



Barriers and Facilitators Associated with the History of Colonization on the Vaccination Process of COVID-19 among Indigenous Peoples in Canada

Jingchun Zhou¹, Iris J.N. Parshley², Robert A. Malkin^{3*}

¹Trinity College School, Canada

²International Research Institute of North Carolina, USA

³Department of Biomedical Engineering, Duke University, USA

ABSTRACT

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*Correspondence:

robert.malkin@duke.edu

Indigenous communities were identified as highly vulnerable during the COVID-19 pandemic, given their remote geographical location and high relative cumulative cases. Specific barriers and facilitators of vaccination in the communities must be studied to create better public health planning. This study conducted private, qualitative interviews in the Indigenous community with local adult residents. Convenience sampling was used and recruitment was conducted with support from trusted Indigenous community connections. Participants were included if they spoke English and spent the majority of their lifetime in the local community. We interviewed three participants (two women, and one man, ages of 54, 53, and 61 years old respectively), all of whom received two mandatory COVID-19 vaccines with two of them getting one booster shot. Interview questions asked for attitudes on the current vaccination process, the government and local health unit policies, the source of trust and mistrust, and future suggestions for vaccination policies. Participants identified cultural mistrust as a barrier as it refers to the hesitancy of residents due to historical and cultural contributors. Participants suggested mixed attitudes toward accessibility, source of information and local health unit policies, and vaccine mistrust and trust, identifying them as barriers and facilitators in different scenarios. This study brings vaccination-related issues to the attention of the Government of Canada and health officials, facilitating effective public health planning and long-term trust building with the Indigenous communities.

Introduction

According to the epidemiological summary of COVID-19 cases by the Government of Canada [1], there were 109,994 cumulative cases among Indigenous Peoples communities as of June 18, 2022. The term Indigenous Peoples is the collective term for First Nations, Métis, and Inuit peoples who are original land inhabitants and their descendants in Canada. Even though reliable vaccines, including Moderna and Pfizer-BioNTech, became widely used to eliminate the impact of the pandemic, some Indigenous communities still suffered from many COVID-19 cases.

Prior research investigated the factors contributing to the vulnerability of Indigenous communities during the pandemic. According to the Canadian Government, “until March 9, 2022, over 88% of individuals aged 12 and older in First Nations, Inuit, and territorial communities had received a second dose of an approved COVID-19 vaccine, and over 27% had received a third dose. The vaccination rate for the third dose in the country is over 55.91%” [1]. This suggests that although Indigenous Peoples have sufficient fully-vaccinated rates, the First Nations have significantly lower-than-average vaccination rates for the third dose. Based on prior research, the third booster is important as it helps to maintain the effectiveness of first doses and avoid a decrease in vaccine protection, especially in groups with higher vulnerability [2].

Hesitancy toward getting COVID-19 vaccines is related to lower vaccination rates, which can thus hinder herd immunity in communities [3]. Vaccine hesitancy is defined as a “delay in acceptance or refusal of vaccination despite the availability of vaccination services” [3]. Vaccine hesitancy is complex and context-specific, varying across time, place, and vaccines. It is influenced by factors such as complacency, convenience, and confidence [3]. Vaccine hesitancy increases the possibility of the reappearance of the virus and reduces the efficiency of the vaccine: Hence, vaccine hesitancy in some Indigenous communities contributes to the high vulnerability of Indigenous Peoples in Canada.

Difficulty accessing vaccines also affects the vaccination rates in some Indigenous communities, especially those in remote regions. Indigenous communities in distant arctic regions have a higher tendency to experience COVID-19 outbreaks [4]. Due to difficulties in vaccine storage and transportation and possibly crowded housing, numerous Indigenous communities in the northern region have a higher vulnerability to the COVID-19 pandemic [5].

Based on the literature analyzing the vulnerability factors of Indigenous communities, vaccine hesitancy and limited access to medical devices and vaccines are two substantial factors affecting vaccination rates. During the pandemic, some Indigenous communities demonstrated hesitancy towards vaccines because of the distrust created by historic colonization [6].

Defined as a “delay in acceptance or refusal of vaccination despite the availability of vaccination services”, vaccine hesitancy can lead to a lower vaccination rate [3]. This increases the possibility of virus reappearance and hinders vaccine efficiency, thus contributing to the higher vulnerability of some Indigenous communities in Canada [3].

Indigenous Peoples are an important part of Canadian society, and understanding the underlying reasons for their vulnerabilities during the pandemic helps to create an effective medical system in the future. Although research is being conducted on the factors leading to the high vulnerability of Indigenous communities during the pandemic, which includes mistrust built from colonization, not much research is focusing on the reasons behind the formation of the mistrust and trend of hesitancy towards vaccines. Thus, the purpose of this study is to study

the barriers and facilitators associated with the history of colonization on the vaccination process of COVID-19 among Indigenous Peoples in Canada. Two possible substantial factors will be historical mistrust and vaccine and resource availability. The study aims to bring these issues to the attention of the Canadian government and health officials so they can better address vaccination hesitation and build trust with the First Nations people in Canada.

Method

We conducted a cross-sectional, qualitative case study. A 30–45-minute interview with the researcher in person was conducted on the participant's opinions of COVID-19 vaccines in Canada. This research protocol was submitted to the Institutional Review Board for consideration, comment, and guidance and was approved by the committee to protect the participants. Before the interview, participants were informed about the purpose, risk, compensation, and other important information regarding the research project. All participants understood that participation was voluntary, and consent could be revoked at any time. Each participant signed a consent form to acknowledge their understanding.

We conducted the interviews in person in a private room. Since the facilitators and barriers encountered can be different between people, interviews allow more firsthand direct information to be recorded compared to surveys. Participants were all from one community. To reduce related bias, the researcher collected data from subjects of different genders and ages. The study focused on English-speaking adult participants (18+) from both genders in the Cree First Nation Community in Ontario, Canada. The interview was broken down into sub-categories based on the purpose and content of the questions. See the appendix with the sum-categorized main questions. The original data, the audio of the interview, was recorded using the voice memos function of the researcher's iPhone.

Interviews were transcribed and analyzed using NVivo software [7]. Measures identified from the transcriptions included accessibility, government and health unit policies, source of information, vaccine mistrust and cultural, family, and historical trends of mistrust. NVivo is used to classify each sentence in the interview into each measure and count the total frequency of occurrence of each measure.

Results

We interviewed three individuals, two women, and one man (Table 1). Two interviewees were from Moosonee, Ontario, Canada. The other interviewee lived on Moose Factory Island which was a 30-minute drive to the north of Moosonee. All three participants lived in their community for most of their lives. One participant left the community for 13 years to join other communities for occupational purposes. All three participants received two doses of the COVID-19 vaccine, and two of the participants received one booster shot.

Table 1. Participant demographics.

Participant #	Age	Sex	Occupation	Vaccination status
P1	54	Female	Guide, teacher, cleaner, mother, Granny	2 doses + 1 booster
P2	53	Female	LTO position, long-term occasional teacher, mother	2 doses
P3	61	Male	Ex-pilot, Camp Onakawana owner hosting students, hunters, fishermen, snowmobilers	2 does + 1 booster

Table 2. Barriers and facilitators associated with the history of colonization on the vaccination process of COVID-19 among Indigenous Peoples in Canada

Measures	Description	P1	P2	P3	Total frequency
Accessibility	How materially available and accessible the COVID-19 vaccine is, and the travel time required to access the vaccine, waiting time	6	9	11	26
Government and Health Unit Policies	Attitudes on existing policies, specific policies announced for Indigenous communities, and participant's knowledge about existing policies	3	9	9	21
Source of Information	Attitudes about the trustworthiness of the source of information about the COVID-19 vaccine, the language the information is offered in, the participant's knowledge about the vaccine	8	9	8	25
Mistrust (cultural)	The trend of hesitancy in family and community. Mistrust against the vaccine because of historical or cultural factors	9	12	6	27
Mistrust (general)	Mistrust about the effectiveness and safety of the vaccine, which is not due to historical or cultural factors,	6	7	1	14
Trust in community	Trust and positive attitudes existed in the community about the safety and effectiveness of the vaccine	3	2	6	11

Accessibility

After transcribing and analyzing the interviews, we determined accessibility and cultural mistrust were the most common themes related to vaccine hesitancy among participants (Table 2). Participants mentioned that vaccines were very materially accessible which contributed to the easy vaccination process. For instance, Participant 2 suggested that the process was convenient to the point that “it was just a matter of do you want to get it”. For the same topic, Participant 3 offered, “In our community, they make them very available. It's not difficult at all to get it. If I wanted to go get vaccinated, I just need to go to our health services, and they'll make it happen”. In addition, due to the small size of the community and the sufficient vaccine resources, waiting and travel time were not barriers. All participants suggested that they could receive vaccines in their community, and no prior appointments or waiting time were needed. For example, Participant 1 mentioned, “The process was like you walked in, you got your needle, and because they offered it for a whole week and because our community is small too, everybody was able to get their shot right away. Our health unit is amazing at getting things done”.

Government and Health Unit Policies

The Canadian government passed policies that impacted the COVID-19 vaccination process for Indigenous Peoples. All three participants mentioned the policy which helped the Indigenous communities to be “one of the first to get the vaccines” (P3). Participant 2 discussed several lockdown and quarantine policies in the community. She offered that the policies “were very hard on mental health for a lot of people”. However, all three participants had limited knowledge of the existing policies with some suggesting that they had “never heard of any other policies” (P1) and had “never really looked into it or heard of it but knew that there should be a few” (P3). In fact, many participants were not aware of the detailed policies under the general health unit plan. For instance, none of the participants had used or heard about the policy in which the cost of travel to get the vaccine is covered by government insurance. After the interview, most participants “would support” (P1) the policy and believe “the government

should cover the fee” (P3). Some participants suggested the policy “would not reduce [their] doubts on the safety of the vaccines” (P2).

Some participants viewed the existing policies as “pretty good” (P3) and helped make the vaccination process “easy” (P1). They offered some suggestions on enhancing and offering more vaccine information about “their mechanisms, efficiency, production process, and effects on children and other people” to the residents (P1). Participant 2 showed doubts about the policies and “would not trust the vaccines even if the government announced new policies”. Participant 3 suggested that making the vaccines “voluntary” can encourage more people to receive them, as “many people are forced to take it, but they did not like the idea of being forced”.

Source of Information

Participants mentioned that the source of vaccine information was another factor affecting vaccine hesitancy. All participants received vaccine information from the government and the local health unit. Two of the participants viewed this source of information as trustworthy, because “the information about each procedure [was] explained clearly” (P1) and “is straightforward” (P3). Social media and posters were also used to share clear information (P3). Participant 2 doubted the credibility of the information: “I wonder how do they know the information is true? How did they know that was fact? Or are they just telling us what the government said to tell us? Our local health unit is very good at getting what they believed the community needs, and the others think this is ok but I do not” (P2). All participants suggested the shared information is clear and in a language they understood. They had prior knowledge about the differences between regular and booster shots of the vaccines; however, all participants did not understand the difference between monovalent, bivalent, and multivalent vaccines.

Vaccine Mistrust and Trust

General mistrust of the vaccine was one barrier discussed by the participants. Two participants suggested it was a substantial cause of their vaccine hesitancy. Participant 1 offered that “because it just seemed like they produced the vaccines too fast, and the news and other people are also saying the vaccines can be bad,” she did not trust the vaccine. Participant 2 demonstrated doubt and was “skeptical” about the safety of the vaccine as “they came up so fast and they didn’t even test on guinea pigs yet,” and the participant “[didn’t] even know what’s in it, is it going to make the condition worse and how are people going to know?” (P2). The strong side effects experienced by the participant also increased the mistrust towards the vaccine’s safety, as the participant mentioned “I got really sick like side effects from it, and I really think it was from the COVID vaccine”. Participant 3 offered that though he “[knew] people can get really sick”, “some people like himself didn’t get that sick”, so he was not hesitant about receiving the vaccine. The participant suggested the protection of the vaccine against the virus is “better” than the possible concerns and side effects it brings (P3).

The trust in vaccines in the community is also discussed in the interviews. Participants suggested that “a lot of [their] friends and my parents got and trust the vaccines” (P1), and that “a lot of people in the community are for taking the vaccine as they think it is good and is going to protect everybody” (P2). Participant 3 suggested that people who did not take the vaccines

experienced “a strong push and a bit of harassment up here in the small community because everyone else who trusted the vaccine knew who didn’t take the vaccine”. In addition, Participant 3 also suggested that the opinions of many residents had changed and became more positive as “they know it is not like 100 years ago, and our technology, our scientists, everybody was working on it” (P3).

Cultural, Family, and Historical Trends of Mistrust

The participants discussed the origins of feelings of mistrust in the community. Participant 2 stated that her father’s opinions impacted her view on the vaccine. The participant was hesitant to receive the vaccine and remained dubious because her father told her to “not do the vaccines when the government come and tell [her] that [she] has to get these vaccines in the future” (P2). Her father also suggested the vaccines are “poisons and are not going to be good for you”. This mistrust from the participant’s father increased her doubts about the safety of vaccines.

Participant 2 offered that her trust in traditional Indigenous medicines increased her doubts about the vaccines. The participants suggested, “Just remembering what my dad who is a medicine person and dubious for the vaccines said, I know as native people we have medicines that we could make off the land. If I know I can use something safer from the land and I know it will work, why should I rely on something that I don’t even know what is in it” (P2). In addition, Participant 2 discussed the history of colonization and residential schools also contributed to her hesitancy. She offered, “factors like me being Aboriginal, residential school, how they tried to get rid of us, what they did to our parents and put them in residential school, trying to take the Indian identities out of the Indian, and the government’s way of trying to do something to us so we’ll get sick. Those are what I think has created a historical factor where there’s no trust” (P2). For the same topic, Participant 3 discussed that some people in the communities “had the concerns that the government was just using them as guinea pigs”. According to Participant 1, such trend of hesitancy in the community “makes [the participants] felt worried about the vaccines”.

Discussion

Accessibility

The policies aimed to prioritize the Indigenous communities and ensure vaccine availability acted as facilitators to the vaccination process. This protects the Indigenous communities and allows the residents to receive vaccinations freely without additional physical barriers. This differs from previous literature which identified availability and accessibility to medical devices as the main barriers. However, these conveniences also hinder the vaccine process by creating doubts. Some participants worried about the safety of the vaccines and the intentions behind the prioritization. They suggested their concerns about “being the vaccine guinea pigs” (P3). This creates mistrust of the vaccination process, which can further expose the vulnerable community to the virus [3]. To resolve this hindrance and protect the vulnerable Indigenous communities, trust should be built between local residents receiving the vaccines and health units issuing the vaccines, such as providing adequate information through sources the residents consider trustworthy before and during the vaccination process.

Sources of Information and Local Health Unit

All participants received information from the government and local health unit. Some interviewees mentioned the health units used clear, understandable language and effective tools including social media, posters, and information pamphlets to aid the process. Though most participants trusted the information from government organizations, some continued to demonstrate hesitancy on the well-organized health unit vaccination plan and questioned them as “being overprepared” (P2). This difference in participants’ attitudes to the same policy shows that mistrust plays into Indigenous people’s vaccination hesitancy. The participants doubted the vaccination policy not because of its specific effectiveness, but because of their mistrust towards the government. This suggested the government and local health unit should focus on understanding the sources of mistrust among residents regarding COVID-19 vaccinations. Though a personal information session with the health unit nurse can help residents build trust, it cannot resolve the mistrust against government organizations. To resolve this mistrust, more personalized and long-term programs should be provided to the participants prior to the vaccination process. For instance, regular one-to-one or small group conversations between local government officials and Indigenous residents may help to create a more comfortable environment for residents to share their doubts. Such personal connections may facilitate local officials to be aware of the specific reasons behind hesitancy and create corresponding solutions.

In addition, informing the community residents about the smaller policies can help to build trust between the government and Indigenous communities. This is because such information helps to prove the positive intentions behind the community-specific policies. Currently, many participants are unaware of some policies that are beneficial and more relevant to their daily lives. In addition, many participants suggested they would support these smaller-scale policies after hearing about them from the interviewer. The persisting hesitancy in the community is mainly due to the long-standing cultural and family-based mistrust between the government and Indigenous residents. However, it may be worthwhile for the government to share all relevant policies with individuals, as it can help build long-term trust between the Indigenous communities and the government by underscoring the positive intentions behind large vaccine policies.

Vaccine Mistrust and Trust

Most of the participants suggested vaccine mistrust towards the safety and effectiveness of the vaccine was a substantial cause of their vaccine hesitancy. The quick production of the vaccine, social media, and the surrounding community’s comments increased the hesitancy of many participants (P1, P2). Some residents in the communities, including some participants, did not fully trust the information provided by the government, as insufficient explanations and detailed evidence were given.

The strong side effects experienced by the participant also increased the mistrust towards the vaccine’s safety; however, some participants discussed that the possible side-effect was not a significant barrier. As Participant 3 offered, though he “[knew] people can get really sick”, he was not hesitant about receiving the vaccine. Moreover, he suggested the protection of the vaccine against the virus outweighs and is “better” than the possible concerns and side effects it brings (P3). The intensity of adverse reactions to the vaccine differs between individuals, and

thus this barrier may not be generalized to the entire community. Despite this, follow-up conversations with community residents explaining the causes of side effects may help alleviate some hesitancy.

In addition, the attitudes of other residents in the community also raised the doubts of participants. When other residents constantly expressed mistrust on the vaccines, the participants are likely to feel “worried” too (P1). On the other hand, as the northern community is small in population size, the growing trust of other community residents can be a “push” to receive vaccine as unvaccinated individuals are likely to experience social pressure in the community (P3).

Cultural, Family, and Historical Trends of Trust and Mistrust

In addition to the general doubts about safety, similar concerns arise related to the history of colonization. Most participants emphasized the community’s concerns about the reoccurrence of historical unfair treatment in the public health system, such as being used as “guinea” pigs to test the safety and effectiveness of vaccines. Such cultural mistrust was also passed from older generations to the younger ones in family settings. Some participants shared that the strong concerns from their parents about the government’s public health system initiated their doubts about the vaccines. The profession of participants also influenced their level of cultural mistrust on the vaccine. For example, being a medicine woman in the community, one of the participants trusted the traditional plant-based medicine from the land. Her profession furthered her hesitancy towards medicines, of which she doubted the safety and effectiveness, making her more reluctant in the vaccination process than others in the community.

Public Health Intervention

According to the participants, the current vaccine policies and implementation by the local health unit and government in Canada are mostly effective. The health unit should continue making vaccines and medical supplies available to the community and spreading related information on online social media and offline posters regularly. However, government and local health units should be aware of the complex factors contributing to vaccine hesitancy in the community. Policies and specific programs should be planned to tackle the cultural and historical trends of mistrust between the community and government. Direct in-person conversations should be conducted with Indigenous individuals to discuss the diverse reasons behind vaccine hesitancy. Such conversations could help government officials and local health units be aware of the sources of doubts and design specific programs and policies to resolve them respectively.

Limitations

The research also has limitations. There was a possible language bias as only English-speaking participants were selected. Participants who can communicate in English will not experience language barriers when receiving vaccination information. However, Indigenous Peoples in other regions of the country may not understand information offered in English. The relatively small participant pool can introduce bias. Information shared by the participants may not be representative of every Indigenous community in the country, as the issues and successes experienced by communities can vary due to geographical location, residents’ opinions, and certain cultural differences.

Conclusion

Considering the vulnerability of remote Indigenous communities, specific vaccine policies should be implemented to ensure an effective vaccination process. The historical trend of mistrust due to colonization were identified as factors of vaccine hesitancy in the communities. In this study, the hesitancy is mainly due to historical, cultural, and family-based trends of mistrust toward the Canadian government. Such trends are further impacted by the lack of details and follow-up explanations in the posted government policies. Thus, specific public health measures should be implemented to address the doubts of residents. In addition, the value of Indigenous plant-based medicine affected vaccine hesitancy since residents trusted traditional medicine over vaccines. Future research can focus on the antiviral potency of Indigenous medicinal plants for COVID-19 and other illnesses to explore the possibility of implementing the use of traditional medicine in current public health policies.

Declarations

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References

- [1] Government of Canada. Epidemiological summary of COVID-19 cases in First Nations communities. <https://www.sac-isc.gc.ca/eng/1589895506010/1589895527965/>; 2022 [accessed 29 June 2022].
- [2] Loubet P, Laureillard D, Martin A, Larcher R, Sotto A. Why promote a COVID-19 vaccine booster dose? *Anaesthesia Critical Care & Pain medicine*. 2021;40(6):100967
- [3] MacDonald NE. SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: Definition, scope and determinants. *Vaccine*. 2015;33(34):4161–4164.
- [4] Petrov AN, Welford M, Golosov N, DeGroot J, Devlin M, Degai T, Savelyev A. Lessons on COVID-19 from Indigenous and remote communities of the Arctic. *Nature medicine*. 2021;27(9):1491–1492.
- [5] Government of Canada. Supplementary Report for the Chief Public Health Officer of Canada's Report on the State of Public Health in Canada. Government of Canada. <https://www.canada.ca/en/public-health/corporate/publications/chief-public-health-officer-reports-state-public-health-canada/>; 2021 [accessed 3 July 2022]
- [6] Mosby I, Swidrovich J. Medical experimentation and the roots of COVID-19 vaccine hesitancy among Indigenous Peoples in Canada. *CMAJ*. 2021;193(11).
- [7] NVivo qualitative data analysis. Version 14 [software]. QSR International Pty Ltd. 2018. Available from: <https://support.qsrinternational.com/nvivo/s/>