services