How Religious and Political Affiliation Influence Belief in COVID-19 Vaccine Myths in Canada & The United States

By

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Abstract

Using survey data from the CIHR-funded three country project "COVID-19's Differential Impact on Indigenous Peoples and Newcomers: A Socioeconomic Analysis of Canada, USA and Mexico", this thesis explores two central questions: How are community connections affecting COVID-19 vaccination rates, and how are these connections affecting our belief in COVID-19 myths? The study's findings reveal that our social connections, political and religious affiliations, social media usage, trust in institutions, and our social circles, play a significant role in shaping perceptions of vaccines and myths regarding coronavirus. Although political divisions affect vaccine uptake and myth beliefs in both countries, this pattern is stronger in the USA. Social media has also polarized opinions and has influenced vaccine uptake in both countries. The thesis employs social constructionism to explain how social interactions and connections shape our perceptions of reality. Additionally, it draws on political culture theory to analyze how political beliefs influence various facets of our lives, including responses to public health crises. The thesis concludes by providing critical data and results that can assist government officials, epidemiologists and policymakers to bridge social divides and develop strategies to manage future pandemics better.

Keywords: COVID-19, vaccination, misinformation, social media, myth belief, political affiliation, Canada, USA

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I look forward to pleasure reading for years to come.

Dedication

For Leo and Scarlett. Being your Auntie is my favourite thing. If I can do this, you two can do anything. I will be cheering you on for the rest of my life.

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Operational Definitions

Disinformation- Disinformation is a form of misinformation that is "intentionally, maliciously deceptive" (Gebel, 2021). Further, three factors typically motivate disinformation: "political power or influence, profit, or the desire to sow chaos and confusion" (Budgar, 2022). Ultimately, disinformation is shared in order to cause harm and can spread very widely online. An example is the YouTube video "Plandemic," which was created to cast doubt about the seriousness of the COVID-19 pandemic.

Evangelical Protestant- Evangelicals believe the *Bible* is the literal word of God, and all events described within it occurred exactly as described. Furthermore, they believe the only way to heaven is through belief in Jesus and his teachings, as articulated in the *Bible*. Adherents to Evangelical Protestantism must be old enough to choose to be baptized (or born again) and to be willing to spread the word or evangelize non-Evangelical others (Green, 2004). Hence, baptism occurs later in this sect, generally in early or late teenagerhood, compared with other Christian religions, which baptize infants shortly after birth. Adherents to Evangelical Protestantism are predominately Republican in terms of political leaning (Burge, 2019), live in the USA and make up the most significant percentage of those identifying as white Christian Nationalists (Baker et al., 2020). There are Evangelical protestant denominations in Canada, but their numbers are smaller than in the United States, and the number of adherents is more difficult to track (Malloy, 2011).

Historically Black Churches- Originating in the time of slavery, Black churches emerged secretly as Black Christians were rarely allowed to attend white churches in the United States (Mohamed et al., 2021). The churches provided a space for Black people to receive training and leadership positions unavailable to them in the broader society (Mohamed et al., 2021). During the Civil Rights era, Black churches served as meeting places to prepare for protests. Social change is deeply

rooted in the church and has a very progressive lean when examining political ideology. There are historically Black churches in both Canada and the United States.

Mainline Protestant- To this group of adherents, the *Bible* is a historical document, not the literal word of God. They believe Jesus is one way to heaven, but there may be other ways to salvation for those who believe in a different faith. They are less likely to focus on converting (evangelizing) people (Green, 2004). Adherents tend to lean to the right politically but not as significantly as Evangelical protestants (Burge, 2019).

Misinformation- “Information that is false or inaccurate, and is often spread widely with others, regardless of an intent to deceive” (Gebel, 2021).

Misperceptions- "Cases in which people's beliefs about factual matters are not supported by clear evidence and expert opinion- a definition that includes both false and unsubstantiated beliefs about the world" (Nyhan & Reifler, 2010).

Prosperity Gospel- “The prosperity gospel is an umbrella term for a group of ideas- popular among charismatic preachers in the evangelical tradition- that equate Christian faith with material and particularly financial success” (Burton, 2017). This belief is a foundational value of American Christianity. It is tied to capitalism and generally targets low-income individuals convincing them that the more money they give to their church, the more likely they are to find financial success (Abdul-Jabbar, Kareem, 2015). It justifies extreme wealth inequality by associating a lack of faith with being financially insecure (Zulu, 2022).

Vaccine Hesitancy- "the reluctance or refusal to vaccinate despite the availability of vaccines" Further, the WHO says that "complacency, inconvenience in accessing vaccines, and lack of confidence are key reasons underlying hesitancy." (World Health Organization, 2019). People have different reasons for being vaccine-hesitant, including mistrust in science and health

professionals, mistrust in government, over-reliance on social media and non-vetted claims from various media sources and persons of authority (but without scientific knowledge).

White Christian Nationalism- "A pervasive and politically strategic ethnoreligious ideology that equates national belonging and membership with ethnocultural markers including race, nativity and religious background" (Whitehead & Grubbs, 2020). Persons who believe in this doctrine believe America is a white, Christian, heterosexual, patriarchal nation controlled by a monolithic Christian god.

The goals of Christian nationalists are to obtain absolute power and control over the rest of society (Baker et al., 2020). They hold other, sometimes conflicting beliefs on other social issues, including anti-abortion and oppose 2SLGBTQ+ rights while petitioning for abstinence-only sex education in schools, the return of Christian prayer in public schools and the belief that creationism should be taught alongside evolution (Gagne, 2019). Approximately 20 percent of Americans hold Christian nationalist beliefs (Whitehead, 2021).

Chapter 1

1 Introduction

In June 2020, Herman Cain succumbed to a COVID-19 infection, aged 74 years, after attending a Trump rally without wearing a mask in Tulsa, Oklahoma, four weeks earlier (Reuters, 2020). He was an early and vocal critic of pandemic mandates and measures, including avoiding public events and wearing a mask. Like many other people, Cain believed that COVID-19 was not a threat to his life or the health of others despite being a member of two groups experiencing the worst outcomes from the disease: being over 70 years of age and being a member of the African American community (Vasquez Reyes, 2020).

Tragically, Cain's experience and attitudes toward COVID-19 are not unique. The leader of the Texas Republican Party, H. Scott Apley, also died, aged 45 years, after claiming a public health official in Baltimore was an 'absolute enemy of a free people' for sharing the success of Pfizer's clinical trials on Twitter (Edwards, 2021). Their deaths did not occur in isolation. An internet search shows dozens of similar stories. Religious leaders in Canada and the United States, most prominently white Evangelical Christians, have denounced social distancing protocols, mask and vaccine mandates and other measures introduced to protect people and, many times, have become victims of the coronavirus pandemic. These tragic outcomes underscore the dire consequences of misinformation and the urgent need to address it.

Politicians and other influential people also joined the choruses of anti-vaccine protests and complaints regarding pandemic-era restrictions. Millions of people listened despite the pleas, warnings and suggestions of the medical and scientific professionals knowledgeable of communicable diseases, including SARS—the original 'branch' of SARS-COV-2—or what we commonly know as COVID-19. SARS (severe acute respiratory syndrome) was an infection that

rampaged the world, including Toronto, in 2003. Although less than 10,000 people were infected by the SARS epidemic worldwide, its mortality rate was an alarming 11%. In Canada, 251 people were infected, and 43 died, leaving a mortality rate of 17.1% (CDC, 2003).

The Canadian Institutes for Health Research study titled "The Impact of COVID-19 on Indigenous Peoples and Newcomers: A Socioeconomic Analysis of Canada, US, and Mexico."[1] is the data source for my current research. In my thesis, I aim to identify and examine the prevalent myths surrounding COVID-19 and investigate how social networks influence individuals' willingness to receive the coronavirus vaccine.

Amid the COVID-19 pandemic, the spread of misinformation and disinformation has been widespread. While several studies have focused on the various types of COVID-19 misinformation (Ognyanova et al., 2021; Hamel et al., 2021; Gupta et al., 2022), only a few studies on vaccine hesitancy have examined the characteristics of communities that are more susceptible to believing misinformation. These studies are usually focused on parents of infants and young children, a group that is particularly vulnerable to misinformation due to concerns about the safety and efficacy of vaccines for their children. They do not examine vaccine hesitancy among adults. The coronavirus pandemic presents a unique challenge for the 21st century. Although diseases spread and become epidemic—no disease has been declared a pandemic since the Hong Kong flu pandemic of 1968 which killed an estimated 2 million people (Dattani, et al., 2023), and the Russian flu pandemic of 1977-1979, which mainly affected younger people, under the age of 25 years (Mermel, 2009).

The second unique feature of the coronavirus pandemic of 2020 is the widespread dissemination of misinformation that likely killed millions of people. The dissemination of

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misinformation in the 21st century poses a significant challenge given the diverse sources, the broad geographical reach of myths, and the rapid circulation of information through the internet and social media, surpassing the capacity of humans and computers to keep up. Furthermore, mainstream news sources' reliability and truthfulness have increasingly become questioned as media companies prioritize profit and viewership over factual reporting (Bauder, 2023). Many illegitimate news outlets present misinformation as fact, while previously trustworthy news organizations may bend the truth to align with their audience's political inclinations. These conditions collectively render it challenging for individuals to discern the reliability of the information they encounter.

In today's world, people receive information from a broad spectrum of sources, including social media, television, news and political websites, friends and family, healthcare professionals, government authorities, and religious figures. However, only some sources are verified, authoritative, and knowledgeable, creating a complex landscape where misinformation can thrive. The sources individuals turn to for information, and the people they trust to shape their opinions can significantly impact their perceptions of the threat posed by the COVID-19 pandemic. This underscores the crucial role of trusted sources in shaping public perceptions and the importance of their influence in combating misinformation.

Even prior to the COVID-19 pandemic, vaccine myths and misconceptions became popular within specific segments of the general population. The most notable example is the debunked claim linking the MMR (measles, mumps and rubella) vaccine to autism (Wakefield et al., 1998). Despite the discrediting of the paper that made this assertion, millions of individuals worldwide continue to harbour beliefs that vaccines pose risks to both children and adults (Motta & Stecula, 2021). This highlights the need for critical thinking and the responsibility of each individual to

verify information. Millions more listened to the unscientifically informed 'advice' of politicians or celebrities despite these two groups having no scientific expertise in vaccines and disease prevention. Addressing widespread misinformation and misconceptions regarding vaccines remains a critical aspect of combating the COVID-19 pandemic. Addressing the willingness of people to believe non-experts who are celebrities or influencers exacerbates this problem.

In a post-pandemic world, we need to identify other contemporary issues to understand the polarization in our society, particularly regarding politics, religion and vaccine uptake. Traditional news media, including television, radio, internet, and newsprint, have become politically fractured in recent years, particularly in the United States. Right-wing news outlets, especially in the United States, operate independently and without fact-checking or oversight, and their skewed messages directly affect their viewers. Fox News, for example, has routinely minimized the pandemic risk while spreading an astonishing amount of misinformation, posing a distinct threat to the lives of millions of people in Canada and the USA. For example, between June 28 and July 11, 2021, Fox News aired 129 segments about COVID-19 vaccines. Fifty-seven percent of those segments include efforts to downplay the validity of COVID-19 vaccines or spread false information (Obeidallah, 2021). In the case of COVID-19 vaccine misinformation, Fox News poses a distinct threat to the lives of millions of people because its average viewer is 65 years old, a group who are significantly more likely to get sick and die from COVID-19 (Schaal, 2019). This is troubling since the predominant message espoused by Fox News and its associates promotes vaccine rejection. Many Canadians regularly watch Fox News, so our population is not immune from receiving this unfactual information.

In addition to sanctioned and unsanctioned news sources, leaders of certain Christian megachurches and other religious organizations in Canada and the USA have also actively

discouraged vaccination and encouraged their members to reject safety measures put in place by the government, including vaccines (Cosgrove, 2020; Coren, 2021; Kavanagh, 2021). Religion is not the only 'driver' of vaccine hesitancy. In Canada, the Trucker Convoy is a primary example of another form of socially driven misinformation (Coletta & Suliman, 2022; Tasker, 2022). Far-right affiliated individuals and groups, many with known ties to white supremacist groups, organized the Convoy, some of whom hoped it would be Canada's version of the January 6th Insurrection in the United States (Boutilier & Gilmore, 2022; Gilmore, 2022; Coletta & Timsit, 2022).

Social and cultural unrest have thrived during the coronavirus pandemic in Canada and the United States, and I want to learn more about this phenomenon. Comparative data allows for a deeper understanding of the causes and consequences of this type of social upheaval and whether vaccine misinformation related to political and religious groups is as prevalent in Canada as it is in the United States.

1.1 Research Questions

The main research question is: *To what extent do political affiliation, racial/ethnic identity, and religious affiliation predict vaccine uptake in Canada and the USA?*

This research also addresses the sub-research question: *How do religious and political identities influence individuals' beliefs in COVID-19 myths in the United States and Canada?*

In answering these questions, I contribute to research comparing Canada to the United States regarding various measures regarding our cultural and social differences over the past two hundred years. This tradition highlights the similarities between the two countries (Ireland, 2022) and the differences (Reitz & Breton, 1994). In this thesis, comparing Canada and the United States regarding political and religious differences in willingness to vaccinate further contributes to our understanding of the two nations and their differences.

1.2 Sociological Relevance

While a social determinant of health lens is functional when exploring vaccine myths and hesitancy, this thesis digs deeper into social and communal aspects of social change and upheaval to understand what drives individuals' beliefs in misinformation. My thesis uniquely contributes to understanding the social and communal forces that drive misinformation and vaccine uptake. While some research has examined political and religious affiliations and COVID-19 experiences, only a few examine both (Zhao et al., 2020; Corcoran et al., 2021). Researchers have found that as religious activity increases, particularly among white evangelicals, belief in science, vaccination and obedience toward social restrictions declines (Corcoran et al., 2021).

This research gap needs to be addressed because we know that the most dedicated white churchgoers are often Republican supporters and are most likely to be unvaccinated (Nortey, 2021). In Canada, Evangelicals were active members in the Trucker Convoy and have taken over a church in Ottawa (Leedham, 2022). To prevent misinformation during future health crises, we must establish where people get their information and how that might influence their pandemic experience. We also need to understand why these groups may have a vested influence in discouraging their members from being vaccinated.

A comparison of vaccine and disease beliefs between Canada and the United States is essential. While we share a land border, share a language (mostly), share a common history and colonial development, our community values and mores are actually quite different. Canadians are less religious than their American counterparts (Canseco, 2020). For the most part, Canadians are more likely to compromise on social issues than Americans are (Bibby, 2011). We are also more likely to be vaccinated against COVID-19 than our neighbours. As of March 8, 2024, 86.8% of individuals over the age of five have had at least two vaccinations in Canada (Public Health

Agency of Canada, 2024), while 71.4% of those over 5 in the United States have been fully vaccinated against COVID-19 (Centers for Disease Control and Prevention, 2022). In my thesis, this comparison explores whether religious identity or political affiliation affects vaccine hesitancy and the extent to which these correlations may differ by country.

1.3 Thesis Overview

The structure of the thesis is as follows: in this chapter, the background of the study is explored, highlighting the significant importance of the research questions that lie at the core of the investigation. These questions are pivotal in unravelling the intricate dynamics of our society. Chapter two comprehensively reviews the literature on political and religious affiliation, social constructionism, and political culture theories.

The methodology is detailed in Chapter Three, covering the data source, research method, design, sample size, data analysis, and variables, including the main dependent and independent measures. Ethical considerations and limitations of the study are also addressed in this chapter. The heart of the thesis lies in Chapter Four, which presents the research findings, followed by a detailed discussion supported by relevant literature. The final chapter provides a conclusion that summarizes the study, discusses its contribution to sociological research and policy relevance, and ultimately explains how the findings aid in comprehending the research problem.

Chapter 2

2 Literature Review and Theory

The COVID-19 pandemic has presented unprecedented challenges globally, not just in terms of public health but also in how information about the virus is communicated and understood. A significant aspect of this challenge has been the proliferation of misinformation regarding COVID-19, which has been exacerbated by the rapid spread of information on social media and the varying standards of media coverage. In this chapter, I review misinformation, right-wing information sources, the religious and political identification of Canada and the United States as well as the development and roll out of the COVID-19 vaccination in each country. Further, I outline two theories, social constructionism and political culture, to examine how our perception of reality has shaped the COVID-19 pandemic.

2.1 Literature Review

2.1.1 Misinformation

Since the onset of the coronavirus pandemic, significant research has been undertaken to understand the role of social media in disseminating COVID-19 misinformation (Cinelli, Quattrociocchi et al., 2020; Li et al., 2020; Pennycook et al., 2020). The COVID States Project, a prominent contributor to understanding the science of pandemic discourse, has revealed that 20% of Americans believe in some form of COVID-19 misinformation, while 51% remain uncertain about the veracity of such statements (Ognyanova et al., 2021). It is not difficult to believe that large segments of our population are misinformed with great ease. Science instruction in both Canada and the USA is weak, and our way of communicating information to the public, especially complex information, is poor. Added to the popularity of social media, which by its nature has no

rigorous form of fact check but encourages a healthy dose of fear (either fear of authorities or fear of death), the "perfect storm" of misinformation is allowed to proliferate unchecked.

The data collected in our research corroborates some of these findings (Jedwab, 2022), but also questions some of them. Early in the research process, we discovered that COVID-19 misinformation encompasses various topics, including mRNA vaccines, with some believing they modify DNA, involve microchip implantation or the use of aborted fetuses in vaccine production, and have the potential to cause infertility (Jedwab, 2022). Political orientation has an influence on the belief or rejection of these myths. In the United States, the Kaiser Family Foundation also conducted a thorough survey of Republican and Democrat Americans, revealing that 46% of Republicans believed or were unsure about at least four misstatements regarding coronavirus, compared to 14% of Democrats (Hamel et al., 2021).

2.1.2 The Fox News Effect

Fox News has faced scrutiny for the discrepancy in handling COVID-19 restrictions for its employees and the messages it conveys to its viewers. The discrepancy is evident when considering Tucker Carlson's statements on his news program that constantly reject social distancing, working from home, and mask mandates. Conversely, however, he and the entire staff of Fox News personally adheres to vaccination-mandates for return to work and daily coronavirus testing as part of his employment contract with Fox News. As a result, most Fox News staff are vaccinated, and the overall vaccination rate is higher among Fox News employees than the American average (Bauder, 2021). This contradiction is a painful reminder of how some news organizations strive for profit and ratings over factual news, or put more succinctly, Fox News fails to practice what it preaches.

While Fox News is not as far-right as Newsmax or One America News, their viewers are just as likely to believe COVID-19 conspiracy theories, especially compared to those who watch other network news channels (Hamel et al., 2021). Their news broadcast remains one of the top-rated news stations in the United States and in Canada. Results from our research show comparable results, with Fox News viewers and those who use social media for their COVID-19 information the most susceptible to believing COVID-19 vaccine myths (Jedwab, 2022). When looking at support for COVID-19 restrictions, Pew Research (2021) found that 52% of those on the right, which in this context refers to conservative or Republican-leaning individuals, believed there should have been fewer restrictions in the United States. In Canada, the percentage of right-leaning political supporters who felt Canada needed to drop restrictions was 26%.

Research has identified significant differences within programs on the Fox News Network (Bursztyn et al., 2020). For instance, Sean Hannity, a close ally of Trump and the most popular host on the channel, did not broach the topic of COVID-19 in his broadcasts until the middle of March 2020. In contrast, Tucker Carlson began discussing it on his show in February, leading to his viewers adopting COVID protocols, such as mask-wearing, four days earlier (Bursztyn et al., 2020). While these early discussions of COVID-19 may not seem significant, they could have positively influenced public health amongst viewers in Canada and the USA had Fox News been more forthright with its audience about its own practices. Estimates suggest that half of the COVID-19 deaths in the United States at the beginning of the pandemic could have been prevented if protocols had been followed a week earlier (Pei, Sen et al., 2020). This underscores the importance of timely and accurate information in public health crises and the fact that Fox News "flip-flopped" in their coverage of the topic very early in the pandemic.

Beliefs and willingness to obey pandemic restrictions were higher amongst viewers of other news organizations. A Pew Research Centre study in April 2020, early in the pandemic found that viewers of CNN and MSNBC, Democrat-leaning cable news channels, were significantly less likely to believe the U.S. government had greatly exaggerated the risks of COVID-19 (16%) than those who relied on Fox News and other right-wing cable news (56%). This suggests that the choice of news source can significantly influence how people perceive the pandemic's protocols (Jurkowitz & Mitchell, 2020). Canadians have access to Fox, MSNBC and CNN, along with various other American-based news channels. In Canada, right-leaning news organizations were likelier to share news deemed low in scientific quality, a trend similar to their counterparts in the U.S. This underscores the need for balanced and scientifically accurate reporting, a topic I examine further in the thesis.

2.1.3 Religious Affiliation

In 2021, the Pew Research Center reported that approximately 63% of the United States identifies as Christian (down from 78% in 2007). This Christian population is diverse, with approximately 21% identifying as Catholic and 40% as Protestant. Black Catholics, a distinct subgroup, comprise only 6% of the Black population and 4% of Catholics in America (Diamant et al., 2022). Further, African-Black immigrants, another unique group, are more religious than Caribbean-born or US-born Black people and are more likely to be Catholic (Diamant, 2021). This diversity is a significant aspect of the religious landscape, as it influences various social issues such as 2SLGBTQ+ rights (Diamant, 2021). White Evangelical Christians, a significant group with approximately 41,000,000 Americans, add to this diversity (Dias & Graham, 2021). Those with no identified religion make up 29% of the population (up from 16% in 2007), including 4% who identify as atheists and 5% who identify as agnostic (Smith, 2021). Finally, approximately

6% of the country's population follows a non-Christian religion: 1% are Jewish, 1% are Muslim, 1% are Buddhist, 1% are Hindu, and the final 2% represent other religions (Smith, 2021).

Religious identification is lower in Canada. According to Statistics Canada data from 2019, 63.2% of Canadians reported a Christian religious identity, while 26.3% reported no religious affiliation. (Cornelissen, 2021). Further, 1.4% report being Sikh, 3.7% are Muslim, 1% are Jewish, 1.7% are Hindu, 1.4% are Buddhist, and 1.2% are other religions. Women are more likely to report being religious in Canada (72%) than men (64%). Like the United States, religiosity varies across provinces and by immigrant status and has decreased in the past several decades. Immigrants are more likely than Canadian-born to practice a religion, especially non-Christian religions (Lipka, 2019).

How Often Do People attend a religious gathering? While many Canadians associate themselves with a religion, few are involved in daily or weekly practices. For example, only one in five regularly attend a church, temple, mosque or Gudwara weekly, while 25% say they never attend a religious service, reducing religion's influence on them (Lipka, 2019). Of Americans, only 27% reported attending a religious gathering in the past month, with Evangelicals most likely to attend church weekly and in person (Nortey, 2022). Only 29% of Canadians report religion being essential in their lives (Lipka, 2019), while 48% of Americans report that religion is essential (Brenan, 2021).

The correlation between church attendance and vaccination status is a compelling. Nortley and Lipka (2021) discovered that attendees of 'Historically Black' churches, which are predominantly African American churches with a long history of social and political activism, were significantly more likely to be vaccinated than those of other religious organizations. Nearly two-thirds (64%) of Historically Black church attendees are vaccinated, compared to 39% of Americans who attend

religious services[2]. A striking example of this influence is the First Baptist Church of Glenarden, a Black megachurch in Maryland. Between March and June 2021, the church administered 40,000 vaccinations onsite, with the Pastor even videotaping his vaccination to encourage members to follow suit (Silberner, 2022). In sum, some religious institutions played significant roles in helping their adherents obtain the vaccine, while other institutions actively discouraged vaccination.

The influence of religious leaders is not to be underestimated. As Nortley and Lipka's 2021 research reveals, 61% of survey respondents trusted their clergy (only second behind their primary care doctors) for information regarding COVID-19 vaccines. This level of trust underscores the significant role that religious leaders play in shaping vaccination attitudes and behaviours. Despite the prevalence of misinformation among white Evangelicals, there have been notable exceptions, including Franklin Graham, Pastor Robert Jeffress, and the president of the Southern Baptist Convention (Dias & Graham, 2021). They have all used social media channels, sermons, and public appearances to share their positive, pro-vaccination stances, influencing their congregations and beyond. This influence is a key factor in understanding the vaccination rates among different religious groups.

White Evangelicals and the Moral Majority. When the vaccine was introduced in the United States in December 2020, there was some doubt that white Evangelicals would get vaccinated in large numbers. A Pew survey conducted in February 2021 found that 45% of white Evangelical protestants did not plan on getting vaccinated (Pew Research, 2021), and by September 2021, only 57% of white Evangelicals had received one dose of the vaccine (Kramer, 2021). Comparatively, the September survey also found that 73% of white non-Evangelical Protestants and 70% of Black non-Evangelical protestants had received at least one dose of the vaccine (Funk & Gramlich,

[2] For an examination of myth belief among Black and white religious attendees in the USA, see Appendix B

2021). Evangelicals within the Pentecostal and charismatic churches, who believe in 'divine health a miraculous healing ', a belief that God can heal any disease, are the least likely to be vaccinated (Dias & Graham, 2021).

Surveys have since found that approximately 22% of Catholics in the U.S. do not intend to be vaccinated, a number that is half the size of Evangelicals (Dias & Graham, 2021). When looking at vaccination rates for religiously unaffiliated and nonreligious Americans, the Pew study found that 10% of atheists and 20% of agnostic respondents would not get vaccinated (Deal Barlow, 2021), numbers below those reported for religiously affiliated Americans.

This thesis differentiates the three traditions of Protestantism (mainline, evangelical, and Black) because of these inter-denominational differences.. While the Bible guides all, they diverge in social stances and political ideologies (Burge & Djupe, 2019). This divergence is a key aspect of their identity and influences their views on various social and political issues. While white evangelicals are predominantly Republican and voted in large numbers for Trump and the Republican party in 2016 and 2020, Black protestants are overwhelmingly, though not exclusively, democratic in their politics (Burge & Djupe, 2019). This diversity of views within the Protestant traditions is an important aspect of the religious landscape in the United States and Canada. White Christians are more likely to believe that whites have been victims of the cultural changes and are less likely to believe there are systemic justice issues for Black people in the U.S., such as widespread police violence (Perry et al., 2021). While traditionally, an evangelical identity equates to someone believing they are born again and wish to share their faith with others (Boorstein, 2017), politics has invaded some of the churches in the USA.

2.1.4 Political Identity

Political identity and geographic location are correlated with vaccine uptake, hospitalizations, and death during the pandemic. The urgency of this situation is underscored by Charles Gaba's (2022) extensive study during the Delta wave, which found that death rates were 5.77 times higher in Republican-voting counties than in Democrat-voting counties. When vaccines were unavailable, the Omicron wave saw case rates 1.13 times higher in Democrat-leaning counties. However, death rates were 2.02 times higher in the most Republican-leaning counties (Gaba, 2022).

Moreover, the data reveals a stark reality. Case rates were highest in the most-vaccinated counties, but death rates were 2.2 times higher in the least-vaccinated counties (Gaba, 2022). As of January 2022, 65% of Biden-supporting counties were vaccinated, while 52% of Trump counties were vaccinated (Kates et al., 2022). This disparity is not a matter of political debate; it is a public health crisis. Unvaccinated Republicans are younger, less educated, and more conservative than vaccinated Republicans (Hamel et al., 2021). It is clear that bipartisan cooperation is not just a nice to have; it is crucial for addressing these vaccination disparities and uniting us in the fight against COVID-19.

Bipartisan cooperation is not just a desirable but an essential step in addressing these vaccination disparities. The data from April 2022, as reported by the Kaiser Family Institute (2022), paints a concerning picture. Ninety-two per cent of Democrats have been vaccinated, compared to 76% of Independents and a mere 55% of Republicans. Even more worrying, of the remaining 45% of Republicans, 37% say they will not get vaccinated. This stark partisan divide is a significant obstacle preventing the end of the COVID-19 pandemic. Studies have shown that

regardless of other demographics, such as education and ethnicity, political affiliation is the most influential factor in determining vaccination rates in the United States (Jones & McDermott, 2022).

Canadian Political Identity and COVID-19 Vaccination. Canada's political system differs from that of the United States because there are more than two major parties, and we have a different system of democracy and governance. However, the election held in 2021 showed that most Canadians still support two major parties nationally. In the 2019 election, Liberals received 33.1 % of the vote, while the Conservative Party received 34.3%. While the Conservatives received the more significant portion of the popular vote, they won significantly fewer seats than the Liberals (160 vs. 119) due to how seats are distributed provincially and geographically.

Populism in Canada is becoming a more potent political force. The populist party receiving the most support is the People's Party of Canada. Their popularity is gaining. In Manitoba, 7.6% of the population voted in favour of the People's Party, as did 7.4% of Alberta voters (Elections Canada, 2021). While Canadians would like to believe that we do not have as significant of a right-wing population as the United States, research has found that Trump's rise to power has helped organize right-wing politics in Canada (Momani & Deschamps, 2021). Much like the Trump Republican's embrace of the January 6th Insurrection, the Conservative party initially embraced the Trucker Convoy in the summer of 2021 (Fawcett, 2022).

2.1.5 Trust

American Trust: Where Did it Go*?* The decline in trust in institutions has been observed since the onset of the pandemic (Kennedy et al., 2022). For instance, Pew Research reveals a notable drop in trust in medical scientists among Americans, from 89% in November 2020 to 78% (Kennedy et al., 2022). Interestingly, trust in local and state governments has maintained a higher level than the federal government (Newport, 2022; Shelburne, 2023). This erosion of trust could

hinder COVID-19 vaccination efforts and contribute to the propagation of misinformation. This thesis examines trust levels, vaccination rates, and the potential influence of trust on the belief of COVID-19 misinformation.

A Public Religion Research Institute study revealed a stark contrast in trust levels among different religious groups. White Evangelicals, for instance, were the only group where a majority believed the federal government was withholding COVID-19 treatments. Only 42% of this group saw vaccination as an act of love toward their neighbours, compared to 59% of non-evangelical white Protestants and 63% of Black Protestants (Silberner, 2022)[3]. On the political front, Democrats have witnessed a rise in trust in science professionals and scientific institutions since 1975, from 67% to 79% in 2021. In contrast, trust in science among Republican supporters has significantly dropped from 72% in 195 to 45% in 2021 (Jones, 2021). This decline in trust can be attributed to political figures questioning public health guidance, such as Donald Trump's assertion that the virus would disappear (Wolfe & Dale, 2020).

Canada: A Complex Trust Landscape. Trust in public institutions in Canada is generally higher. Cary Wu' and team's (2022) research indicates that Canadians are nearly twice as likely to trust their neighbours and generalized 'others' compared to Americans. However, politicians only manage to garner the trust of 18% of Canadians. Similar to the situation in the USA, the study found a concerning 10% decline in trust in the government between January 2021 and January 2022, from 32% to 22% (Proof Strategies, 2022). Regarding political affiliation, Liberal voters have consistently shown the highest levels of trust in public institutions since 2019, while NDP and Green party voters exhibit the lowest levels of trust in NGOs, media, small and medium

[3] For an examination of white and Black protestants and their varying belief in COVID-19 myths, see Appendix D

businesses, governments, and large corporations. Those with higher incomes and education levels are more likely to trust public institutions (Wu, 2022).

Overall, despite having the lowest levels of trust, voters in the prairies have shown a sense of optimism with their relatively stable trust levels through the pandemic. For example, 27% of Prairie residents trust the Prime Minister in 2022, compared to 41% in the Atlantic provinces and 34% in Ontario. The prairies have also seen a significant decrease in trust in their premier since the pandemic's beginning, dropping from 38% to 23% (Proof Strategies, 2022).

2.1.6 COVID-19 Vaccinations

COVID-19 Vaccinations in the United States. The development and deployment of COVID-19 vaccines have marked a critical milestone in the global response to the pandemic. In the United States, the journey of COVID-19 vaccination has been characterized by rapid scientific advancements, logistical challenges, and public health initiatives aimed at achieving widespread immunization. The COVID-19 vaccine stands as a testament to the power of collaboration. It resulted from an unprecedented and inspiring partnership between pharmaceutical companies, academic institutions, and government agencies. The development of vaccines, particularly those using mRNA technology by Pfizer-BioNTech and Moderna, showcased the efficacy and speed of novel vaccine platforms (Baden, et al., 2021).

The FDA's Emergency Use Authorization (EUA) in December 2020 was a significant milestone that not only allowed for the rapid deployment of these vaccines but also marked a pivotal moment in the fight against COVID-19, reassuring the public about the rigorous safety and efficacy standards (U.S. Food and Drug Administration, 2020). EUA enabled the prioritization of high-risk populations, including healthcare workers and the elderly, setting the stage for broader vaccination campaigns (Oliver et al., 2020).

The rollout of COVID-19 vaccines in the United States faced significant logistical challenges, including supply chain constraints, distribution disparities across states and vaccine hesitancy among certain demographic groups (Paltiel et al., 2020). Though implementation varied at the state and local levels, the federal government's Operation Warp Speed initiative, a public-private partnership, aimed to accelerate vaccine production and distribution. It involved a series of measures, including funding vaccine development, manufacturing, and distribution, to ensure the availability of safe and effective vaccines as quickly as possible (USHHS, 2021).

Efforts to expand vaccination access included mass vaccination sites, mobile clinics, and partnerships with pharmacies and community health centers. The CDC's Advisory Committee on Immunization Practices (ACIP), a group of medical and public health experts, guided vaccine prioritization and safety monitoring. Based on a thorough review of available scientific evidence, their recommendations contributed to public trust and regulatory oversight, ensuring that vaccines are safe and effective (Shay et al., 2021).

COVID-19 vaccination efforts in the United States have had profound public health impacts, reducing severe illness, hospitalizations, and deaths attributed to the virus (Thompson et al., 2021). Challenges such as vaccine misinformation, disparities in vaccine uptake among racial and ethnic minorities, and evolving variants of concern have necessitated ongoing adoption of vaccine strategies. These strategies include robust public health communication campaigns to counter misinformation, targeted outreach programs to address disparities, and continuous monitoring and adaptation of vaccine development and distribution to tackle emerging variants (Callaghan et al., 2021).

COVID-19 Vaccinations in Canada. Canada's journey in combating COVID-19 through vaccination began in December 2020, a significant milestone marked by Health Canada's approval

of the Pfizer-BioNTech vaccine on December 9, 2020 (Health Canada, 2020). This approval paved the way for a phased rollout strategy, mirroring the approach of the United States, with a focus on high-risk populations, including healthcare workers and elderly individuals in long-term care facilities.

The initial phases were characterized by logistical challenges similar to those in the United States, including vaccine distribution and cold chain management, particularly for vaccines requiring ultra-low temperatures, such as a Pfizer-BioNTech vaccine (WHO, 2021). Despite these challenges, Canada made significant progress in vaccinating priority groups by early 2021, expanding efforts to include broader age groups and essential workers. This progress was made possible by the tireless efforts of healthcare professionals who worked on the frontlines of the vaccination campaign.

After the Pfizer-BioNTech vaccine, Health Canada approved additional vaccines, including the Moderna vaccine in December 2020 and the AstraZeneca vaccine in February 2021 (Health Canada, 2021). This diversification of available vaccines facilitated broader distribution and accessibility across diverse regions of Canada, addressing logistical complexities and enhancing the speed of vaccination campaigns.

The vaccination campaign in Canada was not without its share of challenges. Supply chain disruptions, fluctuating vaccine availability, and evolving scientific recommendations regarding vaccine dosing intervals and booster shots (Ranney et al., 2022) posed significant hurdles. However, these challenges spurred agile policy responses and adjustments to vaccination strategies, such as prioritizing second doses for vulnerable populations and implementing mobile vaccination clinics to reach underserved communities. This exemplifies the resilience and adaptability of the healthcare system, reassuring the audience about its ability to handle challenges.

Equity considerations emerged as a significant concern, with disparities observed in vaccine access and uptake among Indigenous populations, racial minorities, and socioeconomically disadvantaged groups (Newman et al., 2023). However, the vaccination campaign in Canada was about more than just numbers; it was about ensuring fairness and inclusivity. Efforts to address these disparities included targeted outreach programs, culturally sensitive communication strategies, and partnerships with community organizations to improve vaccine access and uptake rates. This made the campaign a beacon of inclusivity and fairness, instilling a sense of social justice and equality in the audience.

2.2 Theories

2.2.1 Social Constructionism Theory

In this study, I draw upon the transformative framework presented by Nickerson (2021). Nickerson's framework unveils four pivotal tenets that revolutionize our understanding of knowledge formation. First, she disrupts the notion that knowledge is objective and universally valid, contending that "conventional knowledge is not necessarily based upon objective, unbiased observations in the world" (2021). This paradigm shift challenges the traditional view of knowledge as objective and universal, proposing instead that it is moulded by subjective interpretations and societal contexts (Berger & Luckmann, 1966).

Secondly, Nickerson highlights that "all ways of understanding are historically and culturally relative" (2021). This principle underscores the variability of knowledge across different historical periods and cultural contests, emphasizing how political affiliations, ethnic identities, or national affiliations can significantly influence individuals' perspectives (Berger & Luckmann, 1966). Cultural relativity could be political, based on ethnicity or a country-level understanding. For instance, the distinct worldviews of conservative Republicans versus social democrats in the

United States illustrate how different groups interpret reality based on their exposure to diverse factual and theoretical information.

The third tenet asserts that "knowledge is constructed through interactions between people and the world" (2021). This interactive process empowers individuals to shape their understanding of reality through social interactions actively, reinforcing that knowledge is socially situated and co-constructed (Hacking, 2000). Their community influences what someone perceives as the truth, emphasizing the individual's pivotal role in knowledge construction. Lastly, Nickerson (2021) argues that "knowledge and social action go together". This principle suggests a reciprocal relationship between knowledge and behaviour, where individuals' actions are informed by their understanding of the world, which in turn is influenced by societal norms and collective beliefs.

Building upon these theoretical foundations, Kukla (2013) further suggests that reality is not inherently objective but instead socially constructed. This means that our understanding of reality is not based on some objective truth 'out there' but is shaped by our social interactions and the shared meanings we create. This perspective helps explain why certain communities, such as those influenced by specific religious or ideological beliefs, may resist scientifically supported practices like vaccination (Rabinow, 1996). People will react to the world in the way those around them react. If someone is a part of a church where vaccination is discouraged, they will be less likely to get vaccinated. This lived experience means that reality is not concrete; instead, it is created (Kukla, 2013).

I examine how cultural norms and values shape knowledge using a cultural lens. Through a historical lens, I trace the evolution of knowledge over time. Moreover, considering religiosity and religious identification, I explore how religious beliefs influence knowledge formation. The investigation seeks to unearth prevalent myths and beliefs that shape conventional knowledge

(Geertz, 1973). Moreover, the role of social media is examined in shaping beliefs and perceptions, illustrating how interactions within digital spaces contribute to the construction of knowledge (Boyd & Ellison, 2007).

Social constructionism, while offering valuable insights into the construction of social reality through shared meanings and practices, faces several significant limitations. However, it is essential to note that these limitations do not negate the potential of social constructionism to offer valuable insights. One fundamental critique is its potential to overlook the material and structural constraints that shape social interactions and institutions. As scholars such as Alexander Wendt noted, social constructionism prioritizes ideational factors, such as norms and identities, while sometimes underplaying the influence of material conditions like economic interests or geopolitical power dynamics (Wendt, 1999).

Additionally, the emphasis on social construction can sometimes lead to a relativistic viewpoint that undermines the possibility of objective knowledge or universal truths, challenging the theory's ability to provide robust explanations for phenomena that transcend cultural or historical contexts. Therefore, while insightful in analyzing the role of ideas and perceptions in shaping social reality, social constructionism must navigate these limitations to offer a more comprehensive understanding of the complexities of social and political life.

Ultimately, the study proposes interventions that integrate knowledge and action to effectively influence public perceptions. The focus is on how the socially constructed nature of knowledge can be leveraged to shape public perceptions to promote social progress and well-being. By acknowledging the socially constructed nature of knowledge and its implications for societal behaviour, this research seeks to inspire hope and optimism, contributing to a deeper understanding of how diverse factors shape individual and collective worldviews.

2.2.2 Political Culture Theory

Political culture theory, a transformative multidisciplinary framework, seeks to illuminate a society's collective values, beliefs, and attitudes toward politics. With its potential to transform our understanding of political systems, institutions, and behaviours, this theoretical approach offers a comprehensive understanding of how political culture influences various governance and societal dynamics. The concept began to take shape primarily through the works of political scientists and sociologists. These scholars were driven by a desire to delve deeper into the socio-cultural foundations of political systems. They posited that political behaviour and institutions are deeply rooted in the shared beliefs, norms, and symbols that characterize a society's political culture (Almond & Verba, 1963).

Almond and Verba's seminal work, "The Civic Culture," is foundational to political culture theory. They identified three main types of political culture – parochial, subject, and participant-each representing different levels of citizen involvement and orientation toward politics. This typology helped distinguish societies based on their political cultures and provided a framework for understanding how these cultures shape political development (Almond &Verba, 1983). Gabriel Almond expanded on emphasizing the role of political socialization in shaping political culture. Political socialization is how individuals acquire political beliefs and values, often influenced by family, education, media and other social institutions (Almond, 1956). This aspect of political culture theory underscores the intergenerational transmission of political attitudes and its impact on political stability and change within societies.

Huntington (1968) further contributed to political culture theory with his concept of political development and modernization. He argued that political cultures evolved in response to socioeconomic changes and identified stages of political development that societies undergo as

they transition toward modernity. Huntington's work broadened the scope of political culture theory by linking political cultures to broader processes of societal transformations.

In addition to Almond and Huntington, scholars like Ronald Ingelhart have explored how changes in material wealth and security influence political cultures. Inglehart's theory of post-materialism suggests that as societies become more affluent, citizens prioritize issues of self-expression and quality of life over traditional economic concerns, leading to shifts in politics and behaviours (Ingelhart, 1977).

Political culture theory is a valuable tool in comparative politics. It enables scholars to conduct in-depth analyses and compare political systems across different countries, all based on their unique political cultures. This comparative approach has been instrumental in identifying patterns and variations in political behaviour, institutional design, and policy outcomes, thereby contributing to a more nuanced understanding of global political dynamics (Azizi & Ahmad, 2021).

Contemporary research in political culture theory is characterized by its collaborative and interdisciplinary nature, drawing insights from fields such as psychology, anthropology, and communication studies. This inclusive approach has significantly enriched our understanding of how cultural values and identities intersect with political processes, inviting scholars from various disciplines to contribute to its development (McCoy & Scully, 2002). With its adaptability and continued relevance, political culture theory remains a robust framework for understanding the complex interplay between societal values, political institutions, and individual behaviours. By examining collective beliefs and attitudes towards politics in societies, this theoretical approach provides essential insights into the dynamics of governance, political stability, and democratic

development across the globe, reassuring us of its significance in shaping contemporary debates and inquiries in political science and related disciplines.

While political culture theory is insightful in understanding societal norms and attitudes toward politics, it has limitations. One major critique is its tendency to oversimplify the diversity of political beliefs within a society. Ronald Inglehart notes that political cultures can vary significantly across different regions and social groups within a country, making it challenging to generalize a unified political culture (Inglehart, 1977). Moreover, critics argue that political culture theory often neglects the dynamic nature of political attitudes, which can evolve due to changing social, economic, and global factors (Almond & Verba, 1963). This critique underscores the need for a more dynamic view of political culture theory that can better understand and adapt to evolving political attitudes.

It is important to note that this static view undermines the theory's ability to account for political transformations and the emergence of new political movements that challenge norms. Additionally, scholars like Gabriel Almond caution against the deterministic tendencies of political culture theory, which sometimes overlooks individuals' agency and political institutions' role in shaping political outcomes (Almond, 1956). Thus, while political culture theory can provide a broad framework, it must be applied cautiously, considering its limitations in capturing the complexity and fluidity of political behaviour and attitudes. A balanced approach that considers both the theory's insights and constraints is necessary. Another limitation is that although I used the theory, I did not examine contemporary research that uses it. Researchers such as Nelson Wiesman (2007) have suggested that there are geographic and cultural differences that influence people’s behaviours in ways that cannot be explained using political culture theory.

2.3 Conclusion

In conclusion, this chapter has provided a comprehensive overview of the current state of research on COVID-19. It has highlighted vital themes, including the role of misinformation, social media, and vaccinations. The chapter has also outlined the importance of social constructivism and political culture theory as the basis of this thesis. This synthesis sets the stage for the empirical research presented in subsequent chapters, aiming to contribute new insights and address questions surrounding COVID-19 myth belief and vaccinations.

Chapter 3

3. Methodology

3.1 Introduction

This chapter presents the methodology used in this research. The first section introduces the study population, setting the stage for the subsequent sections. The second section then explains the sampling process for the CIHR study, providing context on who was excluded from the data. Section three follows, detailing the data collection technique and its limitations. The fourth section is dedicated to the data analysis method, including the operationalization of variables. Ethical considerations are also reviewed in this section.

3.2 Description of Sample

As the larger project was concerned with the differential experiences of racialized persons, these groups were oversampled in all three countries. All participants must reside in Canada, the United States, and Mexico at the time of the survey. For the purposes of this thesis, I focus on those participants residing in Canada and the United States because of the nature of my research question. The survey oversampled Indigenous peoples, newcomers, and racialized persons in all three countries. Importantly, we ensured geographic representation, a measure that guarantees the thoroughness and validity of our research, by ensuring the sample was large enough from each geography for comparative purposes.

3.3 Data Source

The dataset used for this project is Wave 4 of the CIHR-funded international project, *COVID-19's Differential impact on Indigenous Peoples and Newcomers: A Socioeconomic Analysis of Canada, USA and Mexico*. The project conducted five surveys, where over 15,000 people were surveyed regarding their physical and mental health, job conditions, income and job

losses, coronavirus diagnoses, vaccine intentions, and trust in government, among other issues related to the pandemic. The dates of the surveys are shown in Table 3.1. For this thesis, I used survey four data collected between February 2022 and March 2022. This survey included an in-depth examination of COVID-19 myth beliefs and introduced political and religious affiliation. There are 2,939 participants from Canada and 3,734 from the United States.

Table 3-1 *CIHR Survey Dates*

	Survey Dates
Wave 1	October -November 2020
Wave 2	March 2021
Wave 3	September- October 2021
Wave 4	February -March 2022
Wave 5	September-October 2022

Research teams, led by the Association for Canadian Studies and the University of Manitoba, collected and analyzed this data. Léger Marketing provided the internet platform and cleaned the data for us. The interdisciplinary research team designed the survey questions, analyzed the data, and worked with the advisory team to oversee the project.

Table 3-2 *Sample Size by Wave, 2022*

	USA	Canada
Wave 1	3551	2759
Wave 2	3773	3070
Wave 3	3714	2980

Wave 4	3734	2939
Wave 5	4754	3031
TOTAL	14772	11748

As with most other surveys, adults 18 years or older were eligible to participate in the study. There were no other limitations to participation. The study oversampled people with migrant backgrounds (immigrant or refugee) and from racialized groups to obtain samples large enough to examine in greater detail. Information about gender identity, income, household status, occupation, income, age, and health conditions were collected to provide demographic information.

No margin of error can be associated with a non-probability sample such as this one. However, for comparative purposes, a probability sample of 1,528 respondents has a margin of error of ±2.5%, 19 times out of 20. In comparison, a probability sample of 1,002 respondents has a margin of error of +3.1, 19 times out of 20. The study complies with the CRIC Public Opinion Research Standards and Disclosure Requirements.

Understanding the study's origins is crucial to appreciating the team's resilience in the face of adversity. March 18, 2020, was supposed to mark the opening day of the National Metropolis Conference in Winnipeg. The WHO declared the pandemic on March 13, 2020, and the world shut down, including the Metropolis conference. Undeterred, the Association for Canadian Studies and my supervisor, who had previously conducted a survey on multiculturalism, racism, and attitudes toward migration, decided to adapt their plans.

Their initial intention was to collect data that could be used to address some of the questions on racism that conference attendees would discuss. Despite cancelling the event on March 14, we continued to collect survey data. By the end of March 2020, Léger Marketing (and later subsidiary

companies Marie Blue in Mexico and ROI Rocket in the USA) provided the research team with $60,000 USD of in-kind support to assist in the data collection of this important project. If the Association and my supervisor could create the surveys, Léger Marketing would collect the data free of charge until we could get adequate funding to cover the cost of surveying Canadians and Americans regarding various aspects of the pandemic and its public restrictions.

On March 20, 2020, our first weekly COVID-19 survey was launched. Data collection in the USA began in late April. For 63 consecutive weeks, we collected data from Canada and the USA. Our colleagues in Mexico joined the team in late September. The CIHR-funded part of the study began in Fall 2020 with our first grant award, which funded most of the data collection from September 2020 onwards. We collected five extensive omnibus surveys using this funding, about once every three to six months. We subsequently received a sizable second CIHR grant, which allowed our network to grow beyond the researchers and include members of the communities from whom we were conducting our studies.

3.3.1 Limitations of the Data

Along with the sampling limitations discussed earlier, this data has several other limitations. Canada and the USA have different beliefs regarding race and ethnicity, affecting how this data was collected. In Canada, participants were asked about ethnic group affiliation and were offered a more robust selection of responses. In the United States, participants were asked to identify by race but were given fewer options as race is operationalized differently there. For example, in Canada, ethnicity included a variety of Latin American countries as variables. In the United States, Hispanic origin was asked as a separate question to participants. In both cases, we modelled these questions using the Canadian and American Censuses, as most adult survey participants would have been exposed to such questions in the past. As a result, however, our

groups are not strictly comparable, but from the standpoint of the average individual, they can be considered roughly equivalent groups.

While I would have preferred to include questions regarding specific Christian Nationalist views within this analysis, we are missing several questions to identify whether an Evangelical has a Christian Nationalist viewpoint. Christian Nationalists take a fundamentalist view of Christianity and America as a "Christian nation," as seen in many white Evangelical churches. According to Andrew Whitehead, a leading scholar in Christian Nationalist research, 65% of those on the 'religious right' can be described as Christian Nationalists (Americans United, 2021). Knowing this, we may be able to make some assumptions about the 'religious right' upon further analysis. A qualitative analysis would have been better for examining the Christian Nationalist participants.

Further, a limitation of my research was the ability to add questions to the project. I added several suggestions for research, including the importance of religion and different religious identities; however, I could not select specific COVID-19 myths. Nevertheless, the survey included the most popular myths within the survey.

3.4 Data Collection Technique

Initiating data collection during the early stages of the pandemic presented unique challenges. With most of the world enforcing quarantine measures, our traditional methods for data collection were severely restricted. Online interviews, a prevalent practice today, were less viable due to the less advanced virtual landscape at the time. The only feasible option was internet sampling and data collection, a methodology with its own distinct limitations, which I discuss in this chapter. This was the sole data collection technique we could employ under the circumstances, underscoring the criticality of our approach.

Over the years, Léger Marketing has built a panel of internet survey participants that mirrors the demographic characteristics of Canada and the USA. These panelists are invited to participate in the surveys of their choice upon the receipt of an email invitation from Léger Marketing. Previous studies indicate that women are more inclined to participate in surveys than men (Smith, 2008; Glass et. al., 2015). We are aware that there is a socioeconomic influence on online survey participation, with income being the primary determinant of the selection pool. This means that lower and higher income groups are less likely to participate compared to the middle class who have the resources to contribute to survey research. However, due to the urgency and significance of the topic, in the early surveys, almost everyone who was approached agreed to participate in the study.

Léger Marketing panel members were selected using random computerized techniques among the thousands of panel members available. Thus, there is a randomness to the participant selection, but because the cohorts, although demographically balanced, still represent a slightly biased research pool because of the makeup of the participants. However, Léger Marketing and the research team corrected for over and undersampling of particular groups through weighting of the dataset.

3.5 Data Analysis Technique

The Statistical Package for Social Sciences version 28 is the software I used in analyzing data. The analyzed results were weighted to ensure that participants' identities were not disclosed. The Statistical Package for Social Sciences (SPSS) is the software that was selected for use in this project as the data was already available to the researcher in this form and would allow for greater flexibility in the analysis. Descriptive statistics, including univariate and crosstabs, show the

number of participants who believe each myth. The dependent variable in this study, which is categorical, is the myth index that was developed to measure all myths together.

The current analysis presents descriptive analysis by including a list of univariate and cross tabulations including ethnicity, location, religious beliefs, importance of religion, political beliefs, age, education level, social media usage, self-rated physical and mental health, income, immigrant status and whether a participant is vaccinated for COVID-19.

Participants' belief in myths was cross-tabulated with the abovementioned variables to determine which participants were most likely to believe in the COVID-19 myths. I organized the discussion of my findings by political identity, religious identity, and relevant demographics such as ethnicity and race.

Social media is a common source of information for many people, but it is also prime for misinformation. Whether someone uses Facebook or the CDC website as their primary source of information, for example, can drastically change their opinions on the seriousness of the pandemic and whether vaccination is necessary. Further, while we can assume who lacks trust in public institutions (governments, scientists, and the like), I compare my results to levels of trust to see if a group is deteriorating. These analyses are conducted using a bivariate analysis paired with appropriate significance tests.

The primary mode of data analysis is ordinary least squares regression as my dependent data, "myth beliefs," is continuous and normally distributed.

3.5.1 Main variables

Vaccine uptake is the dependent variable for this project. The independent variables include COVID-19 vaccine-related myths. The survey asks, “Based on your knowledge about COVID-19 vaccines, do you believe the following statements to be true or false?”

Table 3-3 *Wave 4 COVID-19 Vaccine Myth Survey Questions, 2022*[4]

The COVID-19 vaccine can affect fertility.
If I have already had COVID-19, I do not need a vaccine
Researchers rushed the development of the vaccine, so its effectiveness and safety cannot be trusted
Getting the COVID-19 vaccine means I can stop wearing my mask and taking coronavirus precautions
Getting the COVID-19 vaccine gives you COVID-19
The side effects of the COVID-19 vaccine are dangerous
The COVID-19 vaccine enters your cells and changes your DNA
The COVID-19 vaccine was developed with or contained controversial substances like aborted fetuses
The COVID-19 vaccine contains a microchip that the government can use to track you

3.5.2 Dependent variable

The dependent variable is dichotomous, with respondents categorized as vaccinated or unvaccinated. For this project, if someone reports having two vaccines, they will be considered fully vaccinated. These questions include:

- Have you had the vaccine for COVID-19? Yes, no
- How many doses have you received? One; two; three
- Do you intend to get vaccinated if you have not been already? Yes, no, I do not know.

[4] For an examination of each myth individually, please see Appendix D.

- What is the main reason you have not been vaccinated yet? I have not had the opportunity/access to get my vaccine; I have medical restrictions that do not allow me to take the vaccine; it goes against my religious faith to take the vaccine; I do not believe the vaccines are effective against COVID-19; I do not think the vaccines are safe and could potentially be harmful to my health; other (please specify)

3.5.3 Independent variables

In the bivariate analysis, I examined each of the nine myths separately. In the second step, I created a myth index to measure how many myths individuals believe.

The factor analysis met the KMO and alpha target ranges and was normally distributed and used as a predictive variable. The coding was "Yes, I believe at least one myth" or "No, I do not believe any myths."

A trust index was created, similar to the myth index, to determine the level of trust in various institutions. I used confirmatory factor analysis for both indices.

Table 3-4 *Trust Index Variable Codes, 2022*

Variable	Code
City/Municipal	0- Do not trust 1. Trust
State/Provincial	0- Do not trust 1. Trust
Federal	0- Do not trust 1. Trust
Public Health Officials	0- Do not trust 1. Trust
Media/Journalist	0- Do not trust 1. Trust
Military	0- Do not trust 1. Trust
World Health Organization	0- Do not trust 1. Trust
Immigrants/Newcomers	0- Do not trust 1. Trust

Pharma Companies	0- Do not trust 1. Trust
Scientists	0- Do not trust 1. Trust
Religious Leaders	0- Do not trust 1. Trust

Table 3-5 *Indices KMO & Alpha, 2022*

	Canada		USA	
	KMO	Alpha	KMO	Alpha
Myth Index	0.915	0.870	0.926	0.885
Trust Index	0.912	0.852	0.923	0.883

Table 3-6 *Variables as Coded, 2022*[5]

Theme	Variable	Codes
Ethnicity	White	0- everyone else 1-white
	Indigenous	0-everyone else 1-Indigenous
	Black	0- everyone else 1-Black
	Asian	0- everyone else 1-Asian
Demographics	Marital	0- Single Divorced Widowed 1- Married/common law
	Income	1- <$20k 2- $20-40k 3- $40-60k 4- $60-80k 5- $80k+
	Immigrant	0- non-immigrant 1- immigrant

[5] This table is also available in Appendix B

	Age	0- under 18 1-18-24 2- 25-34 3-35-44 4-45-54 5-55-64 6-65 and over
	Gender	0- male 1-female
	Vaccine	0- yes 1-no
	Education	1- high school or less 2-postsecondary 3-bachelor's degree
Health	Physical health worry	0- worried 1- not worried
	Mental Health worry	0- worried 1- not worried
	Social media usage	0-I don't use social media 1- I use social media
Religion	Protestant	0- everyone else- Protestant
	Catholic	0- everyone else 1-Catholic
	Evangelical	0-everyone else 1- Evangelical
	Atheist	0-everyone else 1-Atheist
	Importance of religion	0- not important 1-important
Political Identity	Political right	0-everyone else 1- Right
	Political centre	0-everyone else 1-Centre
	Political left	0- everyone else 1- Left
Location	Urban location	0-everyone else- 1-Urban
	Suburban location	0- everyone else 1-Suburban

	Rural location	0- everyone else 1-Rural
	South	0 everyone else 1- South

3.5.4 Benefits and Limitations of using Secondary Data

Using secondary data in research offers numerous advantages. First, it significantly reduces the time and financial resources required for research to be conducted. Searching for and analyzing secondary data is much faster than collecting primary data, especially for larger sample sizes. Second, secondary data are typically more cost-effective and readily available than primary data, which may sometimes be inaccessible. However, it is essential to acknowledge that accessing certain secondary data may involve fees, and their quality and relevance can vary.

Furthermore, secondary data not only saves resources but also plays a crucial role in enhancing research quality. They aid in the selection of variables and defining the study population, contributing to a well-structured sample. Upon examination, they can provide more reliable information than primary data due to their larger sample sizes, thereby boosting confidence in research outcomes. As a graduate student, I would not have been able to collect so many surveys from such a huge geography in a short period of time. Our survey is one of the most comprehensive studies of social, economic and health outcomes of COVID-19 worldwide. Given our early launch into collecting data (March 2020), we likely have collected some of the most comprehensive social and economic measurements early into and throughout the pandemic.

3.5.5 Ethical Considerations

The larger team meticulously ensured that all ethics procedures were filled. Following the comprehensive Tri-Council policy guidelines, the team at the University of Manitoba first sought

ethical approval from the University's Research Ethics Board[6]. Once the team obtained ethics permission from the University of Manitoba, other universities had two choices: adopt our ethics certificate or seek their ethical review. All the universities in Mexico and most American universities used the University of Manitoba ethics certificate for their internal procedures. Most of the Canadian universities sought independent ethics reviews. In the community, organizations, including participating Indigenous organizations, were offered to conduct their ethical reviews, but none did, accepting the University of Manitoba ethics protocol.

Informed consent was obtained from the survey participants, demonstrating our utmost respect for their autonomy. All identifying information of the participants has been meticulously removed to prevent potential harm or breaches of privacy. The survey was deemed "low risk" as the questions did not cause any harm to the original project or the participants. The intellectual property rights of the original data creators will be protected, and acknowledgment of the use of this data will be well-documented throughout this project. In this chapter, the researcher has critically assessed the data and acknowledged the limitations of using an online research panel study.

As a rule, sharing results with the community was our first commitment. As the first dissemination step, we created short "fact sheets" and data tables. These fact sheets are located here: covidimpacts.ca. Our second step was to ensure that the decision-making authorities 'heard' our results, so we arranged to speak with various provincial, state, and national-level organizations in both countries. Descriptive statistics, including univariate and crosstabs, show the number of participants who believe each myth. The dependent variable in this study, which is categorical, is the myth index that was developed to measure all myths together.

[6] Appendix A contains a copy of the Ethics Board approval for this study

The current analysis is comprehensive, including a wide range of variables such as ethnicity, location, religious beliefs, importance of religion, political beliefs, age, education level, social media usage, self-rated physical and mental health, income, immigrant status, and COVID-19 vaccination status. This thorough approach ensures a detailed understanding of the participants' beliefs and their potential influence on COVID-19 myths and vaccination beliefs.

Participants' belief in myth was cross-tabulated with the abovementioned variables to determine which participants were most likely to believe in the COVID-19 myths. I organized the discussion of my findings by political identity, religious identity, and relevant demographics such as ethnicity and race.

Our research team was invited by various government departments across Canada including Health Canada, provincial health authorities, public health ministers and other epidemiological experts, the Canadian Medical Association, various medical associations, and community health networks to share our initial results, particularly around those who believed coronavirus myths and who were vaccine hesitant. We participated in and presented at dozens of online conferences, events, and community meetings. This extensive sharing work was done before we academically published any results. We continue this outreach work today as our project spins off into other areas of research.

The sampling technique was selected for data collection to maximize the number of participants using random techniques, cover large geographic areas, and represent the significant demographic characteristics of the population. This approach was chosen to ensure that the data collected was representative of the population under study, thereby enhancing the generalizability of our findings. It also enabled us to collect data efficiently and cost-effectively over a short period during nationwide quarantine lockdowns. In a strategic move, we deliberately oversampled

racialized persons, Indigenous peoples, and newcomers. This meticulous oversampling ensured a sufficiently large sample to conduct statistical comparisons between these groups across the two countries, thereby enhancing the depth and thoroughness of our research.

3.6 Conclusion

This chapter reviews the methodology employed in this thesis, providing a comprehensive overview of the study population, data source, data collection technique, and data analysis approach. It explores the operationalization of variables, acknowledges the limitations of the data analysis, and addresses the ethical considerations involved. The next chapter shares the results of the data analysis.

Chapter 4

4 Results and Discussion

4.1 Introduction

The COVID-19 pandemic has presented not only significant challenges to global public health but has also underscored the complex and pervasive impact of misinformation on public perceptions and behaviours. This chapter examines the intricate dynamics of belief in COVID-19 myths across various demographic dimensions, including gender, ethnicity, marital status, age, income, education, trust in institutions, religion, vaccination status, health concerns and social media engagement. By examining these factors through the lenses of psychology, sociology and political science, this analysis seeks to uncover nuanced insights into how different demographic and sociocultural factors shape beliefs about COVID-19 myths in the United States and Canada.

This chapter not only discusses gender differences in myth beliefs, but also notes subtle variations influenced by political affiliations and cultural contexts. It then explores the influence of ethnicity, revealing how historical experiences and institutional trust shape myth beliefs among diverse ethnic communities. Following that, marital status and age are examined, highlighting the roles of social networks, generational differences, and cognitive biases in myth adoption. Socioeconomic factors such as income and education are then analyzed, emphasizing disparities in access to health information and susceptibility to misinformation. Trust in institutions emerges as a pivotal determinant, influencing myth beliefs amidst declining societal trust.

The chapter further investigates the influence of religion, exploring how religious identity, engagement, and community dynamics influence myth beliefs. Political affiliation is discussed as a robust predictor of myth adoption, which refers to the acceptance and propagation of COVID-19 myths, exacerbated by political polarization and media consumption habits. Vaccination status

and health concerns are explored, revealing their critical roles in mitigating or exacerbating myth beliefs. Lastly, the chapter examines the influence of social media engagement, highlighting its amplifying effect on misinformation dissemination and the need for targeted interventions. These findings directly affect the development of effective strategies to combat misinformation and enhance public resilience.

4.2 Findings

4.2.1 Demographic Analysis

Before we examine the results, it is important to know "who" participated in the survey. This section details some of the important demographics of the Canadians and Americans who participated in this study.

As shown in Table 4.1, the participants in Canada identified as follows: 44% of the survey's respondents identified as white, 18% were Indigenous persons, 11% were Black, 19% were Asian, and 9% represented other ethnicities. These identities do not match the actual population distribution in Canada. According to the 2016 Canadian Census,73% of those living in Canada identify as white, 6.2% report being Indigenous, 3.5% are Black, and 17.7% are Asian (Statistics Canada, 2017). The team made a conscious decision to oversample persons from all ethnic groups other than white, so this result is not unexpected. As a result, the results were weighted to reflect actual population proportions.

Table 4-1 *Ethnicity of Canadian Participants, 2022*

	Sample size	Percent of Sample
White	1264	44.1%
Indigenous peoples	503	17.6%

Black	301	10.5%
Asian	544	19.0%
Another ethnicity	254	8.9%
N Size	2866	100%

As was the case with sample selection in Canada, racialized people were intentionally oversampled in the United States to ensure a study population large enough for robust statistical analyses. According to the 2020 American Census, 75.8% of the population identifies as white, 13.6% as Black, 1.3% as Indigenous, and 6.1% as Asian (United States Census Bureau, 2021). Our survey participants, as shown in Table 4-2, include 46.4% white participants, 17.1% Indigenous peoples, 16% Black participants, 12.9% Asian participants and 7.6% of participants who identify as another identity.

Table 4-2 *Racial affiliation of survey participants, USA, 2022*

	Sample size	Percent of Sample
White	1704	46.4%
Indigenous	629	17.1%
Black	586	16.0%
Asian	472	12.9%
Other	280	7.6%
N Size	3671	100%

Religion. In Wave 4, participants were asked to identify which religious group they identified with, if any. For the 'other' category, participants were able to identify their religious beliefs in open-ended format. If participants had indicated a specific belief system, we

subsequently categorized based on available religious groups or created new ones, such as those who identified with various Indigenous spiritual beliefs. Additionally, if participants identified with born-again Christianity, they were categorized as Evangelicals. Atheism and no religion were combined for this study. Muslim, Jewish, Hinduism and Buddhism were combined into the 'other' category given their small sample sizes, as shown in Table 4.3. Canadians were more likely to identify with no religion (35%) versus Americans (26%). Canadians are slightly more likely to identify as Catholics (25.8%) compared with Americans (22.5%).

Table 4-3 *Wave 4, Religion, Canada & USA, 2022*

	Canada	USA
Protestant	9.6%	14.9%
Catholic	25.8%	22.5%
Evangelical Protestantism	3.5%	8.1%
Muslim	4.0%	2.1%
Jewish	1.4%	2.8%
Hinduism	2.5%	1.9%
Buddhism	1.9%	3.2%
Other	10.2%	14.8%
Atheism	5.9%	3.8%
No religion or Agnostic	35.1%	25.9%
N Size	2939	3734

When comparing our data to the 2021 Canadian census data, there is a 10% under sample of those who report being Christian in our study, as seen in Table 4.4. The decline in religious observance in Canada is also worth noting and affects our results. Overall, those reporting to be

Christians in Canada (53.3%) decreased from 67.3% in 2011 from 77.1% in 2001. There has been an increase in those reporting no religion or atheism, from 16.5% in 2001 to 34.6% in 2021, more than doubling in the 20 years (Statistics Canada, 2022).

Table 4-4 *Wave 4 Sample Participation by Religion vs. 2021 Census, Canada, 2022*

	Wave 4	2021 Census
Christian	43.8%	53.3%
Muslim	3.9%	4.9%
Jewish	1.4%	0.9%
Hindu/Sikh	3.2%	4.4%
Indigenous	0.7%	0.2%
Other	5.6%	1.7%
Atheist/ Agnostic/No religion	41.4%	34.6%

Like the Canadian sample, our American sample is short of Christians, as shown in Table 4.5. When comparing wave 4 data with a 2023 Gallop study of religion, we see that we have a smaller number of Christians (45.5% vs. 68%) and a higher number of atheist and non-religious (29.7% vs. 22%). This is due to oversampling of racialized communities for this study. American society is more religiously oriented than Canada, so we feel this under-representation is more of an issue for interpreting the American data.

Table 4-5 *Wave 4 Sample Participation by Religion vs. 2022 Gallop Religion Survey, USA*

	Wave 4	2023 Gallop
Christian	45.5%	68.0%
Muslim	2.1%	1.0%

Jewish	2.8%	2.0%
Hindu/Sikh	1.9%	1.0%
Indigenous	0%	0%
Other	18%	6.0%
Atheist/Agnostic/No religion	29.7%	22.0%

Given the complexities of Christianity and because the largest numbers of religious adherents in both countries overwhelmingly identify with a Christian religion, I have chosen to separate out the various Christian sects in order to delve deeper into their differences. For this study, in Canada, we see in Table 4.6 that of the Christian participants, 9.6% identify as Protestant (compared to 8.1% of census respondents), 25.8% identify as Catholic (compared to 29.9% of census respondents) and 3.5% identify as Evangelical. (compared to 2.83% of census respondents). However, because beliefs can vary within sects, it is important to examine each group separately to be able to delve deeper into the research questions.

Table 4-6 *Wave 4 by Christian Sect, Canada, 2022*

	Wave 4	Canadian Census 2021
Protestant	9.6%	8.1%
Catholic	25.8%	29.9%
Evangelical	3.5%	2.83%
N Size	2927	

Table 4-7 *Wave 4 by Christian Sect, USA, 2022*

	Wave 4	U.S Religion Census
Protestant	14.9%	7.4%
Catholic	22.5%	18.7%
Evangelical	8.1%	16.5%
N Size	3714	

When examining religion and ethnic/racial affiliations, several themes emerged, as seen in Table 4.8. In Canada, Black respondents were significantly more likely to report being Christian than other respondents, while that difference does not appear to exist in the USA. White participants in the Canadian sample most often identified with a Christian religion at 48.7%. Meanwhile, Indigenous participants were most likely to report no religious affiliation. However, 9.5% of Indigenous participants reported an Indigenous spirituality as their chosen religion. Black participants were overwhelmingly Christian, at 71%. Asian participants were split amongst Christianity (27.1%), no religion (39%), and other forms of religion (34%), with Hinduism/Sikhism (15.3%), Islam (10.5%) and Buddhism (6.3%) being the most popular. Finally, those who identified as another ethnicity were split almost evenly among the three religious categories.

Table 4-8 *Wave 4 Sample by Religion and Ethnicity, Canada, 2022*

	White	Indigenous	Black	Asian	Other	Total
Protestant	14.3%	10.5%	31.6%	5.3%	5.9%	373
Catholic	31.4%	24.1%	25.2%	18.9%	26.8%	765
Evangelical Protestant	3.0%	2.2%	14.3%	2.9%	3.9%	118
Total Christian	48.7%	36.8%	71.1%	27.1%	36.6%	1256
Muslim (Islam)	0.5%	0.2%	3.7%	10.5%	15.7%	115
Jewish	1.7%	0.0%	1.0%	0.6%	3.9%	38
Hinduism/Sikh	0.0%	0.4%	0.3%	15.3%	2.4%	92
Buddhism	1.1%	0.8%	1.0%	6.3%	1.2%	58
Other	3.6%	9.5%	3.7%	1.3%	4.7%	123
Total Other	6.9%	10.9%	9.7%	34.0%	27.9%	426
Atheist	6.7%	7.0%	1.7%	6.3%	5.9%	174
No religion or Agnostic	37.7%	45.3%	17.6%	32.7%	29.5%	1010
Total no religion	44.4%	52.3%	19.3%	39.0%	35.4%	1184
N Size	1264	503	301	544	254	2866

Table 4.9 shows that in the United States, white participants were most likely to identify with Christianity as their religion of choice (60.7%). This is a stark contrast to Canada, where the religious landscape is more diverse. Indigenous participants in the United States, for instance, were

13% more likely than Indigenous people in Canada to report a Christian religious identity. However, they were also as likely to report another religion (12.2%), primarily a version of Indigenous spirituality. Black participants in the United States were less likely than Black respondents in Canada to report being a Christian (59.2%). Asian participants, like Canada's, were split relatively evenly between the three categories. Finally, visible minorities were more likely than their counterparts in Canada to report being Christian (49.4%). Regardless of ethnicity, all participants in the United States were likelier to report being Evangelical Christians than in Canada.

Table 4-9 *Wave 4 Sample by Religion & Race, USA, 2022*

	White	Indigenous	Black	Asian	Other	Total
Protestantism	22.2%	22.4%	26.8%	11.9%	18.6%	784
Catholicism	30.3%	17.5%	13.3%	17.4%	20.4%	844
Evangelical Protestant	8.2%	11.8%	19.1%	8.3%	10.4%	393
Total Christian	60.7%	51.7%	59.2%	37.6%	49.4%	2021
Muslim (Islam)	1.2%	1.0%	2.2%	6.8%	2.1%	78
Jewish	5.2%	1.0%	1.0%	0.6%	2.5%	111
Hinduism/Sikh	0.2%	0.8%	0.3%	12.9%	0.7%	74
Buddhism	2.3%	2.4%	1.7%	11.4%	1.1%	121
Other	2.3%	12.2%	4.3%	1.1%	10.7%	177
Total Other	11.2%	17.4%	9.5%	32.8%	17.1%	561
Atheism	4.6%	2.5%	1.5%	5.1%	4.3%	140
No religion or Agnostic	23.4%	28.5%	29.7%	24.6%	29.3%	949

Total No Religion	28.0%	31.0%	31.2%	29.7%	33.6%	1089
N size	1704	629	586	472	280	3671

In Canada, there are several differences to note between immigrant and non-immigrant participants, as shown in Table 4.10. Both groups identify similarly with Protestant beliefs (9.8% vs. 9.2%) and Catholic beliefs (26.9% vs. 23%). However, non-immigrants were twice as likely to report Evangelical beliefs (2.5% vs. 5.7%) and other religious beliefs (15.3.% vs. 30.2%). Non-immigrants, on the other hand, were a third more likely to report atheist and non-religious beliefs (45.5% vs. 30.2%).

Table 4-10 *Wave 4 Sample by Religion and Immigrant Status, Canada, 2022*

	Non-Immigrant	Immigrant	Total
Protestant	9.8%	9.2%	282
Catholic	26.9%	23.0%	758
Evangelical	2.5%	5.7%	103
Other	15.3%	31.9%	589
Atheist/No Religion	45.5%	30.2%	1207
N Size	2087	840	2939

In the United States, we see a different landscape than Canada, as seen in Table 4.11. Non-immigrants in the United States are more likely to report Protestant beliefs (16.3% vs. 10.8%), Evangelical beliefs (8.3% vs. 7.5%), and atheist and non-religious beliefs (30.1% vs. 27.7%). Immigrants are more likely to report Catholic beliefs (21.2% vs. 26.7%) and other religious beliefs (24.1% vs. 27.3%). The differences are less subtle in the USA than in Canada.

Table 4-11 *Religion by Immigrant Status, USA, 2022*

	Non-Immigrant	Immigrant	Total
Protestant	16.3%	10.8%	557
Catholic	21.2%	26.7%	839
Evangelical	8.3%	7.5%	302
Other	24.1%	27.3%	1108
Atheist/No Religion	30.1%	27.7%	928
N Size	2849	865	3734

Wave 4 in Canada saw similar religious beliefs by each sex, as seen in Table 4.12. The most significant difference is that men at 3% more likely to report Atheist or non-religious beliefs than women (42.5% vs. 39.8%). When examining sex in the United States, Table 4.13 shows several small differences. Men were 4% more likely to report Catholic as a religion when compared to women (24.6% vs. 20.9%) while women were more likely to report have other religious or spiritual views when compared to men (23.2% vs. 26.1%).

Table 4-12 *Wave 4 Religion by Gender, Canada, 2022*

	Canada		USA	
Religion	Male	Female	Male	Female
Protestant	9.4%	9.8%	14%	15.7%
Catholic	25.4%	26.3%	24.6%	20.9%
Evangelical	3.4%	3.7%	8.1%	8.1%
Other	19.4%	20.4%	23.2%	26.1%
Atheist/No Religion	42.5%	39.8%	30.2%	29.2%

N Size	1340	1587	1576	2138

When examining the importance of religion in Canada, we see a difference across religions. Not surprisingly, those who identify as atheist or not religious do not find religion necessary, as only 9.7% of those participants say it is essential in their lives, as I have shown in Table 4.13. Catholics are least likely out of the Christians to believe religion is essential in their lives (57.7%), while almost 70% of Protestants report religion being important. Followers of other religions, including Judaism and Islam, report religion as necessary (78.7%). Finally, those who identify as Evangelical are most likely to believe religion is an integral part of their lives (89.3%). This finding underscores the depth of commitment of Evangelicals to their faith, which can be a powerful tool for pandemic messaging, should their religious leaders be willing to assist in sharing factual information with their congregations.

Table 4-13 *Importance of Religion, Canada & USA, 2022*

	Canada	USA
Protestant	69.2%	80.1%
Catholic	57.7%	81.0%
Evangelical	89.3%	93.7%
Atheist/Not Religious	9.7%	8.4%
Other	78.7%	85.6%
N Size	1906	2768

In the United States, followers of all religions are more likely than Canadians to report that religion is integral to their lives. This finding corresponds to research (Fahmy, 2018; Hay et al., 2021) that suggests that, as a rule, Americans are more religious than Canadians. Atheists and non-

religious people in the United States are least likely to report that religion is essential in their lives (8.4%). Protestants (10.2% increase) and Catholics (23.3% increase) are significantly more likely than Canadians who identify as those sects of being religious. Those identifying as other religions report finding their religion more critical than Canadians (6.9% increase). Evangelicals in the United States are only slightly more likely than Evangelicals in Canada (4%) to report that religion is essential to them. This finding suggests that adherence to Evangelicalism is strong in both countries and central to their identities.

In Canada, trust in religious leaders is relatively low, ranging from 13.8% of Atheists and those otherwise non-religious participants to 49.5% of Evangelical participants, as shown in Table 4-14. Catholics are least likely of all Christian denominations to trust religious leaders (29.3%), followed by other religions (36%) and protestants (41.2%). These findings underscore the importance of our research in understanding the dynamics of trust in religious leaders. In the United States, Catholics are twice as likely to trust religious leaders as their Canadian counterparts, but most participants report similar trust levels. For Atheists and other non-religious participants, 21.9% report trusting religious leaders. Protestants (45.9%) and those identifying with other religions (47.6%) report similar trust levels. Like Canada, Evangelicals are most likely to trust their religious leaders. This finding suggests that working with religious leaders could effectively share critical pandemic information, especially with Evangelical leaders in both countries.

Table 4-14 *Trust in Religious Leaders, Canada & USA, 2022*

	Canada	USA
Protestant	41.2%	45.9%
Catholic	29.3%	53.8%
Evangelical	49.5%	56.1%

Atheist/No Religion	13.8%	21.9%
Other	36.0%	47.6%
N Size	2738	3479

Political Ideology. Participants in Canada were almost twice as likely as participants in the United States to be unsure of their political affiliation (27.2% vs. 15.4%), as seen in Table 4.15. This could be due to the diverse and dynamic nature of Canada's multiple-party system, where votes may fluctuate depending on candidates, compared to the two-party system in the United States, where people often pledge loyalty to a party from early on in their lives. Participants in the United States were more than twice as likely to identify as right than in Canada (6.4% vs. 14.4%). In comparison, participants in Canada were slightly more likely to report right of centre as their affiliation (13.5% vs. 12.2%). Participants in the United States were more likely to report a centrist view (26.8% vs. 30.4%) and a leftist view (10.1% vs. 13.2) than participants in Canada. Participants in Canada, however, were 6% more likely to report a left-of-centre view (16% vs. 9.9%). Canada's participants were less likely to report a strong view from either the right or left sides of the aisle and more likely to report centrist views on either side, showcasing the diversity of political views in the country.

Table 4-15 *Wave 4 Political Identity, Canada & USA, 2022*

	Canada	USA
Right	6.4%	14.4%
Right of Centre	13.5%	12.2%
Centre	26.8%	30.4%
Left of Centre	16.0%	9.9%

Left	10.1%	13.2%
Don't Know	27.2%	15.4%
N Size	2939	3734

Table 4-16 *Political Orientation by Ethnicity, Canada, 2022*

	White	Indigenous	Black	Asian	Other	Total
Right	7.2%	6.1%	4.4%	6.3%	6.4%	173
Right of Centre	15.3%	13.6%	7.7%	13.7%	10.6%	361
Centre	25.3%	23.9%	25.6%	32.1%	29.7%	716
Left of Centre	15.4%	16.6%	10.6%	18.8%	16.9%	426
Left	10.3%	10.5%	13.9%	6.3%	12.3%	270
Do not Know	26.4%	29.3%	37.7%	22.8%	24.2%	726
N Size	1180	457	273	526	236	2672

Our survey in the United States has uncovered diverse political orientations, as shown in Table 4.17. White participants were significantly more likely to identify as right (20.5%) and right of centre (16.2%) than other groups. Asian and Black participants, however, were more likely to report having a centrist view (44% and 34.2%, respectively). Asians showed a higher tendency towards a left-of-centre view (12.8%), while Black participants leaned more towards a left political orientation (17.5%) than other groups. Interestingly, Indigenous peoples and Black participants were most likely to report not knowing their political orientation (21.7% and 17.8%, respectively), highlighting the complexity of political identity.

Table 4-17 *Political Orientation by Race, USA, 2022*

	White	Indigenous	Black	Asian	Other	Total
Right	20.5%	14.0%	10.7%	7.3%	11.6%	536
Right of Centre	16.2%	12.1%	9.2%	11.2%	8.8%	455
Centre	29.0%	32.4%	34.2%	44.0%	35.2%	1135
Left of Centre	9.5%	7.9%	10.7%	12.8%	10.4%	342
Left	12.8%	11.9%	17.5%	11.4%	13.2%	457
Do not Know	12.0%	21.7%	17.8%	13.4%	20.8%	533
N Size	1615	571	544	439	250	3419

Religion and politics, especially in the United States, are often intertwined and can significantly influence someone's worldview. We can see differences among different religions when looking at the intersection of faith and politics in Canada in Table 4.18. Protestants are most likely to report they see themselves in the centre (29%), while 25.1% identify as right and 24% identify themselves as left politically. An interesting phenomime in Canada is the large number of participants who do not know where they identify politically. Regarding the protestants, 21.8% do not know where they fall. Catholics are significantly more likely to be unsure where they fall on the political spectrum (33.1%). They are also more likely to identify centrist views when they do report an ideology (27.3%).

A remaining 22.1% identify as right-leaning, and 17.5% identify as left-leaning, the smallest percentage among participants. Evangelicals, conforming with recent research (insert citation), are most likely to identify as having a right-of-the-aisle political view. Meanwhile, 28.3% identify as centrist, 23.2% identify as left, and 21.2% do not know their political views. Atheists

were most likely to identify as being left (34.2%), least likely to report being on the right (15.6%) and had similar responses to being centrists (25.2%) as other groups. Approximately one-quarter (24.9%) did not know their political identity.

Table 4-18 *Political affiliation by religious identity, Canada, 2022*

	Right	Centre	Left	Don't Know	Total
Protestant	25.1%	29.0%	24.0%	21.8%	262
Catholic	22.1%	27.3%	17.5%	33.1%	697
Evangelical	27.3%	28.3%	23.2%	21.2%	99
Other	21.7%	28.3%	22.0%	27.9%	544
Atheist	15.6%	25.2%	34.2%	24.9%	1119
N Size	540	730	711	740	2721

Table 4.19 shows that in the United States, participants are more confident of their political identities, with most Christians knowing where they stand politically. Approximately 10% of Protestants (9.2%) and Evangelicals (10.6%) report not knowing their political leanings, while 12.9% of Catholics, 19.2% of Atheists and 18.2% of those with other religions identify the same. When examining those who lean right, people of any religion were at least twice as likely Atheists and otherwise non-religious people that they chose that identity. Centrists were also relatively spread amongst groups, with 36% of Protestants, 33.4% of Catholics, 27.2% of Evangelicals, 31.4% of Atheists and 34% of other religions reporting a centrist view. Atheists were twice as likely (34.7%) as those who reported being religious to be someone with a leftist view.

Table 4-19 *Political affiliation by religious identity, USA, 2022*

	Right	Centre	Left	Don't Know	Total
Protestant	31.9%	36.0%	23.0%	9.2%	531
Catholic	37.6%	33.4%	16.2%	12.9%	785
Evangelical	47.4%	27.2%	14.8%	10.6%	283
Other	29.3%	34.0%	18.4%	18.2%	845
Atheist	14.3%	31.4%	34.7%	19.6%	1014
N Size	991	1135	799	533	3458

Women in Canada are twice as likely as men to not know where they fall on the political spectrum (17.9% vs. 35.5%), as shown in Table 4.20. Conversely, men are over 10% more likely than women to report right or right-leaning beliefs (25.5% vs. 14.9%). Men are more likely report a centrist view (30.8% vs. 23.3%) and they each report similar left or left-leaning beliefs (25.7% vs. 26.4%). Overall, men are most likely to report centrist views, while women are most likely to report leftist views, when excluding those who do not know their political affiliation.

Table 4-20 *Political Ideology by Gender, Canada, 2022*

	Right	Centre	Left	Don't Know	Total
Male	25.5%	30.8%	25.7%	17.9%	1279
Female	14.9%	23.3%	26.4%	35.5%	1433
N Size	540	728	707	737	2712

Similar to women in Canada, women in the United States are less likely than men to know their political affiliation (8.2% vs. 21%), as seen in Table 4.21. Men in the United States are most likely to report right or right-leaning views (36.1%), while women are most likely to report centrist views (32.3%).

Table 4-21 *Political Ideology by Gender, USA, 2022*

	Right	Centre	Left	Don't Know	Total
Male	36.1%	33.6%	22.1%	8.2%	1495
Female	23%	32.3%	23.6%	21%	1948
N Size	989	1131	791	532	3443

4.2.2 Vaccination Analysis

In Canada, 89.4% of male participants were vaccinated against COVID-19 compared to 88.2% of female participants, a statistically insignificant difference between the sexes, as seen in Table 4.-22. In the United States, however, more men (79.5%) reported being vaccinated compared to 71.4% of women which represents a statistically significant difference between the sexes. This aligns with research that suggests that while women take COVID-19 more seriously than men and are more likely to follow non-pharmaceutical paths to prevent infection, they are less likely to be vaccinated (Jayawardana et al., 2024; Toshkov, 2023). However, it appears this is a COVID-19 phenomenon, as Health Canada (2023) shows women are either more likely to just as likely as men to have received other vaccinations, including Hepatitis B (65.1% men; 72.9% women), shingles (36.6% men; 41% women) and measles (85% men; 89.6% women).

Table 4-22 *Vaccination Rates by Country, 2022*

	Male	Female
Canada	89.4%	88.2%
USA	79.5%	71.4%
N Size	2939	3734

While some research has suggested that women are more concerned with the COVID-19 vaccine's impact on fertility (Abbasi, 2022), our results found that women in the United States were less likely to believe this myth across all age groups except for one group. In the 35–44-year group, 42% of male participants believe the COVID-19 vaccine impacts fertility compared to 24% of women. There is evidence to suggest that men in this age group are concerned about the fertility of their female children (Shati et al, 2022). Furthermore, the rates of myth belief were higher across all age groups in the United States compared to Canada. In Canada, though, we do see that women who are most likely to be thinking about fertility, between ages 25 and 34, were more likely to believe this myth.

Ethnicity. In Canada, every ethnic group had a vaccination rate of over 80%, as seen in Table 4.23. The lowest reported was Indigenous participants at 84.3%, and the most vaccinated group was Asians, who reported a 97.2% vaccination rate. In the United States, the only group with a vaccination rate of over 80% was Asians (88.8%), while the lowest was Indigenous peoples at 63.9%. When comparing groups across countries, it would be impossible to suggest vaccination rates are based strictly on ethnicity, as each group reported significantly fewer vaccinations in the United States. However, ethnic minorities are more likely to be affected by this difference in comparison to their white counterparts. Between Canada and the United States, there was a 10.4% difference amongst white participants, but a 16.8% difference in Black participants and a 20.4% difference in Indigenous participants.

Table 4-23 *Vaccination Rates by Ethnicity & Country, 2022*

	White	Indigenous	Black	Asian	Other	N-size
Canada	88.1%	84.3%	86.4%	97.2%	87.8%	2866
USA	77.7%	63.9%	69.6%	88.8%	70%	3724

Marital Status. Table 4.24 examines belief in vaccine myths by marital status and country. Notably, there is a clear trend in Canada and the United States: married individuals or those in common-law relationships are more likely to be vaccinated than their single or divorced/separated counterparts, as seen in Table 4-24. In Canada, 90.2% of married people report being vaccinated, compared to 86.5% of single participants and 88.6% of divorced, separated or widowed participants. In the United States, the trend is slightly more pronounced, with 77.6% of married people reporting vaccination, compared to 69.7% of single participants and 74.3% of divorced, separated or widowed participants.

Table 4-24 *Vaccination Rates by Martial Status, Canada & USA, 2022*

	Single	Married or partnership	Divorced or Widowed	N-size
Canada	86.5%	90.2%	88.6%	2939
USA	69.7%	77.6%	74.3%	3734

Age. When examining vaccination rates by age, we can see in Table 4.25 that those who are 65 or older in each country are the most likely to be vaccinated, with 91% of Canadian participants and 81.3% of American participants over 65 reporting being vaccinated. This is especially true when looking at those 54 years of age and younger.

Table 4-25 *Vaccination Rates by Age, Canada & USA, compared, 2022*

	18 – 24	25 - 34	35 - 44	45 - 54	55- 64	65 & older	N Size
Canada	89.1%	90.2%	87.1%	82.3%	89.5%	91.0%	2799
USA	65.7%	65.0%	70.6%	70.0%	73.6%	81.3%	3576

Income. There is a stark disparity in vaccination rates in Canada and the United States when income is examined, as seen in Table 4.26. Those in the lowest income bracket report having vaccination rates of 77.1% in Canada and only 60.4% in the United States. This figure steadily increases to 88% and 69% in middle-income level households, and there is a peak in vaccination rates for incomes in the highest bracket. In Canada, 92% of participants who make $80,000 per year or more, and 86% in the United States. This disparity accounts for a 14.9% difference from the lowest income bracket to the highest in Canada and a concerning 25.6% difference in the United States. It is also interesting to note that Canadians considered low income have a similar vaccination rate as the highest-earning American participants.

Table 4-26 *Vaccination Rates by Income, Canada & USA, 2022*

	<$20k CA / <$25k U.S.	$20-$40k / $25-$35k U.S.	$40-$60k / $35-$50k U.S.	$60-$80k / $50-$75k U.S.	$80k+ / $75k+ U.S.	N Size
Canada	77.1%	86.5%	88.0%	88.6%	92.0%	1860
USA	60.4%	70.3%	69.0%	77.0%	86.0%	3508

Education Level. When Canada and USA are compared on the effects of education level on myth belief, there are vast differences, as seen in Table 4.27. Respondents in Canada are 20% more likely to be vaccinated when compared to their counterparts in the United States (82.0% vs. 60.6%). Meanwhile, an almost 20% difference is also seen when examining college diploma recipients in each country. In Canada, 87.8% of participants with post-secondary education have been vaccinated, compared to 68.9% of participants in the United States. Finally, you can see how higher education plays a protective factor in the United States. There is less than a 10% difference between respondents in Canada and the United States when someone reports having a bachelor's degree or higher (93.3% vs. 84.1%).

Table 4-27 *Vaccination Rates by Education Level, Canada & USA, 2022*

	High school or less	College diploma	Bachelor's degree or higher	N Size
Canada	82.0%	87.8%	93.3%	2939
USA	60.6%	68.9%	84.1%	3734

Immigrant Status. Immigrants in both countries report higher vaccination rates than non-immigrants, as shown in Table 4.28. Immigrants in Canada were 10% more likely than immigrants in the United States to be vaccinated (93.2% vs. 83.7%). However, the difference is more significant when comparing non-immigrants in each country. 86.9% of non-immigrants in Canada are vaccinated compared to 72.1% of non-immigrants in the United States. Interestingly, immigrants in both counties are more likely to be vaccinated than their non-immigrant counterparts.

Table 4-28 *Vaccination Rates by Immigrant Status, Canada & USA, 2022*

	Immigrant	Non-Immigrant	N Size
Canada	93.2%	86.9%	2939
USA	83.7%	72.1%	3734

Geographic Location. Table 4.29 shows that those who live in urban and suburban settings in both countries show a similar commitment to vaccination. However, when comparing across countries, we can see some significant differences. Urban and suburban locations show similar differences. In Canada, 90.5% of those who live in urban locations are vaccinated, compared to 79.3% of participants in the United States. Similarly, 90% of participants in Canada who live in a suburban area report being vaccinated, compared to 77% of those in the United States. We see a

decrease across both countries when people report living in a rural area. In Canada, 82.9% of respondents living in a rural area report being vaccinated, while only 63.2% of rural residents in the United States report being vaccinated, an almost 20% drop.

Table 4-29 Vaccination Rates by Location, Canada & USA, compared, 2022

	Canada	USA
Urban	90.5%	79.3%
Suburban	90.0%	77.0%
Rural	82.9%	63.2%
N Size	2939	3734

In Canada, our research has revealed other intriguing patterns in vaccination rates, as seen in Table 4.30. Participants in urban areas generally reported higher vaccination rates than those in rural areas. However, this trend was not consistent across ethnicities. Those who live rurally generally have lower rates of vaccination than those living in urban and suburban locations. Notably, Black and Asian participants saw increased vaccination rates when living rurally. Black participants saw an increase from 85% vaccination rate in urban areas to 91.7% vaccination rate in rural areas. Additionally, Asian participants saw an increase from 97% vaccination rate in suburban areas to a 100% vaccination rate in rural areas.

Table 4-30 *Vaccination Rates by Location & Ethnicity, Canada, 2022*

	White	Indigenous	Black	Asian	Other	Total
Urban	90.1%	87.3%	85%	97.1%	89.1%	1337
Suburban	89.8%	85.1%	87.4%	97.0%	88.5%	987
Rural	82.0%	81.8%	91.7%	100%	82.1%	497
Total	88.0%	84.3%	86.4%	97.2%	87.8%	2821

The pattern is different in the United States as the effect of geography changes. In the United States, participants reported higher vaccination rates when living in urban areas than in rural areas, except for Black participants, who saw no difference. Table 4.31 shows that for white participants, the difference of vaccination rate by location was almost 20%, with 84.8% in urban locations being vaccinated compared to a 78.5% vaccination rate in suburban area and 65.6% vaccination rate in rural areas. The difference for Indigenous peoples and Asian participants was a 12% decrease between urban and rural locations (Indigenous was 71.3% vs 59.1%) (Asian was 88.4% vs 75.9%). The difference was the highest for those who reported another ethnicity at 24.6%, which saw a decrease from a 72.9% vaccination rate in urban locations to a 48.3% vaccination rate in rural locations. This suggests that location substantially influences some ethnicities more than others and should be explored further in additional research.

Trust in Government. Unsurprisingly, the level of trust in the government also has an effect on vaccination rates. In Canada, those who trust the provincial government are almost 20% more likely to be vaccinated than those who do not trust the government, as shown in Table 4.26. The outlier in this is Asian participants, who only see a 2% decrease in vaccination rates regardless of trust. In the United States, the difference is as high as 25% in Black participants based on their trust in their state government. Interestingly, Asian participants do not see the same effect in Canada, as there is a 14% difference between those who trust the government (94.3%) and those who do not (80.7%).

In Canada, as shown in Table 4.31, there is a difference ranging from a 2% decrease in vaccination rates for Asian participants when they report a lack of trust in the federal government (97.7% vs. 95.7%) to a 24.4% difference amongst Black participants (96.5% vs. 74.8%). Further,

those who identify as other ethnicities in Canada (96.6%) are more likely to report they trust government compared with 77% in the United States. Indigenous participants in Canada are also more likely to trust in their provincial government (95.5%) than Indigenous peoples in the USA (74.8%). That pattern of more trust amongst participants in Canada than the USA is maintained among those persons who identify as white (96.8% Canada vs. 78.1% USA). As with provincial trust, we see a significant difference in vaccination rates when people report trusting the federal government.

Table 4-31 *Vaccination Rates by Trust in Provincial or State Government, Canada & USA, 2022*

	Canada		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.7%	78.3%	86.9%	67.0%
Indigenous	93.3%	78.3%	75.7%	55.8%
Black	94.4%	77.7%	82.0%	56.4%
Asian	98.6%	96.6%	94.3%	80.7%
Other	96.9%	80.0%	83.9%	59.2%
N Size	2781		3555	

When examining levels of federal government trust compared to provincial trust, which refers to the trust in the local or regional government, we see a nuanced pattern in vaccination rates, as shown in Table 4.32. While a lack of trust in the federal government does lead to a decrease in vaccination rates, provincial government trust also plays a role. For instance, Indigenous participants are 4% less likely to be vaccinated (74.8%), Black participants are 6% less likely (72.1%), and other ethnicities are 3% less likely when they do not trust the federal

government, compared to when they do not trust the provincial government. This suggests that both provincial and federal government trust are factors in vaccination rates, with a lack of federal government trust driving rates even further down.

Table 4-32 *Vaccination Rates by Trust in Federal Government, Canada & USA, 2022*

	Canada		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.8%	78.1%	90.3%	64.8%
Indigenous	95.5%	74.8%	81.6%	52.4%
Black	96.5%	72.1%	82.0%	54.4%
Asian	97.7%	95.7%	95.7%	79.3%
Other	96.6%	77.0%	89.1%	55.1%
N Size	2772		3558	

In the United States, the influence of federal government trust, which refers to the confidence in the national government, on vaccination rates is pronounced. For instance, lacking trust in the federal government can lead to a significant 35% decrease in vaccination rates. Conversely, white participants saw a substantial 25.5% increase in vaccination rates when they reported trust in the federal government (90.3% vs. 64.8%). Indigenous participants reported a 29% difference (81.6% vs. 52.4%), while Black participants reported a 27.6% difference (82% vs. 54.4%), and Asian participants reported a 16% difference (95.7% vs. 79.3%). The impact of federal government trust on vaccination rates is a crucial finding in our research.

When comparing vaccination rates with state and federal government trust, we also see a decrease in the United States. However, the difference is slightly smaller. It ranges from 1.4% for

Asian participants to 4.1% for those who identify as another ethnicity. Black participants saw a 2% decrease, white participants saw a 2.2% decrease, and Indigenous participants saw a 3.4% decrease.

As with government trust in Canada, we see a significant decrease in vaccination rates when participants report not trusting public health officials, as shown in Table 4.33. This lack of trust is a significant factor preventing people from adhering to public health recommendations, including getting vaccinated for COVID-19, in both countries. In Canada, the impact is profound: white participants who did not trust the government (64.9%) were significantly less likely to be vaccinated than those who did trust the government (96%). The pattern is repeated amongst the other ethnic groups. Indigenous participants who distrusted the government were less likely to be vaccinated (62.5%) than those who did (94%). Black participants who trusted the government were also more likely to be vaccinated (94.6%) than those who did not (70.6%). Respondents reporting their ethnicity as “other” were also more likely to be vaccinated (95.9%) than those who did not trust the government (73.1%). The only group who had a consistently high rate of vaccinations were Canadian Asians who were just as likely to report being vaccinated if they trusted the government (97%) or not (95%).

Trust in Public Health Officials. Overall, a lack of trust in public health officials has a more significant effect on someone's COVID-19 vaccination rate than a lack of trust in the government as shown in Table 4.33. For example, white participants are 13% less likely to be vaccinated when they do not trust public health officials compared to a lack of federal government trust. This underscores the gravity of the situation and the urgent need for public health officials to communicate their messages in a way that fosters trust in pandemic recommendations, restrictions, and vaccination information.

Table 4-33 *Vaccination Rates by Trust in Public Health Officials, Canada & USA, 2022*

	Canada		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.0%	64.9%	87.9%	57.1%
Indigenous	94.3%	62.5%	78.7%	42.5%
Black	94.6%	70.6%	82.2%	40.8%
Asian	98.0%	93.1%	94.1%	76.0%
Other	95.9%	73.1%	85.7%	48.5%
N Size	2791		3588	

In the United States, a lack of trust in public health officials has a profound impact, causing a significant decrease in vaccination rates. White participants in the US who trust public health officials (87.9%) are more likely to be vaccinated than white participants who do not public health officials (57.1%). Indigenous peoples who trust public health officials are also more likely to be vaccinated (78.7%) than those who do not (42.5%). Unlike their Canadian counterparts where trust in government made no difference, in the USA, Asian participants who trust public health officials are more likely to be vaccinated (94.1%) than those who do not trust them (76%). Individuals identifying as "other ethnicities" were also more likely to be vaccinated if they trusted public health officials (85.7% compared to those who do not trust them (48.5%). However, most alarmingly, Black respondents who trusted public health officials were still more likely to be vaccinated (82%) but those who did not trust public health officials had a vaccination rate that was below half (48.5%).

Trust in media. Lack of trust in media in Canada does not influence vaccination rates as much as one might assume, as shown in Table 4.34. White participants who trusted the media were more likely to be vaccinated (96.8%) than those who did not (81.2%). Indigenous participants reported a starker contrast. Black participants who trusted media were much more likely to be vaccinated (93.8%) than not (78.4%). Like what we witnessed with government and public health officials and trust Asian participants are just as likely to be vaccinated if they trusted the media (98.7%) than not (95.1%) While there certainly is still a decrease in vaccine uptake by trust in media, it is not as significant as the influence of trust in government or public health officials. This finding suggests that when working on pandemic messaging, the media could be a valuable resource to share information with the public.

Table 4-34 *Vaccination Rates by Trust in Media, Canada & USA, 2022*

	Canada		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.8%	81.2%	88.3%	70.5%
Indigenous	93.8%	78.4%	81.5%	56.1%
Black	93.8%	81.9%	80.5%	61.4%
Asian	98.7%	95.1%	94.8%	83.1%
Other	94.8%	82.8%	89.0%	57.6%
N Size	2771		3555	

In the United States, however, the influence on trust in media on vaccination rates was more profound. In the USA, vaccination rates for Asians ranged from 94.8% for those who trust in media than Asians who did not trust in media (83.1%). White participants who trusted the media

(88.3%) were also more likely to be vaccinated than Asian participants who did not trust the media (70.5%). Indigenous participants are much more likely to be vaccinated if they trusted the media (81.5%) compared to the 56.1% who were vaccinated but did not trust the media. For Black participants, 80.5% who trusted the media were vaccinated compared with 61.4% who did not trust the media. This finding suggests that trust in media is a polarizing factor in vaccination rates in the United States. Further research should focus on building trust in media that relies on truth in their messaging and sharing information through various media. While a lack of trust in media decreases vaccination rates, trust in government and public health officials is more critical when increasing vaccination rates. For a further look at vaccination rates by level of trust in various institutions, please see Appendix C.

Religion. There is no significant variance in vaccination rates in Canada when examining religious groups, as shown in Table 4.35. In the United States, however, we see a difference in vaccination rates depending on which religion a participant identifies. Evangelicals report a 67.5% vaccination rate and are less likely to be vaccinated than Evangelicals in Canada.

Table 4-35 *Vaccination Rates by Religion, Canada & USA, 2022*

	Canada	USA
Protestant	91.1%	78.6%
Catholic	90.4%	82.6%
Evangelical	90.3%	67.5%
Other	86.4%	71.2%
Atheist/No religion	88.2%	71.8%
N Size	2939	3734

Atheists (71.8%) and those from other religions (71.2%) have similar vaccination rates in the USA. Protestants (78.6%) have a higher vaccination rate than those who identify as non-religious. Finally, Catholics (82.6%) are most likely to be vaccinated.

Our research has revealed significant implications for understanding the relationship between religious beliefs and vaccination rates, as shown in Table 4.36. In the United States, when religion was important to them, Catholics were most likely to be vaccinated at 82.4%, followed by Protestants (78.5%), and participants with other religious identities had a vaccination rate of 70.3%. Notably, evangelicals were least likely to be vaccinated (66.4%) when religion was important to them. The findings in Canada, however, were not significant.

Table 4-36 *Vaccination Rates by Importance of Religion, USA, 2022*

	Vaccination rate
Protestant	78.5%
Catholic	82.4%
Evangelical	66.4%
Other religion	70.3%
N Size	2215

Political Affiliation. Overall, participants in Canada are more likely to be vaccinated across regardless of their political affiliation, as shown in Table 4.37. Those who identify with right-wing political views, at 79.2%, are the least likely to be vaccinated in Canada. Comparatively, participants with centre-of-right views are almost 10% more likely to be vaccinated (88%) than the right leaning group and report similar vaccination rates to those who identify as centrists (90.8%). Those who identify as centre-of-left or left have similar vaccination rates (94.5% and 94.2% respectively). Those who are unsure of their affiliation report an 86.2% vaccination rate.

Trends are similar in the United States, as those with right-wing political views have the lowest vaccination rates (69.2%). Right-of-centre and centrists also have similar vaccination rates (72.5% and 75.5%, respectively), as do left-of-centre and left-wing views (86.3% and 89.9%, respectively). Interestingly, those unsure of their political affiliations in the United States are least likely to be vaccinated (63.8%).

Table 4-37 *Vaccination Rate by Political Affiliation, Canada & USA, 2022*

	Canada	USA
Right	79.2%	69.2%
Right of Centre	88.0%	72.5%
Centre	90.8%	75.5%
Left of Centre	94.5%	86.3%
Left	94.2%	89.9%
Do not Know	86.2%	63.8%
N Size	2721	3458

When comparing the two countries, we see some interesting differences. In Canada, those who identify as right-wing are 10% more likely than their counterparts in the United States to be vaccinated. Those who identify as right of centre are 16% more likely to be vaccinated in Canada than in the USA. There is a 15% difference between vaccination rates of centrists in both countries, while there is a 6% difference between those who lean left and only a 4.3% difference between leftists in each country. The most significant difference in vaccination rates is those who say they are unsure about their political affiliation, who saw a 22.5% difference across countries.

Health Concerns. Table 4.38 shows that as worry about physical health increases, so does vaccination rate. In the United States, there does not seem to be the same pattern. In Canada, even

those who report not being worried about their physical health are still 12% more likely than those in the United States who report the same level of health concern (68.5%). This could be due to Canada's more widely available healthcare system and public health initiatives.

Table 4-38 *Vaccination Rates by Physical Health Concern, Canada & USA, 2022*

Level of Concern	Canada	USA
Very Worried	92.8%	77.8%
Somewhat worried	91.0%	79.1%
Not Very Worried	90.5%	78.2%
Not Worried at All	80.2%	68.5%
N Size	2819	3477

As shown in Table 4.39, Canadians who were concerned about their mental health are more likely to be vaccinated (90,.8%) than their American counterparts (79.8%). This trend continued amongst those Canadians who were somewhat worried about their mental health (91%) compared with similar Americans (78.4%). Even among those Canadians who were not worried at all about their mental health, their vaccination rates (82%) were higher than comparably worried Americans (68.5%).

Table 4-39 *Vaccination Rates by Mental Health Concern, Canada & USA, 2022*

Level of Concern	Canada	USA
Very Worried	90.8%	79.8%
Somewhat worried	91.2%	78.4%
Not Very Worried	92.9%	80.6%
Not Worried at All	83.2%	68.5%

N Size	2726	3393

4.2.3 Social Media Analysis

Table 4.40 and 4.41 show participants who use social media for COVID-19 information by their vaccine uptake. Comparatively, trends are relatively stable across countries. Black respondents in the United States are (62%) are the most likely to report getting news from social media than Black Canadians (62.3%). Further, respondents from other ethnicities in the US are more likely to report they get their news from social media (57%) than Black participants in Canada.

Table 4-40 *Do you use social media for COVID-19 information? Canada & USA, 2022*

	White	Indigenous	Black	Asian	Other	N Size
Canada	53.9%	55.6%	62.3%	61.5%	48.6%	2476
USA	56.0%	57.4%	71.7%	60.0%	57.0%	3099

Table 4-41 *Social Media Usage by Ethnicity, Canada, 2022*

	White	Indigenous	Black	Asian	Other	N Size
Facebook	30.7%	33.7%	24.0%	26.9%	21.5%	814
Twitter	7.6%	5.2%	9.1%	9.9%	7.2%	217
Instagram	4.1%	3.0%	16.9%	12.9%	10.0%	209
Other	15.0%	17.8%	15.9%	12.7%	17.1%	525
N Size	1223	501	296	536	251	1765

It is important to note that when seeking information on COVID-19, Facebook emerges as the dominant platform. However, this is a cause for concern due to the prevalence of

misinformation that has proliferated on the site. Among the participants, Indigenous peoples were the most likely to rely on Facebook as their primary source of COVID-19 information, with 33% reporting it as their primary platform, as shown in Table 4.42. In contrast, Black participants showed a preference for Instagram (16.9%), a significant difference when compared to white (4.1%) and Indigenous (3.0%) participants.

Table 4-42 *Social Media Usage by Ethnicity, USA, 2022*

	White	Indigenous	Black	Asian	Other	N Size
Facebook	33.9%	33.2%	35.3%	29.8%	26.2%	1191
Twitter	8.1%	4.1%	11.7%	9.6%	6.5%	292
Instagram	4.0%	4.8%	10.1%	9.4%	9.3%	226
Other	15.0%	22.5%	18.4%	16.5%	24.1%	655
N Size	1029	406	440	305	184	2364

Notably, in the United States, Black participants showed a higher preference for Instagram use (9.4%) than other groups and were more likely to use Facebook for news than Black Canadians (24% vs. 35.3%). This disparity in social media usage for COVID-19 information among different ethnicities, with some indicating they do not use social media for news at the highest rate (other ethnicities, 42.6%), and others like Asian participants turning to Twitter (9.9%).

Participants were asked where they received their information online for COVID-19, as shown in Table 4.43. This was an open-ended question which has been recoded. Eleven per cent of participants in Canada reported that they sought information from government, medical or scientific websites. Thirty percent of participants reported seeking information from sites that had the potential to share misinformation such as Reddit or other non-moderated social media platforms. Many participants in this category indicated they did their own research using these

sites as primary sources for coronavirus information. Hasell and Chinn (2023) found that when someone used that particular language, they were more likely to believe in COVID-19 misinformation and distrust institutions. Thirty-four percent of participants in Canada reported receiving information via TV, newspapers and radio. A further 21.7% reported that they do not use social media for news for COVID-19 information.

Table 4-43 *Where do you obtain your information about COVID-19? Canada, 2022*

News Source	
Government/Medical/Scientific	11.0%
Misinformation Potential-YouTube/Reddit/Other social media/Right Leaning/Do My Own Research/Google Searches/Internet	30.0%
Do not use social media for News/Do not Look for COVID-19 Information	21.7%
TV/Newspaper/Radio	34.3%
Other	2.9%
Total	422

In the United States, Table 4.44 shows 12% of participants used government, medical or scientific websites for COVID-19 information. One-third of Americans used sites with the potential for misinformation, 20.8% used TV, newspaper and radio, and almost 33% did not seek information. Americans were ten percentage points more likely than Canadians to indicate they did not use social media to find coronavirus information, an interesting reversal in trend.

Table 4-44 *Where do you obtain your information about COVID-19? USA, 2022*

News Source

Government/Medical/Scientific	12.0%
Misinformation Potential-YouTube/Reddit/Other social media/Right Leaning/Do My Own Research/Google Searches	33.0%
Do not use social media for News/Do not Look for COVID-19 Information	32.8%
TV/Newspaper/Radio	20.8%
Other	1.3%
N Size	534

In section 4.2.4, I introduce the results from the regression analysis which provides the results of the ordinary least squares regression on the factors influencing belief in vaccine myths.

4.2.4 Identifying the Factors influencing coronavirus myths, Canada versus the USA

When considering model fit, the regressions for both countries reveal a robust fit. The adjusted R-square value for the equation for Canada is 0.384 while the R-square for the American equation is 0.335. Translated, this means that the variables in the Canadian equation account for 38.4% of the variance in COVID-19 myth beliefs. In the United States, the variables in the equation account for 33.5% of the variance in COVID-19 myth beliefs. According to statistical guidelines in the social sciences, these scores indicate an excellent model fit as in our discipline, fits that are much higher are suspicious since human behaviour cannot be modelled with more than 40% accuracy (Roberts et al., 2018).

Perhaps not surprisingly, vaccination status emerges as the single most crucial factor when considering the belief in COVID-19 myths when all other factors are controlled. Our research shows that in both countries, vaccinated people are significantly less likely to believe any COVID-19 myths. This relationship, more robust in Canada (B= -5.067**) than in the United States (B= -

4.722**), underscores the urgent need to promote vaccination as a critical strategy in combating belief in COVID-19 myths.

Table 4-45 *Factors influencing beliefs in coronavirus vaccine myths, Canada and USA, 2022*

	USA	Canada
Sex	-.297	-.291
White ethnicity	-.256	-.100
Indigenous peoples	.267	-0.45
Black people	.695	.954
Asian people	-.356	.280
Marital status	.350	0.041
Age	-.308**	-.157*
Income	-.056	-.251**
Education	.028*	0.06
Immigrant status	.016	0.020
Trust Index	-.188**	-.305**
Protestant	-.840**	-0.801
Catholic	.186	-.353
Evangelical	-.493	-.443
Atheist	-.268	-.519
Importance of Religion	.813**	.906**
Political Right	2.776**	2.467**
Political Centre	-.615**	.244
Political Left	-2.451**	-1.494**

Suburban Location	-.546**	-.131
Rural Location	-.177	.164
Vaccination Status	-4.722**	-5.067**
Physical Health Worry	-.466*	.398
Mental Health Worry	-.792**	-.282
Social Media Usage	1.148**	1.065**
R Square	0.384	0.335
N size	3734	2939

*Significant at $p < 0.05$ **significant at $p < 0.01$

Political affiliation is mostly statistically significant in both models. The influence of political identity on myth belief is a complex issue, particularly in the context of the COVID-19 pandemic. Our research reveals that those who lean right in the United States and Canada are more likely to believe in COVID-19 myths. However, the relationship is slightly stronger in the United States (B= 2.776**) than in Canada (B= 2.467**), highlighting the nuanced differences in myth belief between the two countries.

On the other side of the political aisle, those who identify as left-leaning are least likely to believe COVID-19 myths. This relationship is more robust in the United States (B= -2.451**) than in Canada (B= -1.494**). Those who identify as centrists in both countries have a weaker relationship with myth belief. The relationship is significant in the United States (B= -0.615**), while the relationship is insignificant in Canada (B= -0.244). It is worth noting that the relationship in the United States skews towards believing COVID-19 myths, while in Canada, the relationship suggests that those who identify as centrists are not as likely to believe the myths.

The patterns observed for social media usage by Canadian and American groups were remarkably similar. This underscores the need for a unified approach to understanding social media usage across different demographics to disseminate accurate COVID-19 information effectively. Our research underscores a universal trend: the more an individual is immersed in social media, the more likely they are to adopt COVID-19 myths, such as the virus being a hoax or the vaccines being unsafe. This finding is particularly concerning, given the widespread prevalence of COVID-19 conspiracy theories and the rapid spread of misinformation online. The impact is consistent across borders, with a slightly stronger association in the USA (B= 1.148**) than in Canada (B= 1.065**), but it indicates a belief in vaccine myths in both countries. The relationship in both Canada and the United States is significant to $p<0.01$.

Religion has a significant relationship with myth belief, but only among American protestants (B= -0.40**). All other religious groups have no statistically significant relationship to believing coronavirus myths. In the case of American protestants, those who adhere to this religious affiliation are statistically less likely to believe in vaccine myths than other religions. No other religious affiliation has any statistically significant influence on myth beliefs.

However, when it comes to religion, the single most important aspect, according to our study, is how important participants view the importance of their religion. Those who report their religion is important to them are significantly more likely to report myth belief. The relationship between importance of religion and belief in COVID-19 myths is actually stronger in Canada (B= 0.906**) than in the United States (B=0.813**). It means that individuals who more strongly believe that religion is important in their lives are more likely to believe in vaccination myths and that the influence of religion is actually stronger in Canada than it is in the United States. This finding also flies in the face of what we know or what we “think” we know about the influence of

religion on vaccination beliefs—with Canada having this influence in a stronger way than in the United States.

Mental and physical health concerns have a negative relationship in the United States. Participants who are concerned about mental health care access in the United States have a stronger relationship with myth belief (B= -0.792**) than participants in Canada (B= -0.282). The relationship is significant in the United States to P<0.001 and they are insignificant in Canada. Concerns about access to physical health care also have a negative relationship in the United States (B= -0.466*) while in Canada there is a positive relationship (B= 0.388). However, only the United States is significant to P<0.005, Canada is insignificant.

Society's trust in institutions has decreased in both countries since the beginning of the COVID-19 pandemic. In Canada (B=-0.305**), as trust declines, belief in myths increases. That relationship is higher in Canada than in the USA (B= -0.188**). This result aligns with previous research suggesting that those less trusting in institutions are more likely to believe COVID-19 myths and conspiracy theories (Pickles et al., 2020).

Place of residence also influences COVID-19 myth beliefs when other variables are controlled, but only in the United States and only for those living in suburban areas. Among Americans, those living in suburbs are less likely to believe in coronavirus myths than Americans living elsewhere. In Canada, place of residence has no statistically significant influence on myth beliefs.

In Canada, income is negatively associated with belief in COVID-19 myths (B= -0.251**). This result means that the lower the income, the more likely the individual will believe COVID-19 myths. The relationship is significant in Canada but not in the United States.

Interestingly, there is a very small but positive relationship in the United States between education (B= 0.028*) and myth belief. It means that as education increases, so does belief in myths, which is counterintuitive to what we know about other health belief behaviours among the population. There is no statistically significant relationship between education and myth belief among participants in Canada.

A long list of variables included in the equation had no statistically significant influence on myth belief for either country. There is no recordable relationship between immigration status and COVID-19 myth belief. Marital status, sex and living in a rural location also had no statistically significant influence on myth belief for participants in either country. When examining religious affiliation, being catholic, evangelical or atheist had no statistically significant influence on myth belief. Additionally, the race/ethnicity variables also had no statistically significant influence on myth belief. While a bit disappointing, these "non findings" are rather comforting in that there is no religious, ethnic or immigration influence on myth belief and since these are ascribed traits, there is no inherent sexual, cultural or religious component to myth belief, at least not in regard to COVID-19.

4.3 Discussion

4.3.1 Vaccination Status and Health Concerns

Let's review the bivariate findings first. Vaccination status has emerged as the most critical factor influencing beliefs about COVID-19 myths. Individuals who have been vaccinated are generally less likely to endorse misinformation or conspiracy theories related to the pandemic which makes intuitive sense (because this group will be more likely to accept a vaccine) and is supported by existing research (Lee et al, 2022). Vaccinated individuals often demonstrate higher trust in scientific institutions and healthcare authorities. This trust is built on the understanding

that vaccines are scientifically proven effective in preventing COVID-19 and reducing its severity (Pennycook et al., 2020) and our findings support this observation. Direct experience with vaccination and its benefits to prevent other diseases can help counteract misinformation. Individuals who received their vaccine are more likely to rely on personal experience rather than misinformation circulating in social networks or media (Pennycook et al., 2020).

Communities with higher vaccination rates often create a normative environment where vaccination is considered responsible and necessary. This normative influence can reduce the prevalence of COVID-19 myths within these communities (Pennycook et al., 2020). Effective public health communication campaigns that promote vaccination and debunk myths play a crucial role. These campaigns emphasize the safety and efficacy of vaccines, addressing concerns and misconceptions that could lead to myth belief (Baumgaertner et al., 2018). In our experience, various public health agencies, especially in Canada and Mexico, have leaned on our findings to help animate their pro-vaccine messaging. In Manitoba, for instance, our meetings with public health officials helped to convince them to pull the shame/scare tactic pro-vaccine videos and ads within three days. They were replaced with more positive/community building messages about the individual and social importance of high vaccine uptake rates (First Nations Health Council, 2021). First Nations communities in Canada led the way on the positive/communal messaging in terms of vaccine education. Many of their vaccination campaigns featured quotes and photos of elders with the messaging that larger community uptake of vaccines would better protect the elder population (Gideon, V., 2021). While we have no quantitative proof that this was a major factor in the considerable vaccine uptake amongst the First Nations population, they were the first to start this more positive messaging and Canada's First Nations communities had the highest vaccine uptakes in North America.

Concerns about physical and mental health during the pandemic can influence beliefs about COVID-19 myths in various ways. In the United States, individuals expressing higher concerns about their physical health during the COVID-19 pandemic are less likely to believe myths surrounding the virus. This finding suggests that heightened awareness of health risks and the seriousness of COVID-19 prompts individuals to seek accurate information and adhere to recommended health guidelines. Studies indicate that individuals who perceive COVID-19 as a significant threat to their wellbeing are likelier to adopt preventative behaviours such as mask-wearing and vaccination, thereby reducing their susceptibility to misinformation (Jorgensen et al.; Pennycook et al., 2020). Research conducted during the early phases of the pandemic found that individuals who underestimated the severity of COVID-19 were less likely to adhere to health guidelines and were more susceptible to misinformation about the virus' origin and spread (Hornsey et al., 2020).

Concerns about mental health, including anxiety, depression or stress related to the pandemic, also influence belief in COVID-19, particularly in the United States; individuals experiencing higher levels of mental health distress are significantly less likely to believe in COVID-19 myths. This relationship underscores the pandemic's psychological impact and mental wellbeing's role in shaping the perceptions of health-related information. The stronger negative relationship between mental health concerns and myth belief in the United States compared to Canada suggests some cultural or contextual differences in how mental health is perceived and addressed during public health crises (Reppas-Rindlisbacher et al., 2021). Research has shown that individuals experiencing heightened anxiety or stress due to the pandemic may be more vigilant in seeking accurate information and less susceptible to misinformation that downplays the severity of COVID-19 or promotes conspiracy theories (Pennycook et al., 2020).

4.3.2 Political Affiliation

The stark contrast in COVID-19 vaccination rates among different political affiliations in Canada and the United States is a significant revelation. It underscores the profound connection between public health behaviour and political ideology. The data unequivocally demonstrates a substantial political rift in vaccination rates. In both countries, individuals with right-wing political leanings consistently show lower acceptance of COVID-19 vaccines than centrists or left-leaning individuals. For instance, in Canada, right-wing individuals have the lowest vaccination rates at 79.2%, a sharp contrast to left-wing individuals who have rates exceeding 94%. Similarly, in the United States, right-wing individuals also exhibit the lowest vaccination rates at 69.2%, while left-wing individuals show significantly higher rates approaching 90%.

Politically moderate groups are more likely to accept vaccination. Individuals who identify as centre-right in both countries demonstrate intermediate vaccination rates between right-wing and centrist/left-leaning groups. This suggests that while political ideology influences vaccination behaviour, those closer to the political centre tend to exhibit higher rates of vaccination acceptance. This finding aligns with studies indicating moderate political beliefs may facilitate greater openness to scientific evidence and public health recommendations (van Proojien, J. W & Krouwel, A. P. M, 2016). Centrists in both countries emerge with higher vaccination rates, suggesting a potential common ground for public health campaigns. This group, positioned between more polarized political views, is willing to engage with vaccination efforts. Public health strategies could leverage this common ground to bridge political divides and enhance vaccination uptake, inspiring us to work towards a more unified approach to public health.

Another critical observation is the lower vaccination rates among individuals unsure of their political affiliation. This demographic consistently reports lower vaccination rates in Canada

and the United States. This group represents a crucial target for public health interventions addressing vaccine hesitancy. While there is a clear political divide in vaccination rates, it is equally important to address vaccine hesitancy among individuals unsure of their political affiliation. This approach can help build consensus and increase vaccination acceptance.

Political identity emerges as a robust predictor of myth belief, particularly pronounced in the United States, where political polarization intersects with health misinformation. Right-leaning individuals in both countries exhibit higher tendencies to believe COVID-19 myths, influenced by ideological stances and media consumption habits that may prioritize alternative narratives over scientific consensus (Barnes et al., 2017). Conversely, left-leaning individuals show lower myth beliefs, reflecting political differences in information sources and ideological stances on health policies, which reflect political affiliations aligned with evidence-based policies and public health recommendations.

Political cultures characterized by high levels of polarization and distrust in opposing political groups create an environment conducive to myth acceptance (Inglehart & Welzel, 2005). Further, political socialization processes that shape individuals' political attitudes and behaviours from a young age reinforce adherence to political tribes and their associated narratives (Campbell, 1960).

The concept of political tribalism is a critical factor in understanding myth acceptance. It refers to individuals' strong loyalty and identification towards their political groups or parties, often leading to polarization and selective acceptance of information based on ideological alignment rather than factual accuracy (Abramowitz & McCoy, 2020). This phenomenon manifests in four distinct ways: selective information processing, distrust in opposing views, echo chambers and social media, and finally, behavioural responses.

Political tribalism significantly influences how individuals process information. Those entrenched in political tribes are more likely to selectively process information that aligns with their groups' beliefs (Kahan et al., 2017). This has direct implications for public health, as during the COVID-19 pandemic, it could lead to the acceptance of myths or misinformation that reinforces their political worldview, such as conspiracy theories about the effectiveness of preventative measures. Political tribalism fosters distrust in information sources perceived as aligned with opposing political ideologies (Lyengar & Krupenkin, 2018). Consequently, individuals may dismiss scientifically validated information about COVID-19 if it conflicts with their partisan beliefs, thereby increasing susceptibility to myths and misinformation.

Social media platforms, often echo chambers for political tribes, amplify this effect, reinforcing and disseminating partisan narratives and misinformation (Guess et al., 2019). Misinformation spreads rapidly within these echo chambers, influencing more individuals to adopt COVID-19 myths without critical evaluation. Finally, political tribalism can influence behavioural responses to COVID-19, such as compliance with public health measures or vaccine hesitancy. Individuals may resist measures advocated by political opponents, leading to lower adherence and increased risk of virus transmission (Van Bavel et al., 2020).

4.3.3 Social Media

During the COVID-19 pandemic, social media platforms were pivotal channels for information dissemination and community interaction. However, the rapid spread of misinformation through these platforms posed significant challenges to public health efforts.

Higher engagement on social media correlated with increased belief in COVID-19 myth beliefs in Canada and the United States. This trend highlights the influential role of online platforms in shaping public discourse and disseminating misleading information about the virus,

its origins and preventive measures. Studies have consistently shown that exposure to misinformation on social media can lead to misconceptions and undermine public trust in official health guidelines (Pennycook et al, 2020.; Guess et al., 2019). For instance, false claims, such as COVID-19 being a hoax or the virus being a bioweapon, gained traction on platforms like Facebook and Twitter, influencing public perceptions and behaviours (Pennycook et al., 2020). The stronger correlation observed in the United States than Canada suggests variations in digital literacy, media consumption habits, and susceptibility to online misinformation across different sociocultural contexts (Pennycook et al., 2020).

The association between social media engagement and belief in COVID-19 myths underscores the critical need for targeted interventions to promote digital literacy and mitigate misinformation risks. Public health interventions should prioritize initiatives to enhance digital literacy skills among the general population. Educating individuals on critically evaluating information encountered on social media can empower them to discern between credible sources and misinformation (Pennycook et al., 2020). Equally important, social media platforms play a crucial role in moderating content and reducing the spread of misinformation. Strengthening policies to deter and remove false and misleading information about COVID-19 is a shared responsibility that can mitigate its impact on public perceptions and health outcomes (Guess et al., 2020).

4.3.4 Religion

The findings of this study underscore difficulty in attributing religious affiliation to vaccine uptake and myth belief. Notably, our research reveals distinct religious affiliation influences on COVID-19 myth beliefs, but only amongst Protestants living in the USA. No other religious affiliation has an appreciative influence on vaccine uptake. This observation is in direct contrast

to qualitative studies and media reports in both countries. Protestant and evangelical communities in both countries exhibit diverse relationships with myth beliefs, influenced by religious doctrines, interpretations of health-related guidance from religious leaders, and the level of religious engagement (Pickel et al., 2022). However, when all other variables are controlled, religious affiliation has no statistically significant influence on vaccine uptake. This is comforting in that public health officials will not have to "police" religious gatherings or ideology in the future. It is also a warning to researchers not to attribute vaccine hesitancy or myth belief solely to religious affiliation.

Religious adherence, however, does play a significant role in myth belief in both Canada and the United States. Higher levels of religious engagement mean stronger and less critical adherence to religious teachings and guidance, which can influence perceptions of health-related information, including beliefs about COVID-19 myths (Druckman et al., 2021). For instance, more religiously engaged individuals may be more likely to trust religious leaders' interpretations of health crises and their implications regardless of their scientific authenticity, potentially affecting their susceptibility to misinformation (Farias et al., 2013). For example, in Canada, leaders within the Sikh community have used their influence to disseminate accurate, positive and scientifically correct information about COVID-19, emphasizing the importance of community solidarity and adherence to public health guidelines, thereby mitigating the spread of myths and misinformation within their communities (Igwe et al., 2020).

In other communities, however, this is not the case. Some Evangelical church leaders in both countries have been openly defiant against protecting communities from COVID-19. Springs Church, in Winnipeg, was ticketed for breaking public health orders on gatherings when they held a graduation ceremony in May 2020 (CBC, 2021), offered "religious exemptions" to congregants

who were attempting to skirt the rules for mandatory COVID-19 vaccinations at some employers (Kavanagh, 2021), and ignoring mask mandates (von Stackelberg & Frew, 2021). In the United States, a conservative evangelical musician, Sean Feucht, held “protest concerts” around the country that drew thousands of people arguing against health restrictions on religious worship (Duin, 2020).

The role of religious leaders in communicating health information during crises is crucial given that many citizens strictly adhere to various religious customs and beliefs. Trust in leaders' guidance on COVID-19, influenced by perceptions of their credibility and the alignment of their messages with personal beliefs, can shape community responses and adherence to public health recommendations (Soni, G.K & et al., 2023). In the United States, some evangelical leaders have publicly supported COVID-19 vaccination campaigns and encouraged their congregations to follow CDC guidelines, framing these measures as part of their religious responsibility to protect themselves and others (Viskupic & Wiltse, 2022). Religious communities often operate within distinct cultural and social norms that shape collective beliefs and responses to health crises. These norms can foster resilience against misinformation or create vulnerabilities if misinformation aligns with prevailing beliefs or distrust in secular authorities (Lee Rogers. & Powe., 2022). Historical experiences, including interactions with healthcare systems and government entities, may influence how religious communities perceive and respond to health-related information during public health emergencies like the COVID-19 pandemic (Moore et al., 2022).

Religious leaders' influence and belief in COVID-19 myths, which in this context refer to accepting or endorsing false or misleading information about COVID-19, could sway their followers to believe in misinformation about COVID-19. Throughout lockdowns, many religious leaders in Canada and the United States defied stay-at-home orders and persuaded their

congregations not to receive COVID-19 vaccines (Pierce, 2021). Interestingly, despite the loud objections of Evangelical preachers in Canada and the United States throughout the pandemic, we do not see a significant relationship in this study between Evangelicalism and belief in COVID-19 myth belief.

4.3.5 Age

Age is a robust predictor of COVID-19 myth belief, showing a stronger negative relationship in the United States than in Canada. Older adults in the US, who may have lived through other public health crises or have more established healthcare routines, tend to exhibit lower susceptibility to misinformation (Pew Research Center, 2020). This generational effect underscores differences in health concerns, risk perceptions, and information-seeking behaviours between younger and older populations (Basta, N. et al., 2022). Compared to Canada, the stronger negative relationship between age and myth belief in the United States suggests distinct societal influences on health-related beliefs. In Canada, where healthcare is publicly funded, and cultural attitudes towards health information differ, age-related disparities in myth belief may manifest differently (Statistics Canada, 2020). Understanding these contextual differences is crucial for tailoring effective public health messaging and interventions across different age groups.

Psychological factors such as cognitive biases and heuristics also influence belief in COVID-19 myths across age groups. Older adults may exhibit greater resilience against misinformation due to accumulated life experiences and more developed critical thinking skills (Pennycook et al., 2020). Conversely, influenced by social media and peer interactions, younger adults may be more susceptible to myths and conspiracy theories (Bridgman et al., 2020).

The other factor could be life experience. Older Americans and Canadians will keenly remember diseases that ran rampant throughout both countries in the early part of the 20th century;

diseases for which there was no vaccine and that killed or disabled millions. In the 1950s and 1960s, polio epidemic was the most devastating in North America, killing thousands and disabling hundreds of thousands of children (Cuthbertson, 2020). The epidemic was ended after a series of polio vaccines were created in the mid-1960s (Mayo Foundation for Medical Education and Reserach, n.d). The disease was only declared eradicated in Canada and the USA in 1994 (Mayo Clinic). These memories remain strong and the observation that the vaccines that were developed first quelled the spread of the disease, then helped eradicate it, are life altering and could partly explain increased uptake among the elderly. Additionally, an understanding of aging and health frailty can also influence higher vaccine acceptance among the older populations.

4.3.6 Trust

The research findings underscore profound implications for public health interventions and communications strategies, particularly concerning society's trust in institutions. Since the onset of the COVID-19 pandemic, trust in social institutions has declined in both the United States and Canada. This trend is reflected in the study's findings, where lower trust in institutions is correlated with higher rates of COVID-19 myth belief and lower vaccination rates. These myths, often circulated through social media and other digital platforms, can significantly impact public health responses. Previous research supports this correlation, indicating that individuals who distrust institutions are more susceptible to misinformation and conspiracy theories (Pierre, J.M, 2020; Maglic, M., 2023).

Trust in institutions is pivotal in shaping vaccination rates and beliefs about COVID-19 myths, reflecting broader social dynamics and influencing public health responses during the pandemic. The COVID-19 pandemic has significantly influenced public trust in institutions such as governments, healthcare systems, and media across the United States and Canada (Edelman

Trust Barometer, 2021). Declining trust in institutions has been associated with higher susceptibility to COVID-19 misinformation and conspiracy theories (Pennycook et al., 2020). Research consistently shows that individuals with lower trust in institutions are more likely to believe in COVID-19 myths (Pavela Banai, B., et al., 2021). This correlation underscores the vulnerability of populations with diminished institutional trust to misinformation, a situation that can undermine public health efforts and exacerbate health disparities (Roozenbeek et al., 2020).

Several factors influence institutional trust. Societal experiences with historical events, government responses, and perceived transparency during crises (such as the COVID-19 pandemic) shape institutional trust (Edelman Trust Barometer, 2021). Instances of misinformation or conflicting messages from authorities can erode trust and amplify beliefs in myths among the public (Allington et al., 2020). Further, the proliferation of misinformation through digital platforms and social media has decreased trust in traditional media and official sources of information (Pennycook et al., 2020). Biases, sensationalism, and misinformation circulated online can distort perceptions and fuel conspiracy beliefs about COVID-19 (Eysenbach, 2020).

4.3.7 Geographic Location

The influence of geographic location on myth belief is mixed. In Canada, place of residence has no influence on rate of myth belief, but in the USA, living in a suburban location has an effect. there are some reasons why suburbanites in the USA might be less willing to take the COVID-19 vaccination. Urban areas typically have more per capita hospitals, clinics, pharmacies, and healthcare providers. This dense infrastructure facilitates more accessible access to vaccination sites and healthcare services (CDC, 2021). Residents in urban areas often have shorter travel distances to vaccination centers, reducing logistical barriers to vaccine access (Health Canada, 2021).

The second factor is population density and outreach efforts. Urban populations are often more densely concentrated, facilitating targeted outreach efforts and mass vaccination campaigns—there is more "value for money" in terms of these investments because more people are vaccinated. Public health authorities can efficiently reach more people through localized campaigns, community centres, and mobile vaccination units (Truong et al., 2021). Further, urban locations benefit from better communication structures, including internet access and mobile networks, which enable rapid dissemination of vaccine information and appointment scheduling (CDC, 2021). Sparse populations in rural areas challenge public health officials in reaching dispersed communities. Innovative approaches such as mobile clinics, telehealth consultations, and community partnerships are necessary to overcome these geographic and communication barriers (Leibowitz, A. et al., 2021; Frye, W.S, et al., 2022). It is crucial to note that rural areas may also have diverse populations with varying language preferences and cultural norms. Therefore, culturally competent strategies, which ensure that vaccine information is accessible and understandable to all, regardless of their background, are essential (Abba-Aji, M. et al., 2022).

4.3.8 Gender

Findings in this study indicate that there are no sex differences in myth belief, which is contrary to what other research has found. Men are more likely to endorse COVID-19 conspiracy theories (Cassese et al., 2020). Their study, which studied political differences between genders and COVID-19 myths, was a quantitative study which surveyed 3,019 Americans. The results found Republicans were more likely to believe myths and men were more likely to identify as Republicans. Cassese's analysis points to two critical psychological factors: learned helplessness and conspiratorial thinking. Learned helplessness is a concept where individuals believe they lack control over their situation, even when they have the power to change it. This belief often stems

from repeated negative experiences where attempts to improve the situation have failed. Over time, individuals may internalize this sense of helplessness, leading to passivity and a lack of proactive behaviour.

4.3.9 Ethnicity

Systemic racism, a deeply ingrained issue, significantly contributes to vaccine hesitancy among ethnic minorities in Canada and the United States. This is just one of the many historical and systemic factors that shape COVID-19 vaccination disparities. These factors encompass a complex interplay of barriers to healthcare access, vaccine hesitancy rooted in mistrust of healthcare systems and disparities in vaccine outreach and education efforts. Ethnic minorities often face structural barriers such as lack of health insurance, limited access to healthcare facilities and geographic isolation, which hinder their ability to access vaccines (Williams, A et al., 2021; Health Canada, 2021). Further, the limited availability of culturally and linguistically appropriate healthcare services can lead to communication challenges and reduced healthcare utilization among ethnic minorities (Truong et al., 2021). Deep-seated mistrust stemming from historical injustices, unethical medical practices, for example, the Tuskegee syphilis study, and systemic racism contributes to vaccine hesitancy among ethnic minorities (Boseley, 2021; Quinn et al., 2020).

Our results indicate that ethnic and racial identity have no appreciable influence on myth belief, despite what we hear in the media and from politicians. Ethnicity, a significant determinant, is intricately woven into the belief in COVID-19 myths and vaccination rates. This influence is not arbitrary but is deeply rooted in complex communities' social, cultural, historical, and systemic factors. The unique historical experiences and cultural contexts of ethnic communities significantly shape their perceptions of healthcare and authority figures. Historical events, such as

medical exploitation or systemic healthcare disparities, can foster a sense of mistrust in medical institutions, thereby impacting beliefs about COVID-19 myths. Given our findings in our large international quantitative study reveal no ethnic or racial differences, studies such as Vazquez and colleagues (2024) are questioned.

Trust levels in governmental, healthcare, and media institutions are not uniform among ethnic groups. Minority communities, historically marginalized and discriminated against, often exhibit lower trust in mainstream institutions, leading to reliance on alternative information sources prone to misinformation (Bates et al., 2020; Sibley et al., 2020). The impact of socioeconomic disparities, such as lower income, reduced healthcare access, and higher unemployment rates, on ethnic minorities is profound. These factors limit access to accurate health information and increase susceptibility to COVID-19 myths (Williams et al., 2021).

Another influential factor is the media's portrayal of COVID-19 issues, which include biases and stereotypes related to ethnicity, which shape perceptions about cultural and ethnic differences in both countries. Biased or sensationalized media coverage can exacerbate fears and suspicions, influencing belief in COVID-19 myths (Melki et al., 2021). To counteract this, community-based interventions that provide accurate information and address myths with factual information can be effective.

4.2.10 Marital Status

The higher COVID-19 vaccination rates among married individuals compared to single or divorced/separated individuals in Canada and the United States can be understood by using sociocultural and behavioural factors regarding marriage in both countries. One such factor is the heightened risk perception due to familial responsibilities. Married individuals often have established social networks that may include family members, friends and colleagues who

influence health-related decisions. These networks can provide information, support, and encouragement for vaccination. Studies have shown that social influence plays a significant role in vaccine acceptance and uptake (Crawshaw et al., 2021). Due to their shared health behaviours and concerns, married couples often engage in a collective decision-making process regarding vaccination. Partnerships involve joint discussions about health and wellbeing, potentially reinforcing the importance of vaccination as a protective measure for individuals and their families (Liu et al., 2023). Further, married individuals may perceive a higher personal and familial risk associated with COVID-19 due to their responsibilities towards their spouse and possibly children and elderly relatives. This heightened risk perception, driven by the desire to protect their loved ones, can motivate individuals to prioritize vaccination (Salali & Uysal, 2020).

However, our study did not find this relationship at all. At least in regard to coronavirus, marital status has no influence on myth belief---neither positive nor negative. In short, our findings confirm that the concern for elderly community members and relatives and care for younger members of society is constant regardless of marital status and that being married does not incur any special "care" for others, which makes intuitive sense given that marriage is an individual choice and has no indication of communal responsibility.

4.3.11 Income and Educational Level

Income and education had different influences on vaccine beliefs in both countries. In the USA, only education had a very small but positive influence on myth belief. In Canada, only income had a negative influence on myth belief—as income increases, so does propensity toward myth belief. The disparities in vaccination rates by income levels in both countries underscore the significant impact of economic barriers on accessing vaccinations but a more complicated relationship for myth beliefs. Lower-income Canadians in both countries face challenges such as

a lack of paid time off for vaccination appointments, limited access to healthcare resources, and potentially higher levels of vaccine hesitancy rooted in socioeconomic factors. This should be a cause for concern, as it highlights systemic inequalities in healthcare access and vaccine distribution. Our findings mirror early findings from Statistics Canada (2020) and Kricorian and colleagues (2021) on this issue. Our findings reject those of Pew Research (2020) and Pennycook et al (2020). The Pew Research Center (2020) study finds that individuals in the highest income bracket were 30% less likely to believe in COVID-19 myths than those in the lowest income bracket. Higher-income levels often indicate greater access to reliable information sources and healthcare services, supporting critical appraisal of health-related information (Pennycook et al., 2020). Clearly, more research needs to be conducted on the influence of income on vaccine uptake.

Education serves as a protective factor against COVID-19 vaccine hesitancy, but only in the United States, where the difference in vaccination rates between education levels is more pronounced. Higher education correlates with greater access to accurate health information, a better understanding of vaccine benefits, and more resources to navigate vaccination processes but only in the USA. This could be an indication of access to quality education, at least in terms of science and understanding the purpose of vaccination. Higher educational attainment is a shield against misinformation, thanks to enhanced critical thinking skills and better access to accurate health information (Allington et al., 2020). Addressing socioeconomic disparities in access to healthcare and information is essential to curb the spread of COVID-19 myths. Public health interventions must prioritize improving health literacy, which refers to the ability to understand and use health information among socioeconomically disadvantaged populations through targeted education initiatives and accessible communication strategies (Paakkarai & Okan, 2020).

4.4 Conclusion

In conclusion, examining belief in COVID-19 myths across diverse demographic dimensions underscores the complex relationship of psychological, sociocultural, and political factors. It reveals distinct patterns influenced by a myriad of factors. These findings are significant as they provide a comprehensive understanding of the influence of various demographic dimensions on belief in COVID-19 myths in both the United States and Canada.

These insights underscore the urgent need for tailored public health interventions and communication strategies to address the unique vulnerability and challenges posed by misinformation. Efforts should be expedited to enhance digital literacy, promote critical thinking skills, and foster community engagement. Strengthening institutional trust, particularly in the healthcare and media sectors, is crucial for effectively rebuilding public confidence and countering misinformation.

In essence, combating misinformation is a collective responsibility that demands collaborative efforts across disciplines and sectors. As public health professionals, researchers, policymakers, and educators, each of us plays a crucial role in promoting a resilient and well-informed society capable of navigating challenges with clarity, confidence, and accuracy.

Chapter 5

5 Policy, Practical Implications and Conclusion

5.1 Introduction

As the Coronavirus continues to circulate in Canada and the United States in the summer of 2024, world public health remains "on guard". However, armed with the knowledge that coronavirus will not be our last pandemic, we can take comfort that this research will be a valuable tool in our arsenal in fighting future pandemics. When the next outbreak inevitably occurs, this research will be instrumental in crafting targeted messaging and education campaigns for different groups of people, instilling a sense of preparedness and hope.

5.2 Research Question

The primary research question that guided this study was how political affiliation, racial/ethnic identity, and religious affiliation can be used to predict vaccine uptake in Canada and the USA. As I demonstrated, the findings underscore the significant role that political affiliation and trust in social and government institutions play in vaccine uptake in these two countries. These findings also highlight the critical need for targeted interventions that consider the unique influence of each of these factors on vaccine uptake, offering hope for a more equitable future.

Ethnicity plays a crucial role in COVID-19 vaccination in Canada and the United States but not in myth belief. Systemic racism in both countries has led to unequal access to vaccines and information about COVID-19. Decades of institutional mistrust due to inequitable treatment have caused people to seek information from alternative sources, thereby slowing vaccination progress. Barriers such as lack of insurance, limited access to healthcare, and geographical location have further hindered many from promptly accessing COVID-19 vaccinations and treatment. We cannot view ethnicities through a singular lens; a deep understanding of cultural influences is necessary

to effectively target information during the next pandemic. This underscores the urgent need for targeted interventions and trust-building efforts to re-establish trust so that more people will accept vaccines to fight future pandemics.

Politicians, media and several research labs "believed" that ethnic and racial identity greatly influenced myth belief, but our research proves them wrong. There are no ethnic or racial influences on myth belief. When race/ethnicity are controlled for, other influences, such as trust in government and strength in religious belief are more powerful determinants in myth beliefs. How one identifies religiously holds less weight than determining how important religion is to a person. If they have sincerely held and very strong religious beliefs, they are more likely to incorporate their religious leader's ideology.

The researcher asked the sub-research question: How do religious and political identities influence individuals' beliefs in COVID-19 myths in the United States and Canada? As with vaccination rates, religious and political identities can significantly relate to COVID-19 myth belief. The fractured nature of the United States political system has made it challenging for people to accept information from what they perceive as 'the other side.' This widespread mistrust has led many to conduct 'their own research,' resulting in a significant belief in COVID-19 myths. Media consumption has played a pivotal role in shaping how people perceive the pandemic and its severity, with misinformation proliferating on social media, the internet, and right-wing news programming. In Canada, political and religious identity did not play as significant a role in myth belief as it did for participants in the United States. The level of trust, while lower than before the pandemic, is higher in Canada, and people are more willing to rely on the government for accurate information and are much more willing to be vaccinated.

5.3 Policy Recommendations

While policymakers have focused heavily on the socioeconomic outcomes of COVID-19 and the long-term implications of social and economic shutdowns, very little has been written about overcoming myths regarding various diseases. Future vaccination education campaigns should focus on several areas. First, campaigns should be tailored to address specific concerns and beliefs among different demographic groups. For instance, focus on addressing vaccine hesitancy among younger adults, addressing concerns about safety and efficacy among older adults and engaging with religious organizations to address their specific concerns and misinformation. Second, healthcare providers must ensure they are well-equipped to address vaccine-related questions and concerns from their patients. This preparation can include providing them with updated information, communication strategies, and resources to engage effectively with patients.

Educational programs in schools and universities should be implemented to teach students about vaccines, how they work, their importance in public health, and how misinformation spreads. This education can foster a generation that values evidence-based information. Furthermore, engaging with community and religious leaders, organizations, and influencers can significantly contribute to spreading accurate vaccine information within their communities. Grassroots efforts can be particularly effective in reaching groups that may be hesitant due to cultural, religious, or social reasons. The influence of these leaders and influencers can be a powerful force in countering misinformation and promoting accurate vaccine information, thereby fostering a sense of empowerment and influence.

On the ground, officials must increase the deployment of mobile vaccination units during outbreaks to reach rural and underserved communities. Officials should also collaborate with local organizations, religious institutions and community leaders to facilitate culturally sensitive vaccine

distribution and education. Further, officials should provide educational workshops and virtual campaigns accessible to all, focusing on health literacy and empowering communities to make informed decisions. Officials must also address the erosion of institutional trust by promoting transparency, consistency, and accountability in public health messaging. This commitment to transparency and accountability will help build a sense of security and trust among the public. This can be achieved by engaging trusted community leaders and healthcare professionals to communicate accurate health information. Public trust can also be strengthened by proactively combating misinformation and enhancing digital literacy.

As we look to the future, we must acknowledge that this will not be the last public health crisis or pandemic to affect our world. The insights from this study will be invaluable in preparing for these future outbreaks. Misinformation is not unique to COVID-19. Whatever the next health crisis may be, misinformation will likely follow, especially given the "democratization" of information and misinformation spread widely and instantly through social media. This study provides public health officials with targeted information to disseminate timely and accurate information to the public as early as possible. The importance of targeted education cannot be overstated, as it is crucial for reaching all groups and ensuring everyone is well-informed and prepared.

Understanding the pivotal role of ethnicity in shaping COVID-19 vaccination rates and myth beliefs is crucial. It underscores the need for targeted public health interventions and communication strategies catering to diverse ethnic communities. These strategies, developed in collaboration with community members, will promote trust, provide accurate information, and mitigate misinformation. They are a joint effort that engages culturally relevant channels and trusted community leaders. Equally important is recognizing how age influences COVID-19

vaccination and myth belief with a focus on educating younger people about the importance of vaccinations in eradicating and controlling various diseases. Recall that younger populations have not experienced deadly diseases as many have been eradicated through the use of widespread vaccinations. Having not personally experienced such pandemics; it can be difficult to convince younger people of the devastation of these diseases.

Significant effort should be directed towards promoting digital literacy and developing critical thinking skills across all educational levels and age groups so that people are more aware of the problems of social media. This will empower individuals to discern credible information from misinformation on digital platforms. Officials should also leverage trusted sources and community engagement to combat myths and promote evidence-based practices during health crises, providing the public with a sense of reassurance and confidence.

Recognizing the influence of strength of religious and political identity on myth belief and vaccine acceptance is important. This recognition underscores the need for tailored communication strategies that respect and integrate religious values and beliefs. Engaging with religious leaders as advocates for evidence-based health practices and as trustworthy sources of information within their communities can be particularly helpful.

When designing education campaigns, officials must address the physical and mental health concerns associated with COVID-19, at least for people living in the USA. This involves emphasizing accurate information, debunking myths and building trust to promote adherence to health guidelines. By actively debunking myths, officials can ensure that the public is well-informed and knowledgeable about the situation, which is crucial for promoting adherence to health guidelines. One idea is to have health professionals spend time educating those in good mental and physical health as they are the ones who are more likely to believe in vaccination

myths, perhaps because they perceive their own good health to either protect them from becoming sick or prevent them from becoming extremely ill should they catch the disease. We know that coronavirus can be an indiscriminate killer and disabler. There are countless anecdotes of otherwise healthy people who have died or become disabled due to coronavirus.

5.4 Future research

Future research in COVID-19 vaccination and myth belief, particularly in combatting misinformation, should focus on several key areas to enhance public health communication and crisis management strategies. Potential research avenues include longitudinal trends in myth belief, the effectiveness of public health interventions, the role of digital platforms in misinformation dynamics, comparative studies and understanding multifaceted determinants of myth belief.

I am a strong advocate of conducting longitudinal studies to track shifts in belief in COVID-19 myths and misinformation over different pandemic phases. This can help identify trends in myth adoption, persistence and debunking effectiveness across different disease trajectories. Further, longitudinal studies can be used to evaluate how the progression of vaccination campaigns influences public attitudes toward myths and misinformation in future pandemics. Studies could measure changes in belief as vaccine accessibility and public health messaging evolve. Research should also examine the effectiveness of various public health interventions to combat COVID-19 misinformation. This includes evaluating the impact of fact-checking initiatives, educational campaigns, and community engagement efforts on myth bunking and vaccine acceptance.

Another critical area that requires immediate research attention is the role of digital platforms in amplifying or mitigating the impact of COVID-19 myths. This critical area requires immediate attention and can help develop effective strategies for countering misinformation.

Research can analyze the role of algorithms, echo chambers, and user engagement patterns in spreading or countering misinformation. Further, examining the effectiveness of platform policies and content moderation strategies in mitigating the spread of COVID-19 misinformation would be timely. Evaluation of the impact of algorithmic adjustments and information labelling on user behaviour could examine the impact over time.

Additional research could be conducted in comparative studies across diverse global contexts. These studies are crucial in understanding the cultural, social, and political factors influencing belief in COVID-19 myths. Comparing myth adoption rates, vaccine hesitancy trends, and the effectiveness of communication strategies across different countries and regions can allow countries to adapt to what is working in other locations. This learning from global experiences is crucial for enhancing crisis communication and public trust during health emergencies.

A final recommendation is to explore the determinants of myth belief further. Research could expand on how demographic variables such as age, gender, educational level, and socioeconomic status influence belief in COVID-19 myths. It could also investigate cognitive biases, information processing styles, and psychological factors contributing to myth adoption and resistance to factual information.

5.5 Conclusion

This study offers a unique perspective on the COVID-19 pandemic, shifting the focus from the well-discussed social determinants of health to the often overlooked but crucial role of community support and connections. While income and access to vaccines are undeniably important, the influence of our immediate social circles, whether they promote vaccination or spread misinformation, can significantly sway our health decisions. This research underscores the

profound impact of community on our health outcomes and the fostering of a sense of empowerment and connection.

We need to find ways to rebuild trust in our communities, not only in governments but in science and public health. We need an educated population who understands the science of vaccines and why they are essential. We need people to be skeptical about what they see on social media and know how to fact-check information we see online. We also need to rebuild trust in each other damaged by the political staunchness currently happening in the United States. We have moved away from working together to no longer trust anyone who identifies as a supporter of a different political party. While media may have us believe that there are stark differences in myth belief, this thesis has proven that we have far more in common than previously thought.

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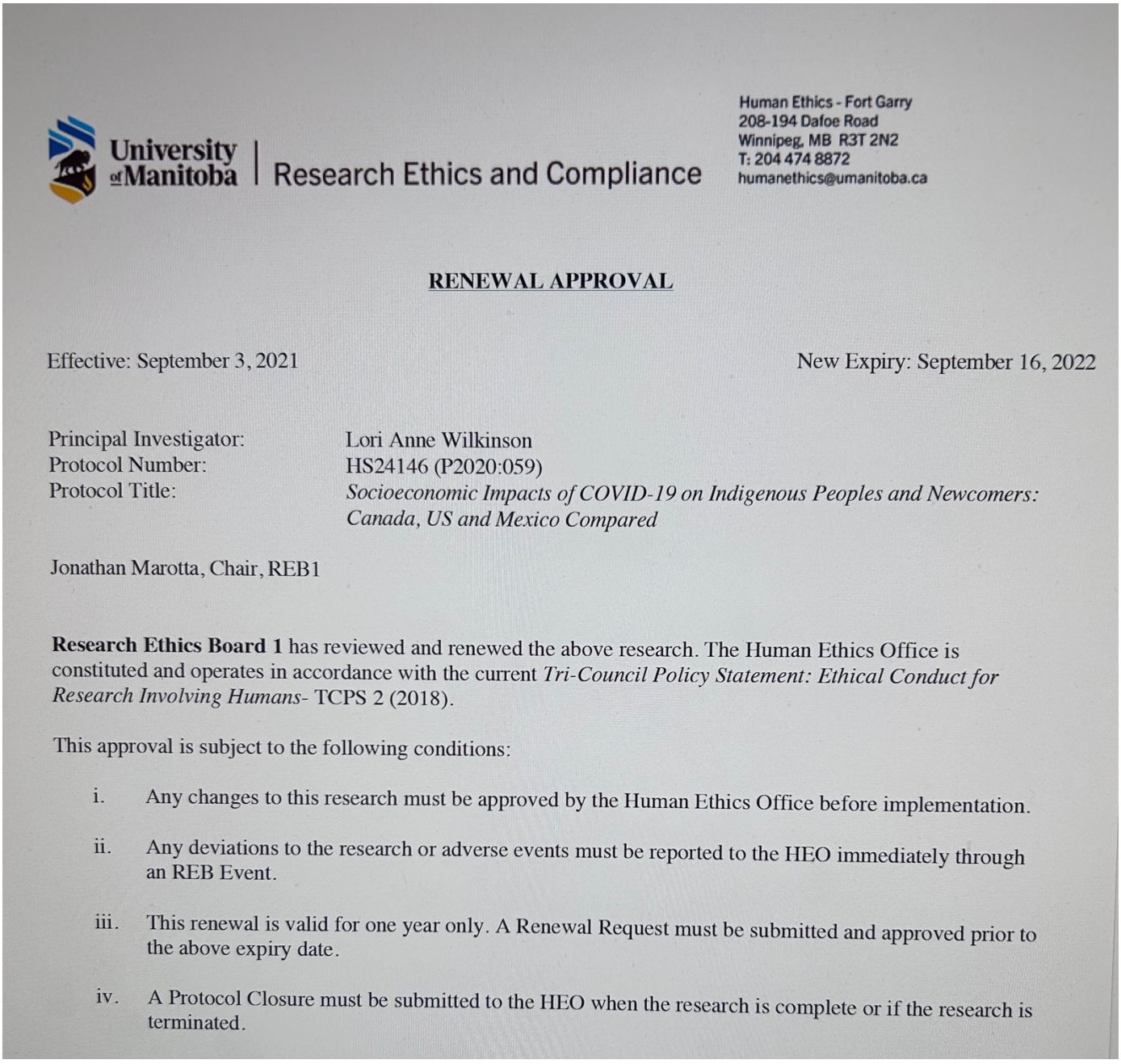
Appendix A: Ethics Board Approval



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RENEWAL APPROVAL

Effective: September 3, 2021 New Expiry: September 16, 2022

Principal Investigator: Lori Anne Wilkinson
Protocol Number: HS24146 (P2020:059)
Protocol Title: *Socioeconomic Impacts of COVID-19 on Indigenous Peoples and Newcomers: Canada, US and Mexico Compared*

Jonathan Marotta, Chair, REB1

Research Ethics Board 1 has reviewed and renewed the above research. The Human Ethics Office is constituted and operates in accordance with the current *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*- TCPS 2 (2018).

This approval is subject to the following conditions:

i. Any changes to this research must be approved by the Human Ethics Office before implementation.

ii. Any deviations to the research or adverse events must be reported to the HEO immediately through an REB Event.

iii. This renewal is valid for one year only. A Renewal Request must be submitted and approved prior to the above expiry date.

iv. A Protocol Closure must be submitted to the HEO when the research is complete or if the research is terminated.

Appendix B: Variable Coding Table

CODING		
Ethnicity	White	0- everyone else 1-white
	Indigenous	0-everyone else 1-Indigenous
	Black	0- everyone else 1-Black
	Asian	0 everyone else 1-Asian
Demographics	Marital	0- Single Divorced Widowed 1- Married/common law
	Income	1- <$20k 2- $20-40k 3- $40-60k 4- $60-80k 5- $80k+
	Immigrant	0 non-immigrant 1- immigrant
	Age	0- under 18 1-18-24 2- 25-34 3-35-44 4-45-54 5-55-64 6-65 and over
	Gender	0- male 1-female
	Vaccine	0- yes 1-no
	Education	1- high school or less 2-postsecondary 3-bachelor's degree
Health	Physical health worry	0- worried 1- not worried
	Mental Health worry	0- worried 1- not worried
	Social media usage	0-I don't use social media 1- I use social media
Religion	Protestant	0- everyone else- Protestant
	Catholic	0- everyone else 1-Catholic
	Evangelical	0-everyone else 1- Evangelical
	Atheist	0-everyone else 1-Atheist
	Importance of religion	0- not important 1-important
Political Identity	Political right	0-everyone else 1- Right
	Political centre	0-everyone else 1-Centre
	Political left	0- everyone else 1- Left
Location	Urban location	0-everyone else- 1-Urban
	Suburban location	0- everyone else 1-Suburban
	Rural location	0- everyone else 1-Rural
	South and everyone else	0 everyone else 1- South

Appendix C: Vaccination Rates by Trust in Institutions

VACCINATION RATES BY TRUST IN CITY GOVERNMENT				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	94.4	79.6	86.9	67.0
Indigenous	94.3	75.7	75.7	55.8
Black	95.1	75.4	82.0	56.4
Asian	97.3	96.6	94.3	80.7
Other	97.0	79.6	83.9	59.2
N Size	**2765**		**N3555**	

VACCINATION RATES BY TRUST IN PROV/STATE GOVERNMENT				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.7	78.3	86.9	67.0
Indigenous	93.3	78.3	75.7	55.8
Black	94.4	77.7	82.0	56.4
Asian	98.6	96.6	94.3	80.7
Other	96.9	80.0	83.9	59.2
N Size	**2781**		**3555**	

VACCINATION RATES BY TRUST IN FEDERAL GOVERNMENT				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.8	78.1	90.3	64.8
Indigenous	95.5	74.8	81.6	52.4
Black	96.5	72.1	82.0	54.4
Asian	97.7	95.7	95.7	79.3
Other	96.6	77.0	89.1	55.1
N Size	**2772**		**3558**	

VACCINATION RATES BY TRUST IN PUBLIC HEALTH OFFICIALS				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.0	64.9	87.9	57.1
Indigenous	94.3	62.5	78.7	42.5
Black	94.6	70.6	82.2	40.8
Asian	98.0	93.1	94.1	76.0
Other	95.9	73.1	85.7	48.5
N Size	**2791**		**3588**	

VACCINATION RATES BY TRUST IN MEDIA				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	96.8	81.2	88.3	70.5
Indigenous	93.8	78.4	81.5	56.1
Black	93.8	81.9	80.5	61.4
Asian	98.7	95.1	94.8	83.1
Other	94.8	82.8	89.0	57.6
N Size	**2771**		**3555**	

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VACCINATION RATES BY TRUST IN SCIENTISTS				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
White	92.0	65.4	85.5	52.0
Indigenous	90.4	62.2	74.1	41.5
Black	92.2	71.2	77.9	48.2
Asian	97.8	92.2	93.9	64.2
Other	93.5	69.4	82.9	45.0
N Size	**2782**		**3582**	

VACCINATION RATES AND TRUST IN CITY GOVERNMENT				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
Right	90.1	68.4	85.1	51.2
Right of Centre	95.3	79.4	84.1	62.0
Centre	95.3	84.3	84.0	64.7
Left of Centre	96.3	90.7	91.8	77.9
Left	97.4	85.5	93.0	85.1
Don't Know	94.5	78.2	77.4	54.2
N Size	**2642**		**3333**	

VACCINATION RATES AND TRUST IN PROV/STATE GOVERNMENT				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
Right	92.9	62.0	82.9	52.9
Right of Centre	93.5	81.1	84.1	60.2
Centre	96.6	82.1	84.9	64.0
Left of Centre	96.9	91.0	91.4	79.4
Left	96.2	91.5	93.6	84.2
Don't Know	96.8	75.8	79.8	52.9
N Size	**2657**		**3349**	

VACCINATION RATES AND TRUST IN FEDERAL GOVERNMENT				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
Right	93.2	65.4	88.5	54.1
Right of Centre	95.0	82.2	84.3	64.8
Centre	97.3	80.9	86.8	62.4
Left of Centre	96.9	87.0	93.0	74.4
Left	97.6	83.1	96.6	76.9
Don't Know	96.7	76.7	79.8	53.3
N Size	**2648**		**3341**	

VACCINATION RATES BY TRUST IN PUBLIC HEALTH OFFICIALS				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
Right	92.9	55.9	85.0	48.9
Right of Centre	95.4	73.6	84.0	58.7
Centre	96.3	70.1	85.0	53.9
Left of Centre	97.1	77.6	91.5	62.5
Left	96.6	79.5	94.1	69.
Don't Know	95.3	68.7	78.2	45.8
N Size	**2664**		**3361**	

VACCINATION RATES AND TRUST IN MEDIA				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
Right	92.1	70.5	86.3	57.7
Right of Centre	94.4	83.6	84.7	67.2
Centre	96.5	85.0	85.7	67.7

Left of Centre	99.2	87.1	92.4	79.6
Left	96.6	89.5	93.2	85.2
Don't Know	95.9	81.6	78.7	57.5
N Size	**2644**		**3340**	

VACCINATION RATES BY TRUST IN SCIENTISTS				
	CANADA		USA	
	Trust	Do Not Trust	Trust	Do Not Trust
Right	88.4	53.7	80.9	49.7
Right of Centre	91.6	74.4	80.9	51.8
Centre	92.8	78.5	82.1	50.4
Left of Centre	95.8	72.0	89.6	57.9
Left	96.5	53.8	92.9	60.5
Don't Know	91.0	71.2	75.3	44.0
N Size	**2658**		**3362**	

Appendix D: COVID-19 Myth Belief by Demographics

By Ethnicity[7]

Myth # 1- Fertility		
Ethnicity	**USA**	**Canada**
White	19.4	10.2
Indigenous	23.4	14.3
Black	23.4	14.3
Asian	12.5	10.1
Other	15.4	14.2

Myth #2- Previous COVID		
Ethnicity	**USA**	**Canada**
White	20.1	15.5
Indigenous	21.9	13.9
Black	16.6	13
Asian	13.6	10.5
Other	19.6	13.8

Myth #3- Rushed Vaccine		
Ethnicity	**USA**	**Canada**
White	28.2	21.7
Indigenous	38.6	27.8
Black	31.2	28.2
Asian	20.6	22.8
Other	33.9	24.4

Myth #4- Masks		
Ethnicity	**USA**	**Canada**
White	15.8	9.5
Indigenous	14.8	8.3
Black	15.9	9
Asian	10.4	8.6
Other	11.4	13.4

Myth #5- Active COVID		
Ethnicity	**USA**	**Canada**
White	13.7	7
Indigenous	16.7	9.5
Black	21	10
Asian	8.7	8.8
Other	15	10.6

[7] Includes percentage of population who believes the myth is true

Myth #6- Vaccine is Dangerous		
Ethnicity	**USA**	**Canada**
White	24.6	20.3
Indigenous	34.7	25.2
Black	33.1	20.6
Asian	16.9	15.6
Other	28.2	23.2

Myth #7- Alters DNA		
Ethnicity	**USA**	**Canada**
White	13.3	8.5
Indigenous	19.6	11.7
Black	17.2	7.6
Asian	8.5	7.2
Other	14.6	14.2

Myth #8- New Technology		
Ethnicity	**USA**	**Canada**
White	18.6	17.7
Indigenous	18.8	14.1
Black	20.6	18.6
Asian	23.1	21.9
Other	15	11.8

Myth #9- Ingredients		
Ethnicity	**USA**	**Canada**
White	14.4	7
Indigenous	15.6	10.3
Black	17.4	10.6
Asian	10.6	5.9
Other	13.6	10.2

Myth #10- Microchip		
Ethnicity	**USA**	**Canada**
White	9.7	3.9
Indigenous	11.1	5.6
Black	15.2	6.6
Asian	7.4	4.4
Other	5	5.5

By Immigrant Status

Myth # 1- Fertility		
Immigrant Status	**USA**	**Canada**

Immigrant	11.4	10.5
Non-Immigrant	21.8	12.2

Myth #2- Previous COVID		
Immigrant Status	**USA**	
Immigrant	16.4	
Non-Immigrant	20.1	

Myth #3- Rushed Vaccine		
Immigrant Status	**USA**	**Canada**
Immigrant	23.2	24.2
Non-Immigrant	31.9	24.8

Myth #4- Masks		
Immigrant Status	**USA**	**Canada**
Immigrant	11.7	
Non-Immigrant	15.6	

Myth #5- Active COVID		
Immigrant Status	**USA**	**Canada**
Immigrant	9.6	
Non-Immigrant	16.4	

Myth #6- Vaccine is Dangerous		
Immigrant Status	**USA**	**Canada**
Immigrant	19.2	18
Non-Immigrant	29.4	21.6

Myth #7- Alters DNA		
Immigrant Status	**USA**	**Canada**
Immigrant	8.1	8.2
Non-Immigrant	16.4	9.7

Myth #8- New Technology		
Immigrant Status	**USA**	**Canada**
Immigrant	19.1	20.2
Non-Immigrant	19.2	16.3

Myth #9- Ingredients		
Immigrant Status	**USA**	**Canada**
Immigrant	10.4	7.1
Non-Immigrant	15.8	8.4

Myth #10- Microchip		
Immigrant Status	**USA**	**Canada**

Immigrant	5.5	3.9
Non-Immigrant	11.5	5.1

By Age and Gender

		Myth # 1- Fertility					
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	15.8	16.8	15.8	16.9	9.0	7.3
	Male	15.0	11.3	18.3	16.9	10.1	8.0
USA	Female	27.9	24.1	24.7	19.9	22.8	11.7
	Male	30.7	33.0	42.3	26.5	22.5	9.0

		Myth # 2- Previous COVID					
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	13.3	15.6	16.5	19.4	10.2	6.8
	Male	15.9	21.6	19.8	22.7	18.2	10.3
USA	Female	20.6	23.4	20.0	18.6	16.8	15.8
	Male	22.7	33.9	23.2	22.2	23.2	17.9

		Myth # 3- Rushed Vaccine					
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	19.7	26.7	30.4	33.7	25.4	18.6
	Male	21.5	19.6	36.5	28.5	29.1	17.3
USA	Female	31.6	35.2	38.9	32.9	32.9	27.7
	Male	30.7	35.8	40.5	31.8	32.5	21.8

		Myth # 4- Masks					
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	8.9	14.1	12.7	11.7	5.4	3.5
	Male	19.6	11.3	19.0	16.1	11.6	5.2
USA	Female	14.0	16.6	18.9	12.1	10.1	9.4
	Male	22.7	32.1	29.8	23.8	14.6	13.4

		Myth # 5- Active Virus					
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older

Canada	Female	12.8	14.8	8.9	10.8	7.5	4.7
	Male	11.2	12.4	12.7	12.0	7.8	4.4
USA	Female	19.9	24.8	21.	14.3	18.9	8.5
	Male	26.1	30.3	28.0	19.5	16.1	7.0

	Myth # 6-- Vaccine is Dangerous						
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	20.2	23.0	23.4	28.3	20.0	15.1
	Male	22.4	22.7	28.6	26.4	22.5	14.5
USA	Female	35.3	33.1	32.6	27.8	28.8	24.7
	Male	33.0	35.8	33.9	28.8	25.7	21.2

	Myth # 7--Alters DNA						
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	6.9	11.9	11.4	13.0	6.8	7.3
	Male	12.1	9.3	20.6	12.0	8.5	6.6
USA	Female	19.1	23.4	24.2	16.0	11.8	12.9
	Male	15.9	21.1	22.0	18.5	15.4	8.1

	Myth # 8--New Technology						
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	15.8	14.1	15.2	15.6	14.9	14.4
	Male	15.0	12.4	28.6	21.5	25.2	19.0
USA	Female	16.9	22.1	18.9	18.9	14.7	15.7
	Male	22.7	30.3	31.5	27.5	23.2	17.0

	Myth # 9 -Ingredients						
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	8.4	10.4	9.5	14.0	6.1	4.9
	Male	9.3	5.2	16.7	11.6	7.8	5.4
USA	Female	12.5	20.7	23.2	14.0	13.4	11.3
	Male	28.4	26.6	24.4	18.5	13.9	9.7

	Myth # 10 -Microchip						
		Between 18 and 24	Between 25 and 34	Between 35 and 44	Between 45 and 54	Between 55 and 64	65 and older
Canada	Female	6.9	7.4	4.4	7.0	4.1	1.9
	Male	11.2	7.2	9.5	5.4	4.3	2.6
USA	Female	15.4	20.0	17.9	8.5	13.6	5.2
	Male	18.2	19.3	21.4	15.9	7.5	3.3

Political Affiliation

Myth # 1- Fertility		
Political Leaning	**USA**	**Canada**
Right	43.8	34.1
Right of Centre	29.2	16.6
Centre	14.2	10.4
Left of Centre	8.5	3.4
Left	9.8	5.4
Don't Know	15.2	10.0

Myth #2- Previous COVID		
Political Leaning	**USA**	**Canada**
Right	40.5	30.6
Right of Centre	29.5	22.3
Centre	15.9	12.7
Left of Centre	9.1	5.3
Left	6.1	6.5
Don't Know	15	13.8

Myth #3- Rushed Vaccine		
Political Leaning	**USA**	**Canada**
Right	49.4	42.8
Right of Centre	40.2	30.8
Centre	27.6	23.6
Left of Centre	15.5	11.5
Left	12.0	9.4
Don't Know	30.8	26.4

Myth #4- Masks		
Political Leaning	**USA**	**Canada**
Right	33	23.7
Right of Centre	23.5	15.5
Centre	11.6	8.5

Left of Centre	8.8	4.8
Left	7.7	4.7
Don't Know	8.8	8.4

Myth #5- Active COVID		
Political Leaning	**USA**	**Canada**
Right	29.3	18.5
Right of Centre	22.2	11.2
Centre	11.4	7.0
Left of Centre	6.4	3.2
Left	6.3	5.8
Don't Know	16.3	7.9

Myth #6- Vaccine is Dangerous		
Political Leaning	**USA**	**Canada**
Right	45.1	40.5
Right of Centre	33.4	27.0
Centre	24.9	21.2
Left of Centre	15.8	10.8
Left	11.6	9.4
Don't Know	28.0	20.9

Myth #7- Alters DNA		
Political Leaning	**USA**	**Canada**
Right	31.9	26.0
Right of Centre	16.5	12.8
Centre	12.0	9.7
Left of Centre	7.6	3.9
Left	5.9	3.6
Don't Know	14.4	6.9

Myth #8- New Technology		
Political Leaning	**USA**	**Canada**
Right	35.1	36.4
Right of Centre	20.9	22.9
Centre	18.3	19.5
Left of Centre	16.4	14.5
Left	13.3	13.8
Don't Know	14.4	12.4

Myth #9- Ingredients		
Political Leaning	**USA**	**Canada**
Right	35.1	27.2
Right of Centre	18.0	11.2
Centre	12.2	7.1

Left of Centre	8.2	2.1
Left	6.8	2.9
Don't Know	9.6	6.5

Myth #10- Microchip		
Political Leaning	**USA**	**Canada**
Right	21.1	15.6
Right of Centre	16.9	5.7
Centre	7.0	4.7
Left of Centre	5.3	1.1
Left	4.4	2.9
Don't Know	10.5	4.3

Religion

Myth # 1- Fertility		
Religion	**USA**	**Canada**
Protestant	11.8	9.2
Catholic	23.7	9.6
Evangelical	20.2	11.7
Atheist/No Religion	14.2	11.2

Myth #2- Previous COVID		
Religion	**USA**	**Canada**
Protestant	17.2	10.3
Catholic	18.4	12.4
Evangelical	27.2	16.5
Atheist/No Religion	16.2	12.6

Myth #3- Rushed Vaccine		
Religion	**USA**	**Canada**
Protestant	24.4	17.4
Catholic	28.8	21.0
Evangelical	37.1	33.0
Atheist/No Religion	27.1	22.0

Myth #4- Masks		
Religion	**USA**	**Canada**
Protestant	14.5	6.4
Catholic	16.7	8.8
Evangelical	20.2	14.6
Atheist/No Religion	10.9	9.3

Myth #5- Active COVID		
Religion	**USA**	**Canada**
Protestant	6.3	5.0

Catholic	20.5	8.0
Evangelical	12.6	8.7
Atheist/No Religion	12.6	8.1

Myth #6- Vaccine is Dangerous		
Religion	**USA**	**Canada**
Protestant	20.5	17.4
Catholic	25.1	19.3
Evangelical	33.8	21.4
Atheist/No Religion	24.9	19.6

Myth #7- Alters DNA		
Religion	**USA**	**Canada**
Protestant	10.2	8.2
Catholic	14.9	7.8
Evangelical	18.2	8.7
Atheist/No Religion	11.2	8.1

Myth #8- New Technology		
Religion	**USA**	**Canada**
Protestant	12.6	14.5
Catholic	19.9	19.5
Evangelical	11.5	13.6
Atheist/No Religion	17.1	16.2

Myth #9- Ingredients		
Religion	**USA**	**Canada**
Protestant	10.1	8.2
Catholic	14.9	7.1
Evangelical	19.5	10.7
Atheist/No Religion	11.2	6.8

Myth #10- Microchip		
Religion	**USA**	**Canada**
Protestant	4.3	1.4
Catholic	14.1	4.0
Evangelical	10.6	4.9
Atheist/No Religion	7.8	4.5

Black & White by Religion (USA only)

Myth # 1- Fertility		
Religion	**White**	**Black**
Protestant	12.5	10.1
Catholic	24.1	29.5
Evangelical	18.9	27.5

Atheist/No Religion	9.5	28.6

Myth #2- Previous COVID		
Religion	**White**	**Black**
Protestant	20	8.3
Catholic	19	21.8
Evangelical	29.5	18.8
Atheist/No Religion	16.5	17.6

Myth #3- Rushed Vaccine		
Religion	**White**	**Black**
Protestant	26.1	13.8
Catholic	26.1	38.5
Evangelical	41.8	33.3
Atheist/No Religion	23	37.9

Myth #4- Masks		
Religion	**White**	**Black**
Protestant	18.0	9.2
Catholic	15.3	23.1
Evangelical	24.6	14.5
Atheist/No Religion	9.3	19.2

Myth #5- Active COVID		
Religion	**White**	**Black**
Protestant	6.8	4.6
Catholic	21.2	29.5
Evangelical	9.0	21.7
Atheist/No Religion	7.8	28.0

Myth #6- Vaccine is Dangerous		
Religion	**White**	**Black**
Protestant	21.4	16.5
Catholic	23.1	39.7
Evangelical	30.3	33.3
Atheist/No Religion	20.9	38.5

Myth #7- Alters DNA		
Religion	**White**	**Black**
Protestant	9.8	11.0
Catholic	14.9	20.5
Evangelical	14.8	20.3
Atheist/No Religion	8.5	18.1

Myth #8- New Technology

Religion	White	Black
Protestant	12.5	11.0
Catholic	18.4	28.2
Evangelical	24.6	20.3
Atheist/No Religion	15.0	23.6

Myth #9- Ingredients		
Religion	**White**	**Black**
Protestant	11.5	7.3
Catholic	15.1	23.4
Evangelical	20.5	17.4
Atheist/No Religion	7.8	21.4

Myth #10- Microchip		
Religion	**White**	**Black**
Protestant	3.6	7.3
Catholic	14.9	26.3
Evangelical	7.4	14.5
Atheist/No Religion	4.5	16.7