COVID-19 INFORMATION SOURCES AND SIX NATIONS OF THE GRAND

RIVER

A STORY THAT CARRIED ME WITH IT: AN EXPLORATORY ANALYSIS OF COVID-19 INFORMATION SOURCES AMONG MEMBERS OF SIX NATIONS OF THE GRAND RIVER

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A thesis submitted to the School of Graduate Studies in Partial Fulfilment of the Requirements for the Degree Master of Science in Health Research Methodology

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TITLE: A Story That Carried Me With It: An Exploratory Analysis of COVID-19 Information Sources Among Members of Six Nations of the Grand River

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Lay Abstract

In this thesis, we will explore how community members of the Six Nations of the Grand River First Nations Reserve navigated the abundance of information sources during the COVID-19 pandemic. It looks at where community members turned for guidance, how these sources may have affected their health behaviours and perceptions, and what may have been associated with them choosing that source to begin with. Survey data from the *COVID CommUNITY Study – First Nations* were analyzed and interpreted through the lens of the researcher's and the community's lived experience. The study emphasizes that individual health decisions are not simply about having access to all the facts, but rather rely on a process centered around trust, experience, and cultural relevance. The findings can help members of the Six Nations of the Grand River Reserve inform their responses to future public health emergencies and provide a starting point for communities with similar questions.

Abstract

Introduction: Throughout the COVID-19 pandemic, Indigenous people reported receiving their COVID-19 information from various sources, including friends, family, and community-developed resources. When evaluating the information that they trust the most, it is crucial to consider the complex & dark history that has shaped the reputation of the healthcare system for many. This thesis explored how community members of the Six Nations of the Grand River (SN) First Nations Reserve received and interpreted information relating to the pandemic. There exists no identified evidence that explores how Indigenous people from SN explored, navigated, or interpreted health communication throughout the pandemic.

Research Questions: 1) Do different sources of COVID-19 information influence health perceptions or behaviours among members of the SN community?; 2) What factors influence individuals' choices of specific COVID-19 information sources among members of the SN community?

Methods: These questions were answered using descriptive statistics and a nominal logistic regression model. To complement this, I tied the results to their lived experiences working within the community grounded in anecdotal evidence gathered from community members and SN staff during the pandemic.

Results: Participants who reported primarily relying on personal networks or social media for their COVID-19 information were less likely to perceive COVID-19 as a serious threat to the community or engage in protective behaviours such as masking and vaccination. The regression highlighted that higher education and income levels were associated with a lower RRR of relying on social media or personal networks compared to governmental sources (e.g., people with a bachelor's degree (compared to less than high school) had an RRR of 0.11 [0.037-0.31] for choosing personal networks as their primary information choice).

Conclusion: This thesis highlights the importance of trust, lived experience, & cultural relevance in supporting community members to make informed health decisions for themselves, their community, and their families.

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There is a popular saying: "It takes a village." Without a doubt, this work has been a living testament to the proverb. It has only been possible thanks to the people who have stood behind me, beside me, and sometimes pushed me forward when I couldn't do it myself. I want to give a few shout-outs to some people who helped make this possible.

Firstly, to both of my parents – thank you. For every sacrifice you made without complaining, for every late-night talk encouraging me not to give up, and for reminding me that I deserve to be in the spaces I am in. Thank you both for being the wind beneath my wings through everything.

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Table of Contents

Chapter 1: An Introduction
Background and Context1
SN & The COVID-19 Pandemic3
Scholarly Void6
Research Objectives8
Significance of this Study10
Field and Feeling (F&F) Notes: This Is Where It Starts11
Chapter 2: Literature and Contextual Review
Integrating Available Literature and Local Experience/Context14
Integrating My Experience and Community Narratives19
Gaps & Justification of a Community-Centered Approach23
F&F Notes: The Space Between Asking & Answering24
Chapter 3: Methods
Research Framework26
Overview of the COVID CommUNITY Study – First Nations
Primary Communication Source Variable29
Analysis Plan – Do COVID-19 information sources affect health perceptions or behaviours on SN? (Research Question One)31
Health Perceptions32
Health Behaviours33
Inclusion Criteria and Missing Data36
Analysis Plan – What influences COVID-19 information source choices on SN? (Research Question Two)
Independent Variables
Model Building Approach43
Ethical Considerations47
F&F Notes: From the Ground Up49
Chapter 4: Results

Do COVID-19 information sources affect health perceptions or behaviours (Research Question One)	on SN? 51
Crosstabulations & Frequency Counts	52
What influences COVID-19 information source choices on SN? (Research Q	Question Two) 57
F&F Notes: Between the Rows of the Tables	69
Chapter 5: Discussion	
COVID-19 Information Sources and Their Relationship with Health Percep Behaviours (Research Question One)	otions & 71
Influences of COVID-19 Information Choice Sources (Research Question T	wo)73
Shared Themes	76
Strength and Limitations	77
F&F Notes: Listening Between the Lines	79
Chapter 6: Conclusion	
Overview of Key Findings	81
Community-specific Recommendations	82
Future Research	84
F&F Notes: This Does not Feel Like an Ending	85
References	
Appendix A	
Appendix B	

Declaration of Academic Achievement

I declare that the work presented in this thesis is a result of my own original research, analysis, and writing. The data used in this paper was collected as a part of the study: *COVID CommUNITY – First Nations*. This study, developed by principal investigator Dr. Sonia Anand, is a collaborative project between the Six Nations Department of Wellbeing (formerly known as Six Nations Health Services), McMaster University, and the Population Health Research Institute.

The formulation of the research questions, variable selection, data analysis, and interpretation was facilitated by me, with ongoing consultations from my thesis committee and Six Nations of the Grand River collaborators.

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List of Tables

Table 1: Revised variable for the most trusted source of COVID-19 information
Table 2: Variables exploring health perceptions (Research Question One)
Table 3: Variables exploring health behaviours (Research Question One)
Table 4: Vaccination status variable revisions after collapsing due to low cell counts
(Research Question One)
Table 5: Independent variables that will be used in the nominal regression model to
explore what influences COVID-19 information source choices41
Table 6: Frequency summary for the COVID-19 primary information source variable
(Research Question One)
Table 7: Crosstabulation of COVID-19 primary information source and the perceived
threat of COVID-1955
Table 8: Crosstabulation of COVID-19 primary information source and the perceived
over-exaggeration of COVID-1955
Table 9: Crosstabulation of COVID-19 primary information source and vaccination status
against COVID-19
Table 10: Crosstabulation of COVID-19 primary information source and wearing a mask
in public
Table 11: Crosstabulation of COVID-19 primary information source and social distancing
in public

Table 12: Frequency summary for COVID-19 primary information source variable
(Research Question Two)
Table 13: Crosstabulation of COVID-19 primary information source and education level
Table 14: Crosstabulation of COVID-19 primary information source and income level60
Table 15: Crosstabulation of COVID-19 primary information source and living on/off
reserve
Table 16: Crosstabulation of COVID-19 primary information source and experienced
racism due to Indigenous identity61
Table 17: Crosstabulation of COVID-19 primary information source and living alone61
Table 18: Variance inflation factor calculation for predictor variables (Research Question
Two)
Table 19: Null model (Research Question 2) containing the primary source of COVID-19
information64
Table 20: Final model variable inclusion (Research Question Two) after comparisons with
the null model
Table 21: Final nominal logistic regression model (Research Question Two) with the
following predictor variables: Education Level; Income Level; Experiences of Racism
due to Indigenous Identity

List of Figures

Figure 1: Map view of the Six Nations of the Grand River First Nations reserve located	in
Southwestern Ontario	3
Figure 2: Flow for participant exclusion for Research Question One (do COVID-19	
information sources affect health perceptions or behaviours on SN?)	52
Figure 3: Flow for participant exclusion for Research Question Two (What influences	
COVID-19 information source choices on SN?)	58

List of Abbreviations

Abbreviation

Full Form

SN	Six Nations of the Grand River
WHO	World Health Organization
CCFN	COVID CommUNITY Study – First Nations
VIF	Variance Inflation Factor
IIA	Independence of Irrelevant Alternatives
AUC	Area Under the Curve
HLT	Hosmer-Lemeshow goodness-of-fit Test
HiREB	Hamilton Integrated Research Ethics Board
OCAP	Ownership, Control, Access, Possession

Chapter 1: An Introduction

Background and Context

As we begin, I would like to start by telling you a story.

I grew up knowing that I wanted to be in science. What did that look like? Well, I was not totally sure. Medicine, research, psychology, and even meteorology ran through my mind when I was a kid. I wanted to be someone who could help others while also satisfying my internal curiosity about the world – I needed to understand how things worked and how to fix what was broken. Education was a path, a clear way forward to help me accomplish whatever the universe may have in store for me. But, I had never imagined that some of the most important lessons I now bring into my work would not come from a textbook or lecture slide. Instead, they would come from sitting quietly beside those I care about, from watching how comfort is provided without words, and from seeing the strength of people doing their best with the cards they were handed.

This work did not start with a well-thought-out research question; it started with a feeling. A gut sense that something was not right, that the ways we experience health care, especially in the context of being a Haudenosaunee person, often do not reflect who

we are. That which may comfort us, may connect us, and may ground us, is often missing from a system that is meant to help and heal.

I am a member of the Six Nations of the Grand River (SN). SN is a Haudenosaunee community that is uniquely home to all six of the Haudenosaunee nations – Cayuga, Mohawk, Onondaga, Oneida, Seneca, and Tuscarora – under the Great Tree of Peace ("WHO WE ARE," n.d.). SN is the most populous First Nations reserve in Canada, with an on-reserve population of nearly 13,000 and approximately 16,000 members living off-reserve as of August 2024¹ (Six Nations of the Grand River, 2024). As shown in Figure 1, the community is located along the banks of the Grand River near the city of Brantford. The people within my community have deep relationships that are carried by generations of teachings, responsibility, and care for the land. Like many Indigenous communities not only in Canada but across the globe, our community actively navigates a lifetime of forced disconnection.

¹ I would like to acknowledge that the listed population numbers are based on registration within the Indian Act, which is inherently a colonial system that defines who is legally considered "Indian". These numbers do not reflect how we, as Haudenosaunee people, recognize identity, belonging, and community.



Figure 1: Map view of the Six Nations of the Grand River First Nations reserve located in Southwestern Ontario

Despite the hurdles that colonization has thrown at Indigenous people, be it language/culture erasure, the residential school system, or other legally sanctioned forms of discrimination, we are still here, still holding each other up. Community members still show up to check on others, cook meals, offer rides, and sit with others through difficult times – and pass along knowledge. And this is where this research lives: at the intersection of information and experience.

SN & The COVID-19 Pandemic

The COVID-19 pandemic was a global outbreak of a respiratory illness, deemed 'COVID-19' by the World Health Organization (WHO), caused by the SARS-CoV-2 virus that first appeared in China at the end of 2019 (NA-ACCORD, n.d.). The first case of the disease in Canada had been reported during January 2020, and on March 11th of the same year, COVID-19 was declared a pandemic by the WHO. (NA-ACCORD, n.d.). While the disease produces minimal to mild symptoms in many, in others, particularly older adults with preexisting medical conditions, symptoms can be life-threatening, requiring hospitalization and even leading to death (Mayo Clinic, n.d.).

By the time many of those within Canada began to recognize the severity of the COVID-19 pandemic, they were dealing with far more than just a virus. For many individuals, and even public health bodies, guidance seemed to change daily. Who should wear masks? Does the virus spread through the air? How many feet should we stand apart? The questions were endless. This advice – masking, isolation, vaccinations, risk levels – came from a wide variety of different sources: federal or provincial health units, community health sources (on SN, this mainly consisted of the Six Nations Department of Wellbeing and Ohsweken Public Health), news outlets, social media, and conversations with friends/family. Often enough, people saw that these sources did not particularly align. A survey of over 1,000 adults in the USA reported that nearly 75% of respondents indicated receiving conflicting information pertaining to COVID-19 (Nagler, et al, 2020). These experiences resulted in more than just confusion – it caused a deep sense of uncertainty around who could be trusted and what to believe.

This thesis explores how members of the SN community received, gathered, and responded to information about the COVID-19 pandemic, utilizing data from the *COVID CommUNITY Study – First Nations* (CCFN). Throughout the pandemic, especially during its infancy, information came from everywhere – provincial, federal, or local government updates, community members, Facebook, friends, family, etc. While there was never a shortage of messaging, this overabundance could be overwhelming and lead to confusion surrounding who to trust, particularly for Indigenous people. An article exploring COVID-19 vaccine acceptance amongst Indigenous people in Quebec through a social media analysis noted how many individuals expressed concerns about trusting a government that has tried to eliminate them in the past (Labbé, et al, 2024). These insights echo the experiences I have heard from SN community members throughout my work during the pandemic.

For communities like SN, trust cannot be assumed. Trust is something that is built or broken over generations. Given the legacy of harm perpetuated against Indigenous populations, it is understandable that many may hold negative connotations towards the systems that are supposed to help them. Unfortunately, there is no current academic literature reflecting how and who our community members turned to for information during the COVID-19 pandemic. While I understand the value of journal articles and other forms of 'academic currency', I believe that lived knowledge, such as stories, relationships, and teachings, is just as, if not more, important. Therefore, this thesis is both formal and relational, statistical yet whimsical, and objective with celebrations of subjectivity.

Before I move into the details of the area of inquiry, I wanted to make it clear what this paper and experience has been: a project guided by heart, by community, and by a hope that we can better understand how our people seek and share knowledge.

Scholarly Void

Throughout the COVID-19 pandemic, information was thrown at us from every direction, wanted or unwanted. Picture this: government announcements fill up the television channels, radio stations, and newspapers; we would see every opinion possible scrolling down our social media feeds – far too many to determine which of it is based on facts; community notices and announcements on every corner; and conversations with family (that, perhaps felt more like a lecture). This abundance of information, with some of it occasionally being contradictory, such as early recommendations debating whether or not the general public should mask, was colloquially referred to as an "Infodemic" by prominent sources, including the WHO (The COVID-19 Infodemic, n.d.; Kabakian-Khasholian, Makhoul, Bardus, 2020). People were left trying to figure out what made sense and who they could actually trust.

On Six Nations, the choice of whom to trust was not just about facts. It was about relationships, history, and the so-called 'gut instinct.' Those within our community have

every reason to be cautious about outside and, for some, even inside systems – particularly when they have caused harm before. With that, it makes logical sense why we do not all turn to the same sources for guidance. Throughout my experiences working within SN during the pandemic, I was able to gain perspectives from many different community members. Some reported that they relied on federal or provincial public health updates; others turned to what they saw online or heard from family, and these are only but a few. Various as these sources may seem, those choices were likely not simple – they were influenced by the individual's background and history.

Early research during the pandemic did not extensively explore where people received their information (Faasse & Newby, 2020). It often treated information as neutral and assumed people were consuming it similarly. Simply put, this is not how reality works, especially in communities that have complicated relationships with those we are supposed to trust, like Indigenous communities. While it is only natural that 'disease' is an uncomfortable and stress-inducing concept, Indigenous communities have a uniquely disturbing relationship with the word. History has shown that disease was often used as a catalyst to colonization, with perhaps the earliest record being European settlers purposefully introducing smallpox into Indigenous communities to decimate their population throughout the 17th to 19th centuries. (Canada Council for the Arts, 2020). More recently, in 2009, political leaders sent body bags to First Nations reserves in Manitoba, which were greatly affected by the H1N1 pandemic, rather than focusing on the funding they requested for medicine and other public health tools (CBC News, 2009).

These examples can help us understand why the way we, as Indigenous people, make decisions that are deeply connected to who we are, what we have been through, and who we turn to when faced with feelings of uncertainty.

There is a gap in understanding how communities like Six Nations navigated through this *Infodemic*. What sources of COVID-19 information did people turn to the most? How did these decisions shape their actions or health behaviours? What may have influenced people to choose specific sources over others? These are many vital questions that currently have limited answers. These queries matter, not just for understanding what happened during the COVID-19 pandemic, but to support communities in future health emergencies or to improve everyday health communication; we need to understand better how trust is built and where people turn for support, especially during confusing times.

This thesis will focus on listening to the experiences that were shared with me. It is not about judging the decisions that individual people made but rather about understanding them.

Research Objectives

This research was born from conversations, observations, and lived experiences of myself and those around me on SN during the COVID-19 pandemic. My goal was to understand how community members navigated the information shared during this time and whether it may have influenced their decisions about their health. Rather than

determining whether people chose the "correct" or "most responsible" source for their information, I would like to explore more about the process of their decision-making (i.e., what sources felt reliable, how individuals interpreted them) while recognizing that Indigenous people move through health systems uniquely due to our histories, relationships, and social determinants of health.

In this thesis, I aimed to explore the following research questions:

- Do different sources of COVID-19 information influence health perceptions or behaviours among members of the Six Nations of the Grand River community?
- 2. What factors influence individuals' choices of specific COVID-19 information sources among members of the Six Nations of the Grand River community?

These research questions were answered using survey data captured in the CCFN study, personal anecdotes from experiences I had while working through the pandemic in my community, and guidance/information I received as a part of my professional role working within SN for many years. By grounding this research in lived experiences and local context, I hope that this work can contribute to something meaningful, not only for academia, but also for SN and other communities that may be navigating similar challenges.

Significance of this Study

Undoubtedly, COVID-19 was difficult to navigate, and it was not just due to the virus and the biological harm it could cause to our bodies. With this pandemic came fear, great confusion, and the pressure to make substantial decisions for yourself and your family with limited information at the helm. In communities like SN – ones that are shaped by unique histories, relationships, and trust (or perhaps, mistrust) – these decisions were not made in isolation.

Focusing on where people in the SN community may have turned for information, this research can help provide our community with insights that explain how our health communications are absorbed and applied rather than just how they are written or intended. These understandings are pivotal to improving our future public health efforts and can provide insights for other communities, especially in Indigenous spaces.

By following this work's unique approach of exploring questions that are responsive to what has been heard within the SN community, it can help open a door for future studies to be both scientifically sound and holistic – led by Indigenous voices and geared by what communities actually need.

Field and Feeling (F&F) Notes: This Is Where It Starts²

I want to start my first F&F note with a reflection about my dad and his story, as it plays a significant role in why I have chosen this work. His experiences have helped me better understand my identity, trust, and what it means to feel seen.

When I was growing up, I did not really have a strong sense of my Haudenosaunee heritage. Sure, I knew the very basics: Six Nations of the Grand River, Cayuga, played lacrosse – but I had no idea how this part of me was supposed to intertwine with my 'other' life (i.e., my day-to-day proceedings). Culture was not something that we talked about a lot in my house. I would not say it was particularly hidden, but it certainly was not front and center, either.

I think this was because of what my dad went through when he was growing up. He did not have strong Indigenous role models to look up to; instead, he was taught to feel ashamed of who he was through bullying, discrimination, and limited belonging. Over time, those experiences build walls, not out of want but of survival. Like many Indigenous folks, he learned it was easier, and unfortunately safer, to not talk about where he had come from.

² Alongside the main chapters of this thesis, I have included pieces I am calling *Field and Feeling Notes* (F&F Notes). They combine the rigour associated with field notes and the importance of my lived experiences, which have been equally valid and pivotal in shaping the work. Doing research within my own community has been wonderful, but it isn't just academic. It has been a journey that has affected me personally, emotionally, and is often quite complicated. These notes give me the space to slow down, to reflect, and to be honest about what I have experienced. My hope is that they will make this thesis feel more like something that is real, that is alive, that is breathing.

Even though my dad has carried this shame, he never passed it down to me, not even a little bit. While words are definitely hard for him and, therefore, left times when he did not have the right things to say, he always showed up. When I started reconnecting with my culture through my early university days (slowly, and usually awkwardly), he always supported me when I needed it the most. As I started to ask more questions, learn more, and work within my community, things finally started to make sense – the puzzle was getting put together. I began to see parts of myself that had been waiting, quietly and patiently, to be recognized.

It was at this time that I started to see my dad differently, too. He never had someone to show him how to be proud of being Indigenous, of being Haudenosaunee. So instead, he became that person for me. Not in an incredibly dramatic fashion, but as a pillar of support and care that always gave me space to explore who I was.

This reflection has helped shape how I carry this research. The questions I am asking, exploring trust, information, and decision-making, are connected to what I have lived and learned from my dad. Watching someone I care about navigate identity, shame, and pride (simultaneously) has taught me that behind every answer someone gives is a story that has been shaped by generations. Trust is not automatically granted by some credentials or fancy system; it comes from relationships, nurturing, and how people have treated you before. It has made me careful with the questions I choose to ask, and even

more careful with how I approach the silences. I think this is one of my most important life lessons because it did not come from a textbook, it came from my dad.

Chapter 2: Literature and Contextual Review

Integrating Available Literature and Local Experience/Context

Apart from anecdotal evidence from working within SN during the pandemic, literature has supported that health communication throughout Canada missed the mark for many populations throughout the COVID-19 pandemic. A study conducted by Lowe, et al. (2022) explored COVID-19-related communication in Canada and found overall, official communications "did not meet the conditions of good communication" (Lowe, et al, 2022). While the information was typically factually correct (at least at the time of publishing), it often failed to meet the marks of transparency, clarity, promptness, and engagement, particularly from communities that are historically underserved. When individuals reported encountering the conflicting messaging that was so widespread during this *Infodemic*, many chose to resort to the sources that had proven reliable in the past. For some, that meant governmental sources; others decided on local resources, while some turned to their trusted family members. While it is essential to recognize that each community has unique needs and warrants a custom approach toward well-being, this study highlights how communication is not just about the message – it is about the messenger, the trust, and the relationship built between the two.

This message is echoed by Dr. Goldenberg in their 2021 book: *Vaccine Hesitancy*, *Public Trust, Expertise, and the War on Science*. The piece explored the idea that trust in the sciences and medicine is much less about having all of the facts, but rather dependent on the relationships between the audience and the source. Individuals do not just evaluate whether something is 'true' according to the peer-reviewed evidence; they instead, usually, question whether the people or institution behind the messages are genuine. This belief system is shaped by, essentially, being a human being – someone with personal histories, culture, and unique social contexts. During a crisis situation, it is only natural for people to look at messengers who feel trustworthy, grounded, and wholeheartedly passionate about their best interests rather than abstract or complicated ones – particularly given that being in a pandemic often requires a time-sensitive response with split decisions necessary.

For Indigenous communities like SN, this question of trust hits very differently. The relationship that our communities have with public health and healthcare systems within Canada is very fragmented, having been shaped by generations of harm, exclusion, and colonialism. The 2021 *First Peoples, Second Class Treatment* report built by Drs. Billie Allan and Janet Smylie clearly communicate how structural racism and institutional neglect have continued to shape the care that Indigenous people within Canada receive. These discriminations constitute a significant factor contributing to our community's caution when trusting these systems – this caution is not coming out of nowhere; it is learned, inherited, and, unfortunately, often reinforced by continued mistreatment within

these spaces (Allan & Smylie, 2015). We do not have to look far back in 'history' to see stark examples, even within the scientific world, like the tuberculosis vaccine experiments carried out on First Nations children in Saskatchewan, or the nutritional experiments conducted in residential schools (APTN News, 2013; MacDonald, Stanwick, & Lynk, 2014). And while I referred to these as 'historical', they are not ancient history. They are a part of much more recent and continued patterns of harm that people in and outside our community face. Stories of unequal care, dismissal, or disrespect still very much exist in our current experiences.

In my observations, these historical tensions are still deeply present on SN. As the most populous First Nations reserve in Canada and one of the largest geographically, Six Nations has long had to navigate complicated jurisdictional relationships largely born from colonization and paternalism. Between elected councils, the Haudenosaunee Confederacy (traditional governance model), federal oversights, provincial healthcare systems, and neighbouring municipalities, complicated is putting it lightly. While leaders within our community have taken strong steps to regain a sense of autonomy, there still exists frequent friction about who exactly holds the decision-making power. These trickle-down effects of colonial interferences, broken promises & treaties, and underfunding have contributed to an already long-standing sense of mistrust towards mainstream health institutions – this is supported by a large amount of existing literature, such as Pilarinos, et al. (2023) qualitative exploration echoing the discomfort that Indigenous participants had towards existing healthcare systems.

During the COVID-19 pandemic, these realities did not disappear or dampen – they became a sharp focus. SN took decisive actions to protect our community, to name a few: we closed borders, maintained our own COVID-19 alert level system, and ran our own vaccination clinics through our health services departments rather than relying entirely on provincial rollouts. While I can't directly speak for the teams that took these actions, in my conversations with them, I interpreted these decisions as not just simply logical but rather relational. They were made by people within our community, for the community, reflecting a broader understanding that public health approaches, including communications, need to feel grounded in local context and values.

Growing bodies of research support the idea of locally-led communications and healthcare. An analysis exploring COVID-19 vaccine perceptions among Indigenous communities in Quebec found that increased vaccine uptake was strongly tied to the source of the information (Labbé, et al, 2024). People were more confident and comfortable with communications that came from within the community, such as Elders or local health units, or even from individuals who just felt of home, like Indigenous healthcare workers. Trust was not just about the content of the message; it was about the connection.

While learnings of understanding SN-specific contexts for health communications are still being built, the importance of this connection, trust, and community comes

through clearly across available literature. When Sanders et al. (2024) explored COVID-19 vaccine decision-making in northern Ontario, they found that effective communication was not happening in provincial vaccination advertisements; they were happening by our Elders & Indigenous role models (go MPP Sol Mamakwa!), in conversations with others, and in spaces where people felt safe to ask questions. Similarly, Fleury & Chatwood (2022) noted that many northern Indigenous communities across Canada did not wait for external bodies to provide instructions or direction – these communities led their own responses and tailored public health strategies to reflect their communities' needs and values.

Language was also an interesting concept to explore within this context. A 2020 article written by Kuhn et al. described how some Indigenous organizations used social media to share health communications, but did so in ways that reflected the community's voice by utilizing local tones and jargon. Yohathasan, Stutz, Sachal, & Lopez-Carmen (2021) further emphasized the importance of language throughout the communication process. When health messages were offered in Indigenous languages, it did not solely address a translation issue, but also a matter of respect and relevance. It signalled to folks that their knowledge system matters – their perspectives are not an afterthought.

Pulling these together, these studies make it clear that trust, relationships, community context, and representation are pivotal in any public health effort, particularly with Indigenous spaces. While this growing body of evidence is exciting, there are still

significant gaps. Most literature takes a pan-Indigenous approach (i.e., the idea of treating all Indigenous peoples as a homogenous group, thus ignoring the unique cultures, needs, and histories of each individual community) which lacks the nuance and richness needed for meaningful impact.

Integrating My Experience and Community Narratives

Scientific literature is undeniably helpful in health sciences research, but it certainly isn't everything. It offers concepts, frameworks, patterns, and valuable ideas as a launching pad. However, it often misses spaces where real understanding lives. In places like SN, these understandings are not coming from papers or presentations alike – they come from people. From moments that are not showing up in interview transcripts or datasets. They live in conversations at event booths, over a meal, or in the quiet comments said at the end of a survey. They are in the kinds of things that people tell you when they trust you.

I have been working on SN in a health research and public health capacity for nearly five years now. During this time, I have had more of these moments than I could possibly count. They have come up casually while I was collecting surveys, sitting at staffing booths, or in the lulls at different community events. I have had people throw questions at me as to why certain messages were being repeated if they "*did not land the first time*", or those who do not want the pictures with the graphs and statistics; they want someone they could talk to. I started to notice early into my work that people were not dismissing this seemingly important information because they did not care, but because they often did not feel the systems trying to 'inform' them understood who they were talking to.

I remember during a vaccine information event, one community member, probably in her late 60s or 70s, had approached my booth, and I followed my typical approach of trying to understand where she was at: "*I do not follow what they say on the T.V., I wait to hear about what [name] says at White Pines*" (for context, White Pines is the name of our health center). It was clear she did not mean this as some grand rejection of science – it was about the messenger, it was relational trust. She was not alone in this sentiment. Over and over again, community members shared that they were not turning to the typical sources, they were talking to others, looking on Facebook, or engaging with our local resources. Everyone had a different story, and while this autonomy is empowering to look at, it is also really complicated when you are in an emergency.

Working alongside SN community health staff, epidemiologists, researchers, and more, I have seen firsthand the care, discussion, and thoughtfulness that goes into tailoring messages for our community. During my early days working on the CCFN study, I remember *trying* to make a video explaining the study and its procedures. One of the first things a long-standing community nurse told me was: "*It has to look like us*. *Otherwise, no one is going to watch it.*" It sounded like a simple request, but it really was not. It reflected a much deeper awareness that if health communication does not reflect

the people it intends to reach, be it visually, emotionally, or culturally, it is likely not going to be heard at all.

I also encountered many moments of tension, as well. There were times when external researchers or outside agencies would push strategies they had used elsewhere without understanding SN political and cultural contexts. I remember a conversation our team was having with a non-community member as we attempted to direct them where to drive and set up their research table at a community event. A coworker of mine blurted out: "*Have they ever even been here*?". What's scary is that this was not even sarcasm; it was a genuine concern, as we've seen so much before. SN, like other Indigenous communities, has dealt with generations of extractions, where researchers come in, collect data, and leave without any sort of accountability. Dr. Vanessa Watts (2020) shared problematic approaches on how research has consistently framed work with Indigenous communities, such as pathologizing our population or being considered a "problem to be solved". It is vital for future research to recognize the importance of community sovereignty and strength-based approaches to teamwork, as identified by organizations like the *First Nations Information Governance Center*.

Even within our own teams, I witnessed the difficulty of balancing transparency, what the province/feds were saying, and what felt right. During a conversation with a community health promoter, I remember them saying: "*Sometimes it feels like we aren't just translating the language to a digestible level, we also have to change the feeling*".
She was absolutely right. SN pandemic response staff did not just have to translate complex words like 'mRNA' into something manageable, they also needed to evaluate the tone, approach, and assumptions behind the messaging. People in our community notice when something does not fit, and they remember.

Throughout the years, I have started to pick up on more subtle patterns. People hesitating before answering a question, changes in facial expressions in response to a prompt, individuals sharing much more after the form had been filled out than during it, and so on. These moments were not captured in the data (directly, at least), but they matter just as much. They told me when a question was too clinical or invasive, or when someone was testing whether I was actually listening to them.

These stories, observations, and experiences hold weight. They reflect the kind of data that won't be found in spreadsheets, but in relationships and memories. On SN, care does not always just look like it does in more Westernized spaces (e.g., formal programs, strict communication policies, etc). Sometimes it looks like a cousin calling to check in, or your nurse remembering you like strawberries better than blueberries, using lacrosse sticks to measure social distancing recommendations, or posters using words like "*Skoden*", "*Nya:weh*", "*Sge:no*" or other words that feel like home. These details matter.

This section does not aim to speak for the whole community – that would be impossible and inappropriate. But, I do hope it holds space for the kinds of knowledge

that do not usually make it into typical research spaces within the health sciences. The kind that comes from being here, listening quietly and often. From hearing what others say and understanding what it means when they do not.

Gaps & Justification of a Community-Centered Approach

There still exist noticeable gaps in academic and public health literature regarding how specific Indigenous communities, like SN, navigated the *Infodemic* of COVID-19 information. While there has been credible work, as aforementioned, it often takes a broad or pan-Indigenous approach. This work rarely gets close to the local and community-level realities of how people make sense of the information they are receiving. On SN, the nuances of who people turned to, how trust was built (or broken), and how different sources shaped health decisions often played out in private. This gap is what this project is stepping into.

In addition, a clear link between community lived experience and the kinds of research questions asked is often missing. The questions explored in this project did not come from a theory-first place, but from being here. From sitting with coworkers at White Pines to talking with community members over corn soup, I started to recognize patterns that weren't being talked about in published work but were nonetheless showing up around me. Even though this journey will utilize datasets, statistics, and other quantitative tools, it is rooted in these moments. It focuses on how members of SN engaged with different sources of COVID-19 information, how that influenced their health perceptions and behaviours, and what factors shaped their trust to begin with. My goal <u>is</u> not to speak for the community, but to reflect on some of what I have heard, seen, and been trusted with. I want to reflect this through a lens that is both scientifically sound and accountable.

F&F Notes: The Space Between Asking & Answering

When I first started doing this work, I thought that asking a question was a neutral, almost clinical act. If I worded it perfectly and checked every ethics box, boom! The correct answer would follow and we would all live happily ever after. Boy, was I naïve or what?

It did not take me long to realize that it does not work like that. Especially on Six Nations.

There is a moment, the moment right after I ask a survey question and before the person responds. It is just a pause – sometimes short, sometimes it is stretched out for what feels like forever. I used to try and fill this space and move on quickly, but now I try to absorb it. Often enough, those silences carry more weight than whatever words come out after.

I was having a conversation with a community member who seemed a little guarded, perhaps introverted. Halfway through our survey together, as if their brain started to digest everything I was asking as a whole, they said: "*I do not even really know* where I got my information... I guess I just found it around; here and there. I do not know if I can pick an answer.". I think this moment stuck with me because this is the reality for most people: decisions are not made through one transparent, exclusive medium. They are built slowly through what we hear, observe, and feel.

Doing this work in my own community has taught me that research, asking questions, asking stories – it can never be neutral. People will carry their histories when they are being 'studied' or 'surveyed'; this separation is impossible. When I sit across from them, even if my intentions are pure, the reality is that I sit inside of this history, too. Some people may answer because they know my family name. Others may hold back, and I cannot say that I'd blame them. In both of these cases, it is layered, emotional, and deeply relational. One of the most impactful moments I have had throughout this research is seeing the relaxation on community members' faces when I introduced myself. Having a prominent SN-specific last name, many participants expressed their comfort and willingness to join the study – not necessarily because of their interest in the research, but their desire to support fellow community members.

This chapter has reminded me of this again and again – the answers we collect are shaped by everything surrounding the question. The relationship, the silence, the past, the way someone's body language changes, or the way they half-laugh with their responses. These are not things that we would typically capture in a multiple-choice question, but they are still answers. We just have to be willing to listen a little differently.

Chapter 3: Methods

Research Framework

This thesis focused primarily on quantitative analysis but will also interpret quantitative data using frameworks that value community knowledge, reflexivity, and contextual meaning – this means drawing on principles from Indigenous methodologies that emphasize these values, such as Kovach's (2021) *Indigenous Methodologies* and Wilson's 2008 book: *Research is Ceremony*.

Throughout this work, the survey data's interpretation will be aided by years of working within SN, sitting in community spaces, talking to staff, and learning from participants outside of formal interviews. This approach aligns with Indigenous methodologies that prioritize the relationships of the researcher, participants, the community, and recognizes that knowledge is not separate from those who carry it, such as Wilson's (2008) discussions of Relational Accountability. In practice, patterns in the data will be interpreted through a lens that considers community context, history, and ongoing realities. As an example, if trust in federal public health messaging appeared to be low, it would be examined through lived memories or systemic exclusion, broken promises, and culturally unsafe services, as discussed in Allan & Symlie's 2015 *First Peoples, Second Class Treatment* report.

Overview of the COVID CommUNITY Study – First Nations

The data used in the thesis comes from the CCFN, a prospective cohort study started during the early stages of the COVID-19 pandemic. This study was created to better understand the immune response to the COVID-19 virus and vaccine in Indigenous communities, while also exploring vaccine access, safety, confidence, and uptake (COVID CommUNITY – First Nations, n.d.). The study took place across three Indigenous communities in Canada, one of which was SN. The SN site was led by our senior epidemiologist from the Six Nations Department of Wellbeing (formally known as Six Nations Health Services) in collaboration with the Population Health Research Institute and McMaster University. The national team was directed by the study's principal investigator, Dr. Sonia Anand of McMaster University. The study received approval from both the Six Nations Research Ethics Board and the Hamilton Integrated Research Ethics Board (HiREB) (project #: 13323. It followed the principles of OCAP ® (ownership, control, access, possession) throughout the research process. SN was given clear authority and oversight of the data, delegated stewardship accordingly, and were involved thoroughly throughout the stages of the research process.

This parent study had two parts: a qualitative component and a quantitative component. This thesis will utilize data collected from the quantitative portion, which featured structured surveys and blood sample collection. This thesis utilized the information collected from the survey responses. The administered surveys collected a broad range of information, such as vaccine confidence, access, behaviours, beliefs, social

27

determinants of health, and other vaccine or pandemic-specific information. Between July 2021 and March 2023, 760 adults from SN were enrolled in the quantitative portion of the study. To be eligible, participants had to identify as belonging to SN (status or non-status) and had to be at least 18 years old.

Participants were recruited using a variety of approaches. Some were contacted because they had participated in previous research studies within the territory and wished to be part of future studies; while others were reached via convenience sampling at wellbeing events, vaccine clinics, and other community spaces. Survey completion was offered either synchronously with a research assistant at an accommodating location (either in-person or over the phone) or asynchronously at the participant's discretion. Research assistants, many of whom lived and worked in the community, received training to help make sure the survey was delivered consistently, safely, and competently.

While not directly used in this thesis, the qualitative portion added much richness to the study data. A small number of community members, pandemic leaders, stakeholders, and service providers were interviewed about their experiences during COVID-19, including what worked, what did not, how decisions were made, etc. This portion offered a more narrative and open-ended window into the community's experiences.

28

Primary Communication Source Variable

At the center of both research questions lay an important piece: Where did people get their COVID-19 information? In the CCFN Study, participants were asked to identify, and then rank their top three sources of information during the pandemic; options included spaces like: social media, federal/provincial governments, local sources, and more.

To make this variable easier to interpret, I collapsed the 21 possible responses into four broader groups. This grouping can be seen below in Table 1.

For this thesis, the participant's top-ranked score (i.e., their first choice) was used to represent where they primarily turned for information. While I am treating the firstranked source as the most influential, I do understand that does not mean the subsequent options do not matter. However, through my experiences working throughout the study, it was clear that even when people heard information from multiple sources, there was usually one that stood out – one that felt most trustworthy, most familiar, or most believable.

Most Trusted Source of COVID-19 Information				
Old Response Categories	Revised Response Categories			
 Canadian Government (Trudeau) Provincial Government Provincial Public Health Bodies Our community's COVID-19 Website Provincial or federal public health website 	Government & Public Health Sources			
 Our local First Nations Chief or Council Traditional Leaders Our local health services My health care provider Traditional Medicine Practitioners My church/place of worship 	Local & Community-based Sources			
FamilyCo-workersFriends	Personal Networks			
 Traditional Media Sources Local Media & Radio Programs Celebrities/Influencers Facebook Community Groups/Pages Other Social Media Platforms Twitter WhatsApp or other instant messaging platforms 	News & Social Media Sources			

Table 1: Revised variable for the most trusted source of COVID-19 information

Analysis Plan – Do COVID-19 information sources affect health perceptions or behaviours on SN? (Research Question One)

The first research question asked the following: **Do different sources of COVID-19 information influence health perceptions or behaviours among members of the Six Nations of the Grand River community?**

This question was treated as exploratory, and thus, there were no pre-determined hypothesis to test. Efforts were made to explore patterns surrounding community members' engagement with different sources of COVID-19 information and how this subsequently influenced their actions.

To explore this question, descriptive statistics were pulled from the quantitative CCFN data using StataNow 18.5 Standard Edition software. A subset of variables were selected to represent the two key domains of the research question: health perceptions and behaviours. The variables were chosen based on reflections of conversations with community members & staff, along with relevant literature. Contingency tables (i.e., cross-tabulation) were created to visualize how the responses for each of the key variables varied by participants' primary information source to highlight trends.

Health Perceptions

Two ordinal variables were selected to reflect how participants perceived the threat of COVID-19. They can be found in Table 2 below.

Health Perceptions				
Variable Name	Abbreviation	Categorical Responses		
COVID-19 poses a major threat to our community.	Perceived threat	 Strongly Agree Agree Neutral Disagree Strongly Disagree Do not Know Prefer not to answer 		
The situation around COVID-19 is overexaggerated/overblown.	Perceived overexaggeration	 Strongly Agree Agree Neutral Disagree Strongly Disagree Do not Know Prefer not to answer 		

Table 2: Variables exploring health perceptions (Research Question One)

These two variables relate to different ways people may have made sense of the COVID-19 pandemic. The first may reflect people who share individual and/or collective

(community) concerns, with the latter having shown amongst the literature to influence how likely someone is to follow public health recommendations (Berry, et al, 2021).

The second variable reflects a view that may be more skeptical – it is something that I often heard from community members during my work. Folks would share explanations such as: "*It is just the flu*", "*There's a 99%+ survival rate*", or "*They are just fear-mongering*". This minimization or doubt has been previously connected in the literature with the subjection to conflicting information (i.e., *Infodemic*), a distrust in mainstream organizations/institutions/systems, or an overexposure to messaging (Lockyer, et al, 2021; Goldenberg, 2021).

Health Behaviours

Two ordinal and one nominal variable were selected to understand how public health guidance was followed, as shown in Table 3 below.

Health Behaviours				
Variable Name	Abbreviation	Categorical Responses		
Have you been vaccinated against COVID-19?	Vaccination Status	 Yes, I have had at least two doses. Yes, I have had one dose and plan to have the second dose. Yes, I have had one dose, but I do not plan to have the second dose. No Prefer not to answer 		
Worn a mask in public places.	Masked in public	 Always Often Occasionally Rarely Never Prefer not to answer 		
Practiced physical distancing in public.	Socially distanced	 Always Often Occasionally Rarely Never Prefer not to answer 		

Table 3: Variables exploring health behaviours (Research Question One)

These variables reflect key behaviours that were recommended at both a local and national level throughout the COVID-19 pandemic. In COVID-19 vaccine-related literature, vaccination status is typically one of the most common markers to explore the relationship between trust, information access, and health behaviours (Sanders, et al, 2024). In addition, SN's unique COVID-19 alert level often led to mask-wearing and physical distancing being implemented earlier than surrounding communities. In both literature and practice, these behaviours have been used as proxy indicators for health system trust.

Note: due to low cell counts in some response categories for the vaccination variable, response options were combined to protect participant anonymity and ensure a more meaningful interpretation of the results. This breakdown is provided in Table 4, below.

Old Response Categories	Revised Response Categories
• Yes, I have had at least two doses.	
• Yes, I have had one dose and plan	Yes, I am/plan to be fully vaccinated.
to have the second dose.	
• Yes, I have had one dose, but I do	
not plan to have the second dose.	No, I am not fully vaccinated.
• No	

Table 4: Vaccination status variable revisions after collapsing due to low cell counts (Research Question One)

Inclusion Criteria and Missing Data

For this research question, only participants who provided answers to all of the key variables related to health perceptions, behaviours, decision-making, and their top choice of COVID-19 information were included. Participants who failed to provide an answer were excluded from the descriptive statistics. In addition, participants who selected "Do not know" or "Prefer not to answer" for any of the relevant questions were also excluded from this question's analysis. While these responses are valid and respected, they do not provide enough information to meaningfully and accurately contribute to the descriptive work.

While statistical methods such as multiple imputation were considered to address any missing/excluded data to maintain high sample sizes, it did not feel appropriate after further reflection. The variables used are all categorical and deeply tied to personal belief systems. Trying to present a plausible distribution of answers and estimate uncertainty around that distribution for how someone may have responded, particularly when it comes to questions about trust or motivation, risks oversimplifying something very complex. Additionally, choosing not to answer something does not necessarily mean they did not know the answer. It could have been the question was uncomfortable, or untrustworthy, or they were simply not ready to share their response. This kind of missingness cannot (and should not) be imputated, because to do so would distort a real phenomenon – I would not want to rewrite that. Because this thesis is focused on hypothesis-generation rather than hypothesistesting – I am not trying to make claims about statistical significance or generalize to broader populations. For this reason, it feels most honest and ethical to work only with complete, interpretable results and assess the patterns in the data from there.

Analysis Plan – What influences COVID-19 information source choices on SN? (Research Question Two)

The second research question asks the following: What factors influence individuals' choices of specific COVID-19 information sources among members of the Six Nations of the Grand River community?

To identify which social and demographic factors are associated with the top source of COVID-19 information, a nominal logistic regression model will be utilized. This approach is appropriate because the top-ranked source of COVID-19 information (see Table 1 for details) variable is categorical with no natural order and as aforementioned, is grouped into four broad categories: mainstream/government, social media, community-based, and interpersonal connections. This modelling approach allows estimation of the log of the odds ratio of participants choosing one category over another based on their individual characteristics. Aligning with the overall theme of this thesis, the data are presented as exploratory, and thus, confounders or interaction terms (i.e., effect modifiers) will not be included in the models because the goal is not causal inference. As supported by VanderWeele (2019) and Greenland, Pearl, & Robbins (1999), the consideration of covariates and characterization of interactions is typically most relevant for causal inference. Because this is not the aim of this work, I did not wish to add unnecessary complexity without improving the clarity of the results.

Mirroring the previous question's approach, only participants who responded to all variables included in the model will be analyzed. Any participant who did not provide an answer, selected "Prefer not to answer" or "Do not know", for any of the independent or dependent variables will be excluded (with one exception discussed in the Results section).

Independent Variables

The following independent variables were selected based on their potential relationship with COVID-19 information sources as per the literature and experiences while working within the SN community:

- 1) Education Level
 - Education has long been linked to differences in health information utilization. Some literature has communicated that those with higher educational backgrounds are more likely to rely on formal

38

sources like governmental public health agencies, which may decrease vaccine hesitancy. (*Education and Vaccine Hesitancy,* 2024) Opposingly, those with less formal education may place more trust in their personal connections or community networks. However, in Indigenous communities, education can look differently than Western ideologies, and trust does not always map out with formal qualifications (Labbé, et al, 2024).

- 2) Household Income
 - Income is a huge barrier/pathway to access. For example, those
 who can afford reliable internet may be able to access or translate a
 greater amount of information. It is possible that due to this, lowerincome households may be more reliant on word-of-mouth or
 social media connections. In comparison, higher-income
 households may have greater exposure and comfortability in more
 mainstream sources of information.
- 3) On-reserve versus Off-reserve Residence
 - Living on or off the reserve can play a big role in shaping what kind of information you see first and who you see it from. Those more geographically connected to the territory may be more adjacent to local health communications and locally-run resources, while those off-reserve may have to rely more on provincial/municipal media.

39

- 4) Experience of Racism
 - Participants were asked whether they experienced racism in relation to their Indigenous identity. Experiences of racism, particularly in healthcare, education, or the media, can play a pivotal role in shaping trust in these systems. Allan and Smylie (2015) have highlighted how systemic racism contributes to generational avoidance of information institutions, which may impact where community members turn to for their health information.
- 5) Living Alone
 - Whether someone lives alone or with others may affect how they
 interpret or validate public health advice. In shared households, it is
 possible that decisions may be discussed and even made together.
 In comparison, living alone may require more independent
 decision-making or even less access to informal forms of
 knowledge exchange (i.e., word of mouth).

A full list of the variables with their associated response categories can be seen in Table 5 below.

What influences COVID-19	What influences COVID-19 information source choices on SN? (RQ2)					
Independent Variable List						
Variable Name	Abbreviation	Categorical Responses				
What is the highest level of education you have completed?	Education Level	 Less than high school graduation. High school graduate. Trade certificate, vocational school, or apprenticeship training. Non-university certificate or diploma from a community college, CEFEP. University bachelor's degree. University graduate degree (e.g., masters or doctorate). Prefer not to answer. 				
What is your best estimate of the total income of ALL household members from ALL sources in the past 12 months (before taxes)?	Income Level	 \$0 - 19,999 \$20,000 - 39,999 \$40,000 - 59,999 \$60,000 - 79,999 \$80,000 - 99,999 \$100,000 and above Prefer not to answer 				

 Table 5: Independent variables that will be used in the nominal regression model to explore what influences COVID-19 information source choices.

Do you live on reserve?	Living on/off reserve	YesNoPrefer not to answer
Have you experienced discrimination or been treated unfairly by others because of your ancestral culture, race, or skin colour, language or accent, or faith?	Experienced Racism	 Yes No Prefer not to answer
Do you live alone?*	Live Alone	YesNoPrefer not to answer

*This variable was synthesized using previous questions that explored the number of individuals living in participants' immediate households.

This list is not all-encompassing, but variables were chosen that were supported by the literature, community conversations, and/or experiences working alongside public health staff. There are undoubtedly other influences that may shape these decisions, but this set offers a meaningful and manageable starting point for understanding the patterns within the data.

Model Building Approach

The distributions of the independent variables using measures of frequency, central tendency, and dispersion, were presented as appropriate. Next, using STATA, a nominal logistic regression model were run for the participants with complete data.

Following the approach recommended by Bangdiwala (2023), significance testing was not appropriate nor warranted in this context. Instead, this analysis determined the independent variable inclusion based on:

- The size and direction of the relative risk ratios to understand potential associations.
- The width of the 95% confidence intervals to assess stability and precision.
- Whether the patterns align with prior literature or lived experiences within the context of the community.

Key assumptions for a nominal logistic regression model were tested prior to building the model. These assumptions, based on standard guidelines (*Hosmer*; *Lemeshow*, & *Sturdivant*, 2013; UCLA Advanced Research Computing, n.d.), include:

- 1) Independence of Observations
 - Each participant should only contribute once to the model, and their response should be independent of others.
- 2) Categorical, Mutually Exclusive (nominal) Outcome Variable

- Nominal logistic regression requires the dependent variable to be categorical with no natural order of the responses.
- 3) Sufficient Sample Size
 - Each category of the outcome variable should have a sufficient number of observations to generate stable coefficients. While there is no strict cut-off, the 'rule of 10' has long been a reference advocating that a minimum of 10 outcome events per predictor variable is recommended. However, some research suggests that this 'rule of 10' might actually be more conservative than necessary. Vittinghoff & McCulloch (2007) found that models with as few as 5-9 events per predictor variable often performed acceptably, particularly in an exploratory analysis. Therefore, rather than applying an a-priori cut-off, I will approached this with more flexibility. For cell counts <10, I examined if the resulting coefficients seemed reasonable, stable, and consistent with what is expected. While small cell counts did not automatically disqualify a variable, I was cautious in the interpretation of volatile estimates or erratic confidence intervals.

4) No Perfect Multicollinearity Between Predictors

 Independent variables should not be highly correlated with one another. This was assessed by calculating the Variance Inflation Factors (VIF) in STATA. VIFs >5 were examined further, and values >10 were considered problematic, thus requiring intervention (e.g., removing or combining variables) (Mernard, 2022).

5) Linearity of the Logit for Continuous Predictors

- This assumption was not relevant to this model as all of the predictor variables are categorical. This assumption only applies to continuous predictors where a linear relationship is expected between the log odds of the outcome and the predictor.
- 6) Independence of Irrelevant Alternatives (IIA)
 - This assumption is sometimes tested in nominal logistic regression models to ensure that adding or removing outcome variable categories does not influence the relative odds between other categories. For this model, IIA was not tested. Long & Freese's (2014) work, considered the 'gold standard' of categorical modelling, overviews this is often less critical in exploratory or descriptive models, particularly when the outcome variable response categories are well-differentiated and the model isn't used for forecasting.

To build the model, I followed a stepwise forward approach. I started with a null model that only included the intercept. From there, I added each predictor variable individually to see if the model fit improved. For each variable, I evaluated 'improvement' based on the following:

- Changes in the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) – lower values indicated a better model fit.
- Results from the log-likelihood comparison between the new and previous models – higher values indicated a better model fit.
- Lastly, whether the added variables make logical sense based on literature and what aligns with community insight. If some such variables do not meet the above criteria for retention, but they are believed to be important, they were forced into the model.
- As a note, pseudo-R² values were not relied upon to assess the contribution of individual variables. As recommended by Long & Freese (2014), pseudo-R² are not designed for variable-by-variable comparisons and can behave inconsistently across different model specifications. Therefore, the above changes and practical interpretability will be prioritized.

Once each predictor was singularly evaluated against the null model, a final model was crafted with the selected variables together. If any variables showcased instability or made the model more complicated to interpret once combined, their inclusion was evaluated based on the above criteria.

After finalizing the model, Goodness-Of-Fit (GOF) checks were completed, including AIC/BIC and Likelihood Ratio Test comparisons against the null model. While Hosmer-Lemeshow goodness-of-fit Test (HLT) and ROC curves were both considered to be evaluated to assess GOF, they are both inherently designed for binary outcomes rather than nominal ones like this model's focus. The HLT relies on grouping observed and predicted values across a single outcome, which does not work when using multiple, unordered categories (Hosmer, et al, 2013). Similar to this, ROC curves and their associated Area Under the Curve (AUC) values measure how well a model distinguishes between two classes. While it could, theoretically, be possible to create a 'one-vs-rest' ROC curve, as explained by Hand & Till (2001), this approach could collapse distinctions made between outcome groups and does not align with the intent of nominal logistic regression. For example, grouping "personal networks" and "government & public health sources" does not make conceptual sense, especially since this model's purpose is exploratory. Therefore, final model evaluation and GOF testing focused on likelihoodbased statistics (i.e., AIC/BIC, log-likelihood test comparisons) and expectations based on existing literature/community context.

Ethical Considerations

This research is not something I designed on my own and brought to the community; it has been shaped through ongoing conversations, relationships, and shared work. I am not coming in as an external researcher from the outside to 'examine' Six

Nations. My family is from here; I work here; I grew up playing lacrosse here. The people who were brave enough to share their stories with us are not just participants; they are coworkers, friends, and sometimes even family. This changes how I approach my research; it is not simply just about being ethical in the academic sense – checking the boxes of the Tri-Council Policy Statement (TCPS 2) – it is about being accountable for my actions.

Within our CCFN site on SN, the study was completely run by community staff. When data collection had stopped, the data did not stay locked away in university databases outside our reach – it was returned to the community. This really matters and showcases a great example. We were able to decide what happened next, and this thesis is just one part of those next steps.

This analysis was developed in conversations with staff who continue to lead important work within the community, and it reflects what people have said they wanted to know about COVID-19. This is OCAP [®] in action. The community owns the data, controls how it is used, and stays involved in what comes next of it. To me, this is not just good practice; it is a step towards repairing the harm research has caused in the past.

Lastly, for clarity, both the Six Nations Research Ethics Committee and the Hamilton Integrated Research Ethics Board were contacted to confirm whether new ethics approval would be needed for this thesis work. Both boards confirmed that since this analysis falls within the scope of what was originally approved, existing approvals still apply, and no new submission was required.

F&F Notes: From the Ground Up

I started on the CCFN Study when I was still an undergrad; a little awkward and definitely a bit naïve – I had no roadmap for what I was doing. Being a first-generation university student, no one in my circle had gone through this kind of academic work before; I did not grow up around scientists or policymakers. All I knew was I wanted to do something that felt like it mattered, both internally and to others.

When first joining the team, I usually just helped where I could. Phone calls, data entry, and listening much more than I spoke so I could digest what was around me. Slowly, this shifted – I was invited to take a place at the table. I started working directly with staff, with the data, and with the people in my community. Through this, I began to see what research could be like when it was not extractive and built by relationships. This was a big turning point for me. While I did not know this at the time, this study would shape so much of my path. It helped me find the language for the work I want to do: bridging academia and community, making space for Indigenous voices, and ensuring work actually respects the people who are involved. I have been privileged enough to see this study from the ground-up. I have been here during the planning, during data collection, and now, during the analysis. I have come to learn that this is rare – many folks get dropped into one piece of a project. Me? I got to grow with it.

49

Maybe that is why this thesis feels different than other health sciences papers I have written and read. Not just a write-up of a dataset, but something I have lived and learned with for many years. This project gave me connections to mentors, colleagues, and my community. But, most of all, it made me feel welcomed in a space where I once questioned if I belonged. Being able to carry this work forward has meant more than I ever expected. I did not always know what I was doing or where to start, but I kept showing up. I showed up when I was scared, when I was anxious, and when I was empowered. Over time, this resilience became something that helped me find my footing, not just in academia, but in who I am.

When I think about what I will remember most about this project, it is not the statistics or the structure; it is the people, the conversations, and the moments of care. So, to everyone who helped shape this, even if it was in ways that did not make it onto this paper, **thank you**. I will carry this with me, always.

Chapter 4: Results

Do COVID-19 information sources affect health perceptions or behaviours on SN? (Research Question One)

Data Exclusion

Firstly, participants who skipped a question, selected "Prefer not to answer", or "Do not know" were excluded from the sample. A total of 207 participants were excluded, leaving a final sample of 553. A simple breakdown can be found below in Figure 2, and a more detailed breakdown showing the specifics for each variable can be found in Appendix A:



Figure 2: Flow for participant exclusion for Research Question One (do COVID-19 information sources affect health perceptions or behaviours on SN?)

Crosstabulations & Frequency Counts

A frequency summary of the primary information source of COVID-19 information can be seen in Table 6. As shown, nearly one-third of included participants selected "Government & Public Health Sources" as their primary source of COVID-19 information, followed by "Local & Community-based Sources" (24.23%), "Personal Networks"(22.97%), and "News & Social Media Sources" (20.98%).

COVID-19 Primary Info Source (n=553)	Frequency Count	Percent
Government & Public Health Sources	176	31.83%
Local & Community-based Sources	134	24.23%
Personal Networks	127	22.97%
News & Social Media Sources	116	20.98%

Table 6: Frequency summary for the COVID-19 primary information source variable (Research Question One)

Crosstabulation showed differences in perceived threat, overexaggeration, and public health behaviours based on the type of information source utilized. These tabulations can be seen in Tables 7 to 11 below.

- Participants who reported "Government & Public Health Sources" as their primary source of COVID-19 information were more likely to strongly agree that COVID-19 was a threat to our community (Table 7). The other categories showed more variance but still certainly displayed a consistent theme of concern.
- Similarly, those who selected "Government & Public Health Sources" and "Local & Community-based Sources" seemed more likely to disagree that the situation surrounding the pandemic was overblown. At the same time, a higher proportion of those who utilized "Personal Networks" or "News & Social Media" describe the situation as exaggerated. (Table 8)

- When examining vaccination status, the majority of participants reported being vaccinated or planned to be (89.15%), as shown in Table 9. Based on the crosstabulation, there seems to be slightly lower vaccination uptake in those who reported relying on "Personal Networks" or "News & Social Media Sources".
- Lastly, most participants had indicated they always or often wear a mask and practiced physical distancing in public. Similarly observed, these behaviours appeared somewhat more common in those who had chosen "Government" or "Local Community-based Sources". These can be seen in Table 10 and 11 below.

Perceived Threat of COVID-19 to the Community					
COVID-19 Primary	Strongly	Disagree	Neutral	Agree	Strongly
Info Source (n=553)	Disagree				Agree
Government & Public	2 (1.1%)	7 (4.0%)	17 (9.7%)	52	98
Health Sources				(29.5%)	(55.7%)
Local & Community-	4 (3.0%)	4 (3.0%)	14 (10.4%)	58	54
based Sources				(43.3%)	(40.3%)
Personal Networks	3 (2.4%)	13	9 (7.1%)	62	40
		(10.2%)		(48.8%)	(31.5%)
News & Social Media	1 (0.9%)	12	7 (6.0%)	47	49
Sources		(10.3%)		(40.5%)	(42.2%)
Total	10 (1.8%)	36 (6.5%)	47 (8.5%)	219	241
				(39.6%)	(43.6%)

Table 7: Crosstabulation of COVID-19 primary information source and the perceived threat of COVID-1919

Table 8: Crosstabulation of COVID-19 primary information source and the perceived over-exaggeration of COVID-19

Perceived Over-exaggeration of COVID-19					
COVID-19 Primary	Strongly	Disagree	Neutral	Agree	Strongly
Info Source (n=553)	Disagree				Agree
Government & Public	55	60	37 (21.0%)	18	6 (3.4%)
Health Sources	(31.2%)	(34.1%)		(10.2%)	
Local & Community-	34	45	21 (15.7%)	22	12 (9.0%)
based Sources	(25.4%)	(33.6%)		(16.4%)	
Personal Networks	26	35	13 (10.2%)	40	13
	(20.5%)	(27.6%)		(31.5%)	(10.2%)
News & Social Media	24	40	14 (12.1%)	34	4 (3.4%)
Sources	(20.7%)	(34.5%)		(29.3%)	
Total	139	180	85	114	35

	Vaccination Status			
COVID-19 Primary Info Source (n=553)	No	Yes		
Government & Public Health Sources	11 (6.2%)	165 (93.8%)		
Local & Community-based Sources	9 (6.7%)	125 (93.3%		
Personal Networks	21 (16.5%)	106 (83.5%)		
News & Social Media Sources	19 (16.4%)	97 (83.6%)		
Total	60	493		

Table 9: Crosstabulation of COVID-19 primary information source and vaccination status against COVID-19

Table 10: Crosstabulation of COVID-19 primary information source and wearing a mask in public

Wear a Mask in Public					
COVID-19 Primary	Never	Rarely	Occasionally	Often	Always
Info Source (n=553)					
Government & Public	2 (1.1%)	1 (0.6%)	5 (2.8%)	32	136
Health Sources				(18.2%)	(77.3%)
Local & Community-	1 (0.7%)	3 (2.2%)	4 (3.0%)	23	103
based Sources				(17.2%)	(76.9%)
Personal Networks	1 (0.8%)	2 (1.6%)	4 (3.1%)	23	97
				(18.1%)	(76.4%)
News & Social Media	3 (2.6%)	2 (1.7%)	3 (2.6%)	16	92
Sources				(13.8%)	(79.3%)
Total	7	8	16	94	428

Socially Distanced while in Public					
COVID-19 Primary	Never	Rarely	Occasionally	Often	Always
Info Source (n=553)					
Government & Public	0 (0.0%)	0 (0.0%)	6 (3.4%)	43	127
Health Sources				(24.4%)	(72.2%)
Local & Community-	1 (0.7%)	1 (0.7%)	6 (4.5%)	25	101
based Sources				(18.7%)	(75.4%)
Personal Networks	0 (0.0%)	3 (2.4%)	4 (3.1%)	26	94
				(20.5%)	(74.0%)
News & Social Media	0 (0.0%)	2 (1.7%)	8 (6.9%)	24	82
Sources				(20.7%)	(70.7%)
Total	1	6	24	118	404

Table 11: Crosstabulation of COVID-19 primary information source and social distancing in public

What influences COVID-19 information source choices on SN?

(Research Question Two)

Data Exclusion

After eliminating participants who skipped a question or selected "Prefer not to answer" or "Do not know" (with one exception that is explained below), 218 participants were excluded, leaving a final sample of 542. A simple breakdown can be found below in Figure 3, and a more detailed breakdown showing the specifics for each variable can be found in Appendix B:


Figure 3: Flow for participant exclusion for Research Question Two (What influences COVID-19 information source

choices on SN?)

One variable had to be handled differently – income level. Even after the above eliminations, 88 "Prefer not to answer" selections still remained. Rather than losing a large portion of the sample, I chose to keep these responses. This will be disclosed and accounted for during the interpretation of the regression model.

Descriptive Characteristics of the Sample

A frequency summary of the outcome variable, primary source of COVID-19 information, can be seen below in Table 12. In addition, subsequent Tables (13-17) were created that outline the distribution of responses for each of the key variables that will be used in the regression model. As shown, participants reported a wide range of information sources, education levels, income levels, and living circumstances. These are included for reference and to support the model's interpretation.

COVID-19 Primary Info Source (n=542)	Frequency Count	Percent
Government & Public Health Sources	172	31.73%
Local & Community-based Sources	131	24.17%
Personal Networks	128	23.62%
News & Social Media Sources	111	20.48%

Table 12: Frequency summary for COVID-19 primary information source variable (Research Question Two)

		Educat	ion Level			
COVID-19 Primary Info	Less than	High school	Trade	Non-	University	University
Source (n=542)	high school	graduate	certificate,	university	bachelor's	graduate
	graduation		vocational	certificate	degree	degree (e.g.,
			school, or	or diploma		masters or
			apprenticeship	from a		doctorate)
			training	community		
				college,		
				CEFEP		
Government & Public	9 (5.2%)	35 (20.3%)	14 (8.1%)	68 (39.5%)	38 (22.1%)	8 (4.7%)
Health Sources						
Local & Community-based	14 (10.7%)	32 (24.4%)	7 (5.3%	53 (40.5%)	17 (13.0%)	8 (6.1%)
Sources						
Personal Networks	36 (28.1%)	31 (24.2%)	12 (9.4%)	34 (26.6%)	10 (7.8%)	5 (3.9%)
News & Social Media	23 (20.7%)	30 (27.0%)	9 (8.1%)	29 (26.1%)	13 (11.7%)	7 (6.3%)
Sources						
Total	82	128	42	184	78	28

Table 13: Crosstabulation of COVID-19 primary information source and education level

Table 14: Crosstabulation of COVID-19 primary information source and income level

Income Level							
COVID-19 Primary	\$0 -	\$20,000 -	\$40,000 -	\$60,000 -	\$80,000 -	\$100,000	Prefer
Info Source (n=542)	19,999	39,999	59,999	79,999	99,999	and above	not to
							answer
Government & Public	17 (9.9%)	33 (19.2)	36 (20.9%)	24 (14.0%)	24 (14.0%)	20 (11.6%)	18
Health Sources							(10.5%)
Local & Community-	23	22 (16.8%)	18 (13.7%)	10 (7.6%)	7 (5.3%)	29 (22.1%)	22
based Sources	(17.6%)						(16.8%)
Personal Networks	32	16 (12.5%)	22 (17.2%)	11 (8.6%)	8 (6.2%)	12 (9.4%)	27
	(25.0%)						(21.1%)
News & Social Media	21	27 (24.3%)	16 (14.4%)	12 (10.8%)	9 (8.1%)	5 (4.5%)	21
Sources	(18.9%)						(18.9%)
Total	93	98	92	57	48	66	88

	Living On/Off Reserve	
COVID-19 Primary Info Source (n=542)	Off	On
Government & Public Health Sources	51 (29.7%)	121 (70.3%)
Local & Community-based Sources	36 (27.5%)	95 (72.5%)
Personal Networks	36 (28.1%)	92 (71.9%)
News & Social Media Sources	32 (28.8%)	79 (71.2%)
Total	155	387

Table 15: Crosstabulation of COVID-19 primary information source and living on/off reserve

Table 16: Crosstabulation of COVID-19 primary information source and experienced racism due to Indigenous identity

	Experienced Racism	
COVID-19 Primary Info Source (n=542)	No	Yes
Government & Public Health Sources	49 (28.5%)	123 (71.5%)
Local & Community-based Sources	41 (31.3%)	90 (68.7%)
Personal Networks	57 (44.5%)	71 (55.5%)
News & Social Media Sources	51 (45.9%)	60 (54.1%)
Total	198	344

Table 17: Crosstabulation of COVID-19 primary information source and living alone

	Living Alone	
COVID-19 Primary Info Source (n=542)	Yes	No
Government & Public Health Sources	25 (14.5%)	147 (85.5%)
Local & Community-based Sources	23 (17.6%)	108 (82.4%)
Personal Networks	20 (15.6%)	108 (84.4%)
News & Social Media Sources	18 (16.2%)	93 (83.8%)
Total	86	456

Assumptions

- 1) Independence of Observations: MET
 - Each participant in this subset of CCFN data represents a single, individual response. While participants were surveyed at multiple points throughout the CCFN Study, no longitudinal variables were used throughout this thesis. Data was collected independently, and no clustering or grouping was conducted.
- 2) Categorical, Mutually Exclusive (nominal) Outcome Variable: MET
 - The dependent variable, the primary COVID-19 information source, is nominal (i.e., no natural order between categories) and mutually exclusive as participants only selected top-ranked source.
- 3) Sample Size: MET
 - A total analytic sample of 542 participants was yielded with generally well-distributed variables. A few cells fall slightly below the 'rule of 10' threshold, but given this is an exploratory analysis and no cells fall into the problematic zone identified by Vittinghoff & McCulloch (2007) (<5), they will be run in the model building. During this phase, I continued to monitor for unstable coefficients or unexpected results, but significant issues were not expected.
- 4) No Perfect Multicollinearity Between Predictors: MET
 - VIF levels were calculated and can be observed in Table 18 below. I ran a temporary linear regression using a randomly generated continuous

variable as the outcome, as STATA cannot calculate VIF from a nominal logistic regression. As shown, the resulting VIFs were all very low, ranging from 1.01 to 1.04. Given these are extremely low (<5), there is no concerns for multicollinearity.

Predictor Variable	VIF
Education Level	1.04
Income Level	1.03
Living On/Off Reserve	1.02
Experienced Racism	1.01
Living Alone	1.01
Mean VIF	1.02

Table 18: Variance inflation factor calculation for predictor variables (Research Question Two)

Given all relevant assumptions for this nominal logistic regression were met, model building was initiatied.

Model Building

The null model was run and can be seen below in Table 19. The coefficients in this model represent the exponentiated log odds of a participant selecting the reference group (government & public health sources) when no predictors were included in the model. This model and its associated log likelihood statistics will be used to compare those after adding predictor variables.

Null Model			
AIC =1494.39		BIC = 1507.28	
Log Likelihood = -744.20			
COVID-19 Primary Info Source (n=542)	RRR	95% Confide	nce Intervals
Government & Public Health Sources		Reference Group	
Local & Community- based Sources	0.76	0.61	1.05
Personal Networks	0.74	0.59	1.07
News & Social Media Sources	0.65	0.51	0.82

Table 19: Null model (Research Question 2) containing the primary source of COVID-19 information

Adding education status to the model improved the overall fit when it was compared to the null model. Dummy variables were created using the "i." prefix in STATA to allow for comparison groups – this was warranted as education is a categorical variable with multiple levels. The log-likelihood increased from -744.20 in the null model to -717.63 in the education model, along with an AIC decrease to 1471.25. While the BIC did slightly increase (1507.28 to 1548.57), this was likely reflective of including multiple education categories. The relative risk ratios appeared stable across categories with generally stable confidence intervals. While some categories reflected a stronger association than others, all estimates remain interpretable and aligned with what was expected. Based on these findings, education will be added to the final model.

Similar to education, adding income level to the model resulted in a better fit. Likewise, dummy variables were created, log-likelihood improved from -744.20 in the null model to -718.22 in the income model, and AIC was decreased to 1478.44. BIC was shown to increase slightly (1568.64), but is again likely reflecting the number of parameters introduced. The relative risk ratios had reasonably tight confidence intervals and coefficients appeared reliable. Given the model's improved fit and exploratory goal of identifying relevant patterns, income level will be tested in the final model.

Please see Table 20 below for a summary of the null model and univariate predictor tests.

Results when compared to Null Model		
Variable	Inclusion in Final Model building?	
Education Level	INCLUDED	
Income Level	INCLUDED	
Living On/Off Reserve	EXCLUDED	
Experienced Racism	INCLUDED	
Living Alone	EXCLUDED	

Table 20: Final model variable inclusion (Research Question Two) after comparisons with the null model

Final Model

The final nominal logistic regression included three predictors: education level, income level, and experience of racism due to Indigenous identity. All of these variables were entered as categorical variables using dummy coding, within each variable, one group was selected to act as the reference category – "less than high school education" and "lowest income bracket", respectively. (apart from the "experience of racism" variable due to its binary nature – "did not experience racism" would be naturally used as a reference category). These reference categories were chosen as they provide a meaningful baseline contrast when examining how social determinants may influence trust in information sources.

For the outcome variable, primary COVID-19 information source, "Government and Public Health Sources" was selected as a reference category. This group was chosen due to having the highest frequency in the selected sample and may represent the 'default channel' for COVID-19 health messaging during the pandemic for many members of the community. Comparing the other variables against this offers useful ways to explore divergence from the masses.

The final model can be seen below in Table 21. As a whole, it demonstrated improvement when compared to the null model. The log-likelihood increased to -693.13 from -744.20 (with a significant likelihood ratio test against the null), and the AIC dropped to 1464.25. While the BIC was shown to have an increase (1507.28 to 1631.77), reference literature mentions this possibility with more complex models; BIC is known to be very conservative, and is especially vulnerable to the statistics typically seen in exploratory studies with lower sample sizes and many predictor categories. (Vrieze, 2012)

Some of the coefficients within the model did have wider confidence intervals. This is particularly noticeable in smaller response categories. While these numbers will have to be interpreted with caution, as explained in the discussion, the aim of this question was to reflect a model that was reflective of both the data and the community. Education, income, and racism did not just show statistical relevance; they came up again and again in conversations within the community and removing them would have removed important parts of the story. While the model isn't perfect, it is honest, and it sets a solid foundation for asking more specific questions moving forward.

 Table 21: Final nominal logistic regression model (Research Question Two) with the following predictor variables:

 Education Level; Income Level; Experiences of Racism due to Indigenous Identity

Final Model (n=542)		
AIC =1464.25	BIC = 1631.77	
Log-likelihood: -693.12		
COVID-19 Primary Info Source	Predictor: RRR [95% Confidence Interval)	
Government & Public Health	Reference Group	
Sources		
	Education Level	
	• High School Graduate: 0.76 [0.28-2.03]	
	• Trade certificate apprenticeship: 0.40 [0.11-1.42]	
	• Non-university certificateCEFEP: 0.67 [0.26-1.72]	
	• Bachelor's degree: 0.40 [0.14-1.16]	
Local & Community-based	• Graduate degree: 0.78 [0.20-3.04]	
Sources		
	Income Level	
	• \$20,000-39,999: 0.51 [0.22-1.18]	
	• \$40,000-59,999: 0.39 [0.17-0.93]	
	• \$60,000-79,999: 0.33 [0.12-0.91]	
	• \$80,000-99,999: 0.23 [0.077-0.67]	

	• \$100,000 and above: 1,21,[0,51-2,91]
	• Prefer not to answer: 0.90 [0.37-2.21]
	Experienced Racism: 0.76 [0.44-1.28]
	Education Level
	• High School Graduate: 0.30 [0.12-0.75]
	• Trade certificate apprenticeship: 0.30 [0.10-0.89]
	• Non-university certificateCEFEP: 0.18 [0.073-0.42]
	• Bachelor's degree: 0.11 [0.037-0.31]
	• Graduate degree: 0.25 [0.062-1.03]
	Income Level
Personal Networks	 \$20,000-39,999: 0.30 [0.13-0.72]
	• \$40,000-59,999: 0.49 [0.21-1.14]
	 \$60,000-79,999: 0.31 [0.12-0.84]
	 \$80,000-99,999: 0.26 [0.089-0.75]
	• \$100,000 and above: 0.49 [0.18-1.31]
	• Prefer not to answer: 0.87 [0.36-2.09]
	Experienced Racism: 0.52 [0.31-0.88]
	Education Level
	• High School Graduate: 0.45 [0.18-1.15]
News & Social Media Sources	• Trade certificate apprenticeship: 0.34 [0.11-1.09]
	• Non-university certificateCEFEP: 0.24 [0.083-0.67]
	• Bachelor's degree: 0.24 [0.083-0.67]
	• Graduate degree: 0.68 [0.18-2.63]
	Income Level

 \$20,000-39,999: 0.74 [0.32-1.72]
 \$40,000-59,999: 0.47 [0.19-1.18]
• \$60,000-79,999: 0.42 [0.16-1.14]
• \$80,000-99,999: 0.33 [0.11-0.95]
• \$100,000 and above: 0.25 [0.074-0.83]
• Prefer not to answer: 0.95 [0.38-2.41]
Experienced Racism: 0.48 [0.28-0.81]

F&F Notes: Between the Rows of the Tables

This part of the research always feels a little strange to me. Through my previous research methodology training, I have always understood it as the part where you are supposed to step back and strip everything down to its basic quantitative components and pretend that is all that is here. Nothing about this work has ever felt so clean and clinical like this, and it should not.

Every percentage, frequency count, and data point in these tables came from someone's decision to share something with us. Sometimes, this was quick and easy -a firm yes, no, smile and nod. Other times, it took a lot more. People hesitated, made jokes to ease the tension, or paused in that space between trust and uncertainty.

So, while this section is just meant to show the data, without interpretation or storytelling, I want to be honest that none of this feels neutral. When I look at the

patterns, the models, and the tables, I do not just see the numbers. I see people. I see their faces. I see the auntie who did not know where she got her info, but knew it was not the internet. I see the young dad who said: "*I'm not really sure what to pick half the time, I just need to do whatever is best for my kids.*". I see the nurse who would answer the questions like she was still on the clock, and so many more.

These sections are just the results on the page – I can understand this. I know they are not interpretations or the whole picture, but they do matter. And I wanted to say, before going any further, while I understand this section probably feels more academic and traditional, what's shown here came from a place of care, and I promise I will carry that honour moving forward.

Chapter 5: Discussion

COVID-19 Information Sources and Their Relationship with Health Perceptions & Behaviours (Research Question One)

While this analysis does not seek to prove claims of causality, essential questions can be raised, especially when comparing real-world context with community insight. One of the clearest trends across the tables was the differences in health perceptions and behaviours depending on the participant's primary source of COVID-19 information. The community members who selected community-led or public health services, like Six Nations Health Services or Ohsweken Public Health, were more likely to report that COVID-19 posed a serious threat and engage in protective behaviours (e.g., masking, physical distancing, and vaccination). By contrast, participants who reported reliance on information from family, friends, or social media as their top information source were more likely to feel that the situation surrounding COVID-19 was overblown, and showed somewhat lower levels of protective behaviours across the tables.

This information affirms what I, and other staff, have heard from community members over the past few years. Who shares the information and how, matters just as much, if not more, than what is being said. While governmental and public health bodies may have the most evidence-based and academic information, if it is coming out of

mouths that have done the community harm in the past, having this 'perfect' information may not matter much.

What's also important here is the nuance. Within the vaccination status category, while trends appeared, it was clear that the vast majority of participants, across all groups, chose to receive/expressed a desire to get the vaccination. People talked about protecting family, looking out for community, and doing what science said was right. This suggests that even when people are getting their information from different, possibly conflicting sources, shared values like care, responsibility, and interdependence can guide similar decision-making.

Of course, it is also true that people likely did not just rely on one source. While participants were asked to rank their top three sources, this analysis focused on the topranked choice. This was a practical decision for simplicity and pragmatic interpretation; however, real life is anything but simple. People do not live in silos – their sense-making isn't always linear or singular. So, while I worked with the top-ranked source, I recognize decision-making was likely influenced by a blend of information. This complexity is why interpretation must happen with context. The trends displaying that local sources may be associated with higher uptake of protective factors does not mean other sources were inherently harmful. However, what it does suggest is the role of relational trust and how it played a pivotal role in shaping how information was received. These patterns do not prove anything in a statistical significance sense, but they offer a map – a way of seeing that communication pathways mattered, not just in theory but in real-life decisions. It provides a building block to discussions entertaining how public health messaging can be tailored more effectively to match the values, histories, and realities of Indigenous communities.

Influences of COVID-19 Information Choice Sources (Research Question Two)

This question built a nominal logistic regression to see how different participant characteristics were associated with their top-ranked source of information. While the estimates in this model are interpreted similarly to odds ratio, I'd like to clarify that the values reported are relative risk ratios (RRR), not odds ratios. While similar and both coming from exponentiating log-odds coefficients, the RRR reflects the ratio of the probability of choosing one category over the reference category, per unit change in the predictor variable. (UCLA Advanced Research Computing, n.d.) As an example, an RRR of 2.00 means that, holding other variables in the model constant, a participant in that predictor category (e.g., income range) is twice as likely to select the outcome category (e.g., personal networks) over the reference group (e.g., government & public health sources).

Education level produced one of the more consistent patterns. People with less formal education were more likely to gravitate towards family, friends, and social media sources over public health and government messages. For example, people with a bachelor's degree had an RRR of 0.11 [0.037-0.31] for choosing personal networks as their primary information choice. This means that compared to someone with less than a high school education (reference group), they were nine times less likely to rely on personal networks instead of government/public health sources. In the same category, participants with a non-university certificate or diploma had an RRR of 0.18 [0.073-0.42], additionally pointing towards a lower likelihood. The 95% confidence intervals associated with the values did not cross 1.00 and were fairly tight, suggesting a stable and reliable estimate.

Income level reflected a similar pattern to that observed with education level. Those in the earning category of \$80,000-99,999 had an RRR of 0.23 [0.077-0.67] for using local/community-based sources and 0.26 [0.089-0.75] for using personal networks. In other words, they were nearly four times less likely to rely on these information sources compared to someone earning less than \$20,000 of total household income. Those within the lower levels of income also had less dramatic RRRs across different categories, suggesting that they were less likely to turn to government/public health sources and more likely to turn to the community or informal resources, compared to those in higher income categories. These differences could be related to trust, access, or the relevance that government has on each participant's unique daily life.

74

Interestingly, those who expressed experiences of racism due to their Indigenous identity reported experiencing an RRR of 0.48 [0.28-0.81] for using news & social media sources. This means that they were significantly less likely to choose this source over government or public health information compared to those who had reported not experiencing racism. A similar, yet less pronounced pattern was observed for those who relied on personal networks (RRR=0.52 [0.31-0.88]). While this finding was initially surprising, it likely reflects a complicated relationship with trust – where government & public health sources, even at an Indigenous community level, may still hold strong credibility. It is also possible that these 'mainstream' institutions were actively working to rebuild trust through Indigenous reconciliation efforts or Indigenous-led messaging throughout the pandemic, thus making them more accessible and culturally resonant.

Despite these strong estimates, not every RRR in the model was statistically precise. Some RRRs, particularly those at the higher end of the education level variable (e.g., graduate degree), had wide confidence intervals that crossed 1. Essentially, this means they crossed a line of 'no effect', thus making them potentially unreliable and warrants caution when drawing conclusions based on these estimates. Despite these problematic estimates, the inclusion of these variables helps paint a more complete picture and respects community context where individual stories and broader trends often co-exist in complex ways.

75

Shared Themes

When I step back and look at the findings from both of the research questions, I see rows that run through them both, not just statistically, but emotionally, relationally, and socially. Both questions point to the same truth: the ways in which people from Six Nations make decisions about their health are shaped by more than just access to information; it is shaped by experience: trust, income, education, history, and more.

What struck me the most was the complexity that racism added to the model. I expected it would push people away from mainstream public health systems, and while I am sure this certainly does happen, here it seemed to actually pull people closer. Those who had reported having experienced racism due to their Indigenous identity were less likely to rely on social media or personal networks, and more likely to stick with government or other community-based public health sources. While this surprised me, it speaks to something that we do not always acknowledge; heck, sometimes I still even debate if I think it is true. Trust can be rebuilt, especially when local, culturally grounded healthcare teams are involved. Or, maybe it is just survival instincts returning to the light – in times of uncertainty, people turn to information that feels the most direct.

Either way, both results highlight an important theme: health information decision-making does not exist in a vacuum. Instead, it lives in relationships, and understanding these relationships matters if we want to support health and healing in a way that actually fits people's realities.

Strength and Limitations

This thesis's biggest strength is the work's root in the community from the very beginning. These questions were not pulled out of a textbook, but rather grew conversations, observations, and real moments I have had working on Six Nations for the past few years. I did not approach this work as an outsider, but as someone who knows the roads and has meaningful relationships with the people I want this work to affect.

Throughout both research questions, there was a solid sample size to work with. Over 500 participants were included in the final analyses after the exclusion criterion was applied, which emerged patterns that may not have been seen in a smaller or more generalized sample. Anecdotally, the CCFN Study is one of the most successful, in terms of participant recruitment, studies ever conducted within our community, thus supporting the celebration that should come with a sample size like ours. The size, along with the diversity of participants, allowed the possibility to explore multiple webs of ideas surrounding trust, perceptions, and decision-making.

This work was not without its limitations. While the CCFN Study was a prospective cohort study, the data utilized in this thesis were all cross-sectional as it was collected at a single snapshot in time for each participant. This, combined with the exploratory nature of the analysis, eliminates any possibility of causal explanations.

Additionally, the reliance on categorical, self-reported variables, while often necessary in survey research, narrows the range of interpretations possible. For example, people's experiences with racism due to their Indigenous identity were presented as yes/no categories, but in reality, this is a spectrum and not a binary. Similarly, participants' COVID-19 information sources were sorted into four broad categories, which are acknowledged to not reflect the idea that many people access information through a mix of channels, and those distinctions are not always clear-cut.

It is also worth noting that the exclusion of people who selected "Prefer not to answer" or "Do not know" can introduce challenging interpretations. While these participants were treated as missing for the purposes of this analysis, in reality, selecting one of the categories is very much an answer. However, with limited ability to interpret that answer further and the complications a highly reduced sample size would introduce, these participants were excluded, but that is still an imperfect compromise.

Lastly, while the regression model was able to offer valuable insights, some estimates presented with wide confidence intervals, thus limiting interpretation. With that, it is recognized that this is a natural part of working with real-world data in an exploratory approach, especially when space is being held for nuance rather than statistical significance.

F&F Notes: Listening Between the Lines

Writing this chapter felt a little different – the dust was starting to settle. Numbers, stories, questions that I have carried for months if not years, were finally meeting a page. While I am privileged to have so many statistical tools and academic language at my fingertips, I really wanted to write in a way that made this work feel more alive.

Throughout writing this, my mind kept going back to the moments working directly with participants – the classic pause before the answer, subtle shrugs rather than words, the "*I do not really know, I just went with what felt right.*" None of these moments neatly fit into a dataset, but they still shaped everything I saw when my eyes were filled with STATA outputs. So, when I wrote the results, I did not want to make them sound more certain than they actually are. While I recognize academia enjoys clean takeaways, in reality, trust, choice, and perception are messy. They are shaped by history, trauma, and more – I do not want to flatten that.

There were moments that made sense, like the roles of education and income, while others caught me off guard, like the racism experience data. This reminds me that nothing about this is ever straightforward. Perhaps trust isn't always about only looking at what happened in the past (which is still relevant) – maybe sometimes it is about who's in front of you now, or who's doing the work within the community to rebuild a relationship that was once completely broken. Throughout this chapter, I often found myself reflecting and wondering how often research papers miss this part – the tension between what the data says and what people know from within their bones. I did not want to miss this, and hope I was able to honour that. I wanted to write in a way that let those layers coexist: the data, the numbers, the models, and the lived realities. This chapter was not about wrapping everything up in a bow, but sitting with its complexity and letting it be complex.

Chapter 6: Conclusion

Overview of Key Findings

Now that the dust has settled, and all the numbers and narratives have had their say, no one statistic stands out, but rather the story they bring together. Across both of the research questions (1: Do different sources of COVID-19 information influence health perceptions or behaviours among members of the SN community?; 2: What factors influence individuals' choices of specific COVID-19 information sources among members of the SN community?), the message was consistent: the choices people in our community make surrounding their health – what they believe, how they act, and who they trust – do not just come from having access to information. It comes from experiences, memories, from who's speaking, and from whether they feel like they've spoken to us before.

In the first research question, we saw that information sources were not just some irrelevant background noises; they were deeply associated with how people understood the threat of COVID-19 and the actions they subsequently took. In research question two, we saw that those information preferences were shaped by people's social realities. These questions reminded me that data does not explain everything. It points to places where trust is earned or lost, and where systems either meet people where they are at or do not at all.

Together, these findings suggest that health communication, particularly in Indigenous communities, cannot be a one-size-fits-all approach. It must be relational, relevant, and rooted in people's experiences. If we want to support stronger, healthier communities, we need to keep listening to parts of the story that do not show up in data tables.

Community-specific Recommendations

The recommendations listed below are reflections based on what came up through the data, the conversations, and years of working with the community. My hope is that this work can offer something useful as we keep thinking together about how to support Six Nations' health moving forward.

- 1) Keep investing in local, trusted sources.
 - People were more likely to feel COVID-19 was a serious threat requiring proactive action when the message came from someone they trust. Often, that means someone from the community, like nurses or public health workers. It makes a difference to hear something from someone who knows your story, or at least knows where you are coming from. This kind of trust cannot be rushed, but can be built – it is worth continuing to invest in.
- 2) Make health communication feel like it belongs here.

- We already know that accuracy simply isn't enough. People within Six Nations need to feel like the message speaks to them, that it reflects their world and does not just repeat things that come from somewhere else. It could be the words that are used, the way something is explained, or who is saying it – there's a big opportunity to keep building health communication tools that feel familiar.
- 3) Reach people where they are at.
 - The data showed that education and income may play a role in the sources that people trusted. This does not mean that those with lower incomes or lower levels of education are necessarily uninformed, but it could reflect the fact that systems haven't always been built to speak to them. Moving forward, initiatives like peer education, youth and elder dialogue, hands-on workshops, or community storytelling might help bridge these gaps in ways that do not feel so top-down.
- 4) Use the power of data sovereignty to keep asking the right questions.
 - This study was made possible because Six Nations held data that mattered. This is powerful – it is a model that can keep going with advocation and clear boundaries with external researchers. Looking ahead, research can continue to utilize the *COVID CommUNITY* data for community development and prioritize obtaining meaningful data from existing/future projects.
- 5) Remember what did not make the datasets.

Some of the most important things I learned did not make it onto a survey.
 While this kind of knowledge does not always get counted, it should be valued, nonetheless. Moving forward, community-driven research and health planning should keep making space for that kind of knowing too – numbers matter, but so do stories.

Future Research

This study was meant to be a launching pad. It is the beginning of a conversation that deserves more time, depth, and voice. The questions asked were exploratory in design and were shaped by community priorities on what data was available. Here are a few directions that could help this research move forward:

- 1) Dig deeper into why people trust who they trust.
 - This study looked at what sources people used and what may have influenced that, but it did not fully unpack the why. Qualitative work (e.g., interviews) could offer rich insights into how trust is built, broken, and repaired across the different groups of people that exist in our community.
- Explore the role of cultural connection and traditional knowledge in health information seeking.
 - The four categories of information used throughout this thesis did not capture the roles of culture, ceremony, or traditional knowledge. Future studies could consider how these connections influenced who and what people turn to in a health crisis, given the relevance to the community.

- 3) Look across generations or other descriptive variables.
 - This study did not consider age or other possibly relevant variables (e.g., gender) throughout the analysis. Future research could explore how youth, adults, and Elders engage differently in health information. Once these are better understood, it can create more targeted communication to meet the needs of particular groups where they are at.
- 4) Use follow-up designs to examine change over time.
 - In an emergency, nothing is static. Following up with people over time or revisiting similar questions in a future crisis or health campaign could identify how patterns shift. This kind of work could help differentiate between short-term reactions from long-term beliefs.
- 5) Co-develop and test new communication tools.
 - This study highlighted gaps in trust and resonance across different groups of people. Future research can move these observations to action – codeveloping tools with the community and testing which formats, voices, or platforms may work best.

F&F Notes: This Does not Feel Like an Ending

Throughout writing this thesis, my mind kept migrating towards what the end will look like. I thought writing this chapter would feel like I was closing something. Instead, it feels like I am walking out of a room, but leaving the lamp on because I will keep coming back. This work started with questions, but it really started with people. Community members who let me into their stories, coworkers who kept the fire going when things got cold, and mentors who reminded me that research can still have a heart – in fact, it should have a heart. Somewhere in all of this, I found more of myself than I expected to.

I won't pretend that this process was easy. There were moments I got lost in the numbers, when I second-guessed whether this was my story to tell at all. But, then I remember the people who paused before answering a question, who stayed to talk after, or who shared something that did not get typed down but stuck with me anyway. These are the moments that help remind me why I wanted to do this in the first place – not to just publish findings for a degree, but to honour the parts of the story that live between the lines.

This thesis isn't perfect. There are more things I wish I could have said, tested, more stories to include. But, I tried to carry this with care. To not separate the data from the people who offered it to me. To write with respect, softness, and a little quirkiness, even when the language of academia challenges this.

Now, coming to the 'end,' or at least this version of it, I am not done. I do not think I ever will be because this isn't a neat conclusion. It is an offering to a small piece of a much bigger story, one I was lucky enough to help tell. To everyone who trusted me to carry even a part of it – thank you. I hope I did right by you. I promise that I will keep trying to.

Nya:weh. For every word, and everything in between.

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Appendix A

Do COVID-19 information sources affect health perceptions or behaviours on SN? (RQ1)

Data Exclusion

- Total Sample Size: 760
- Perceived threat: 6 dropped due to selecting "Prefer not to answer"; 15 dropped due to selecting "Do not know".
- Perceived overexaggeration: 4 dropped due to selecting "Prefer not to answer"; 17 dropped due to selecting "Do not know".
- Vaccination status: 2 dropped due to selecting "Prefer not to answer"
- Masked in public: 1 dropped due to selecting "prefer not to answer."
- **Dropped for missing one or more of the above variables**: 162
Appendix B

What influences COVID-19 information source choices on SN? (RQ2)

Data Exclusion

- Total Sample Size: 760
- Education level: 12 dropped due to selecting "Prefer not to answer".
- Living on/off reserve: 2 dropped due to selecting "Prefer not to answer".
- Experienced racism: 10 dropped due to selecting "Prefer not to answer";
 17 dropped due to selecting "Do not know".
- Living alone: 20 dropped due to selecting "Prefer not to answer".
- Most Trusted COVID-19 Info Source: 5 dropped due to selecting "Prefer not to answer".
- **Dropped for missing one or more of the above variables**: 152