






BMJ Open Perceptions of COVID-19 risk, vaccine access and confidence: a qualitative description of South Asians in Canada

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ABSTRACT

Objectives In the first full year of the COVID-19 pandemic (2020), South Asians living in the Greater Toronto and Hamilton Area (GTHA) and Greater Vancouver area (GVA) experienced specific barriers to accessing SARS-CoV-2 testing and reliable health information. However, between June 2021 and February 2022, the proportion of people having received at least one COVID-19 vaccine dose was higher among this group (96%) than among individuals who were not visible minorities (93%). A better understanding of successful approaches and the challenges experienced by those who remain unvaccinated among this highly vaccinated group may improve public health outreach in subsequent waves of the current pandemic or for future pandemic planning. Using qualitative methods, we sought to explore the perceptions of COVID-19 risk, vaccine access, uptake and confidence among South Asians living in Canada.

Design Semistructured interviews conducted with 25 participants analysed using thematic analysis. Throughout this process, we held frequent discussions with members of the study's advisory group to guide data collection (community engagement, recruitment and data analysis).

Setting Communities of the GTHA and GVA with interviews conducted virtually over Zoom or telephone.

Participants 25 participants (15 from Ontario and 10 from British Columbia) were interviewed between July 2021 and January 2022. 10 individuals were community members, 9 were advocacy group leaders and 6 were public health staff.

Results Access to and confidence in the COVID-19 vaccine was impacted by individual risk perceptions; sources of trusted information (ethnic and non-ethnic); impact of COVID-19 and the pandemic on individuals, families and society; and experiences with COVID-19 mandates and policies (including temporal and generational differences). Approaches that include community-level awareness and tailored outreach (language and cultural context) were considered successful.

Conclusions Understanding factors and developing strategies that build vaccine confidence and improve access can guide approaches that increase vaccine acceptance in the current and future pandemics. Visual abstract can be found at <https://drive.google.com/file/d/1iXdnJj9ssc3hXCIIzP0QA9DhHH-7uwB/view>

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Involvement of diverse beneficiaries and community members.
- ⇒ Use of community-engaged research practices, allowing us to tailor the study approaches to best meet the needs of the target population and to create safe and culturally appropriate research activities.
- ⇒ Application of qualitative methods, as part of a larger series of studies, to capture a detailed review of experiences and perspectives of COVID-19 vaccination in a population that has historically faced barriers to engagement in healthcare and research.
- ⇒ Attracting a larger or more diverse range of beneficiaries may have yielded additional insights.
- ⇒ The focus on South Asian communities residing in large urban centres—community members living in rural and remote areas may have held different perspectives or had differing experiences with COVID-19 vaccine uptake, confidence and access.

INTRODUCTION

The SARS-COV-2 (COVID-19) global pandemic, officially declared in March 2020, abruptly and profoundly altered home and work life for Canadians worldwide.¹ The COVID-19 pandemic has resulted in unprecedented challenges across society in Canada, including the surge of 'parallel pandemics' related to inequities,² mental health³ and chronic disease.⁴ During the period of the pandemic where vaccination was not available, access to testing and adaptation to different ways of working predominated risk reduction efforts. COVID-19 vaccine development began in January 2020 and advanced rapidly. However, factors related to equity and individual interest/acceptability influences vaccine uptake. 'Vaccine confidence' is a term that encompasses a spectrum of beliefs and attitudes towards vaccines. Low vaccine

confidence is characterised by uncertainty and ambivalence about vaccination impact and uptake.⁵ Surveys conducted in high-income countries have shown that there is greater hesitancy regarding the COVID-19 vaccine among people from ethnic minorities.⁶ These findings parallel a historical trend of lower vaccine uptake in areas with higher proportions of ethnic minority communities.⁷

The South Asian community in Canada refers to people who originate from the Indian subcontinent. In 2021, three racialized groups represented 16.1% of Canada's total population: South Asians (2.6 million people; 7.1%), Chinese (1.7 million; 4.7%) and Black people (1.5 million; 4.3%).⁸ South Asian communities in Ontario and British Columbia were and are especially impacted by the pandemic. The higher infection rates from COVID-19 within South Asian communities appears to be largely explained by sociocultural factors, including occupational factors (eg, essential work) more so than biological differences (eg, genetic predisposition, pathophysiological differences in susceptibility or response to infection).^{9,10}

Public health measures, including testing, mask mandates, quarantine measures, restrictions and vaccination, were implemented and promoted by federal, provincial and municipal governments, as well as local public health units. Most messaging regarding these measures were not tailored for different cultural communities, even though Canada is home to numerous non-white cultural communities. However, many volunteer organisations developed materials and supported access needs for the South Asian community, which likely contributed to increased vaccination rates. For communities where this gap was not minimised using such grassroots initiatives, this may represent a missed opportunity to engage, but more importantly, a failure to obtain buy-in/uptake, eroding public trust.

We established the COVID CommUNITY Study, a prospective cohort study focused on South Asian adults living in Canada (Ontario and British Columbia) to better explore COVID-19 vaccine immune response, safety and confidence.⁹ We wanted to deepen our understanding of the factors that influenced COVID-19 vaccine confidence by braiding together South Asian community members, advocacy group leaders and public health staff perspectives of vaccine access and uptake.

METHODS

Study design

This qualitative study aimed to explore the perceptions of risk regarding COVID-19 infection and its consequences and the perceptions of vaccine access and uptake among South Asian individuals, advocacy group leaders and public health staff in Canada.

A qualitative descriptive (QD) approach was adopted as a method of naturalistic inquiry that uses low inference interpretation.^{11,12} The goal of QD is to develop and report an accurate account of participant experiences, events and process.¹³ Using a thematic analysis approach,

the five members of the analysis team (SK, BM, ZK, DD, RS) read the transcripts multiple times to become familiar with the data, generate initial codes, combine codes into overarching themes, hold discussions to clarify ideas and develop a robust description of the findings.¹⁴

Participants

Our study focused on South Asian community members, advocacy group leaders and public health staff who live or work in diverse settings within the Greater Toronto and Hamilton Area and Greater Vancouver area. We enrolled participants from the two largest urban South Asian communities in Canada, with the makeup of these communities being sociodemographically representative of the broader Canadian landscape of South Asian immigrants. We also recruited broadly within these geographical settings with the support of community partners. These locations included vaccine centres, mobile vaccine clinics, university campuses and in collaboration with local organisations.

Patient and public involvement

It was not possible or appropriate to involve patients or the public in the design, or conduct, or reporting of our research. We will engage the public in the dissemination of this research.

Process and setting

Participants were recruited via community engagement events, vaccination centres, social media, word of mouth and snowball sampling. All interviews were conducted in a confidential, private space where only the researcher and participant were present. Interviews were conducted via Zoom or telephone—based on the participant's preference. When using Zoom, a unique link with a participant passcode was provided and all recorded interviews were saved on a secure, password-protected network. Only the audio was recorded. If a telephone call was used, a telephone number was provided by the participant and the interviewer called that number at the scheduled interview time.

The Ontario interview batch began on 8 July 2021, prior to the implementation of mandatory COVID-19 vaccination, and was completed by 13 November 2021. The British Columbia interviews began on 20 September 2021 and were completed by 30 January 2022. We included a range of data collection dates to capture the temporal backdrop to the shared experiences of the research participants. It was important to capture these perspectives across and within the milieu of changing mandates and public health protocols.

Once a participant expressed interest, they were informed of the study procedures. If they wished to participate, a comprehensive information sheet was provided and informed consent was obtained and a virtual interview was scheduled (either via Zoom or telephone). Interviews, conducted by either SK (Ontario) or RN (British Columbia), were generally 30 min in duration using

a pilot-testing semistructured interview guide (online appendix A). During the interviews, participants were asked about knowledge, perceptions, access and uptake of the COVID-19 vaccine. All interviews were undertaken between July 2021 and January 2022.

The concept of ‘information power’ was used to guide the determination of sample size, where interviews were conducted with consenting participants who had personal or staff experiences with COVID-19 vaccine uptake, access and confidence until enough information was present to adequately achieve our objective.¹⁵ Language supports were offered to all participants, but based on participant preference, all interviews were completed in English. No repeat interviews were conducted.

Analysis

Interviews were audio recorded and transcribed verbatim. Data were anonymised and all participants were provided with a coded identity. Interview transcripts were analysed manually through the principles of open, focused and thematic coding.¹¹ Graduate student researchers (BM, DD, RS, ZK) coded each interview independently and in duplicate, meeting regularly with SK to discuss progress, insights and next steps. The team held two in-depth meetings with the broader qualitative working group (GW, DB, SAL, SSA) to iteratively review data analysis and preliminary findings and confirm information power.¹⁵ Transcripts were not returned to participants for review. Participants were contacted for member-checking using an iterative process that was built into the interview flow.

Rigour

Trustworthiness and credibility were achieved through prolonged analytical engagement, the generation of rich descriptive accounts and peer checking.¹⁶ The data analysis team met weekly to discuss biases related to allopathic treatments, reflections on the data, impressions from conducting the interviews and/or listening to the transcripts and directions for data analysis.

Positionality

The lead author of this paper (SK) is a South Asian woman raised in the GTA and is currently a postdoctoral researcher. She completed her PhD studies working with South Asian pregnant people and has diverse experience working with different qualitative and mixed methods methodologies, and conducting interviews in many different contexts and with different populations. BM, DD, RS and ZK have graduate-level training in qualitative research and currently live and work in Southern Ontario. BM, DD and ZK also identify as South Asian. RN, DB and SAL live and work in British Columbia, bringing diverse qualitative research and COVID-19 vaccine access experience to the discussion. GW (paediatrician), RJdS (epidemiologist) and SSA (internist) brought clinical experience and methodological expertise to this study.

Table 1 Demographic characteristics of participants enrolled

Characteristic	Value
Total no. of participants living and working in:	
Ontario	15
British Columbia	10
Total no. of community members	10
Median age	32 (range: 19–69)
No. of males	5
No. of females	5
Total no. of advocacy group leaders	9
Vaccine advocates or ambassadors	3
Executives or leaders in local organisations	3
Other (eg, general health programme coordinator)	2
Total no. of public health staff	6
MD certification	6

RESULTS

In total, 25 participants (15 from Ontario and 10 from British Columbia) were interviewed between 8 July 2021 and 30 January 2022. Participants included South Asian community members (n=10), South Asian advocacy group leaders (n=9) and public health staff who work predominantly with the South Asian community (n=6). All participants who were contacted completed the study. The ages of South Asian community members ranged from 19 to 69 years. All public health staff were medical doctors and advocacy group leaders had the following roles: student advocates, vaccine ambassadors, vaccine outreach workers, community organisation leads and health support workers (table 1). The advisory working group held regular discussions to plan and execute community engagement activities, review preliminary data and assess information power. Through these detailed discussions, it was decided that 25 participants across groups and provinces were sufficient for data richness.

We developed six themes across the experiences and perspectives of those interviewed as they pertain to risk and vaccine uptake, access and confidence: (1) Risk perceptions; (2) Sources of trusted information (traditional and non-traditional); (3) Broader life impacts of COVID-19 and the pandemic on individuals, families and society; (4) Experiences with COVID-19 mandates and policies (including temporal and generational differences); (5) Awareness and outreach; and (6) Language, culture and context.

Perceptions of COVID-19 risk

Participants, specifically those who self-described as lacking vaccine confidence and being disinterested in or refusing the COVID-19 vaccine, discussed their

perceptions of COVID-19 risk from the point of view of their health status, personal risk perceptions and their perceptions of COVID-19 and vaccine risk (n=10). Most participants mentioned they led a healthy lifestyle, were in good health and were free of chronic diseases or illnesses. In describing this, many participants perceived COVID-19 was a serious disease for those with chronic diseases, while those who were healthy did not need to be as worried or concerned, but should remain cautious and follow public health recommendations. They also perceived that COVID-19 was not as severe in children.

Participants discussed their perceptions of COVID-19 as a whole and how information about COVID-19 was reported. For some participants, there was mistrust in how data were shared, with beliefs that COVID-19 transmission statistics reported in mainstream media were exaggerated and COVID-19 was not as serious as it was portrayed. Participants also compared COVID-19 to other illnesses such as the common cold and mild influenza. One community member in Ontario stated: “How I see it is in a way it’s not really like a huge deadly concern to my age group [young adult], but it is susceptible to catch it, to give it, and stuff like that, if that makes sense” (Community member—ON).

While many of the interviewed nine advocacy group leaders perceived the COVID-19 vaccines to be a ‘saviour’, some community members who self-identified as lacking vaccine confidence seemed to disagree. Many disagreed with vaccinating children, expressed concerns related to the speed of vaccine development and approval and were discouraged by how quick the roll-out was in Ontario and British Columbia. For example, one community member commented:

And the other apprehension I have is that none of the drug makers... have taken any liability on any side effects from introduction of the vaccine, which is a little bit alarming to me. I think it was all done very, very hastily. (Community member—BC)

In contrast, public health staff viewed their patients’ risk perception as embedded within complex and overlapping social issues related to access, equitable roll-out, poverty and hunger. These systemic issues are integrated within the bedrock of health and wellness. The COVID-19 pandemic further amplified existing challenges and barriers. For example, one individual commented that many of their clients say, “I’m not going to die by the pandemic, but I am going to die by hunger” (Public health staff—ON).

Sources of trusted information

During the interviews, all participants reflected at length on the processes of accessing and evaluating COVID-19-related information. Participants reported using varied sources of information, including ethnic-based sources, and how they distinguished between accurate and false information.

One community member in Ontario stated that they relied on sources that offered statistical or quantitative data:

I got a lot of my information from Instagram and a lot of social media platforms ... and also news outlets as well. A lot of the times I see a lot more statistic-based stuff, like how many people got COVID, how many people died of COVID this day or that day, and then obviously news outlets will also tell symptoms and more information about the virus. (Community member—ON)

Community members, advocacy group leaders and public health staff described the high use of ethnic media stations (TV and radio programmes conducted in native South Asian languages), social media (eg, WhatsApp) and word of mouth from family, friends and coworkers. Participants highlighted generational differences in the methods of obtaining COVID-19/vaccine-related information, as well as the different sources for this information. Specifically, one advocacy group leader commented that younger individuals typically used non-ethnic media to access information, while older individuals were more likely to access and use ethnic media or their family/friends as a valued source of information.

Family members were viewed to be a highly trusted source of information by members of the South Asian community and commonly influenced people’s vaccination decision. For example, one advocacy group leader said, “Like if people around them aren’t getting the vaccine they’re going to be seeing that view of why they shouldn’t get it. If they’re surrounded by people and all their family members have gotten the COVID-19 vaccine it further nudges them” (Community Advisory Group Leader—BC).

Over the course of the pandemic, advocacy group leaders and public health staff participants (n=15) reported being heavily involved in fostering evidence-informed dialogue with community members. They worked to address misinformation among the older population, who they described as getting most of their information through articles shared via WhatsApp:

In the very beginning of the vaccine rollout, it wasn’t uncommon to see [someone] pull out their phone and show a WhatsApp article from whatever site. And then we would have to take the time to explain, okay, this may not be a credible site, or this may not be information that came from a trusted physician or researcher. And we would have to call out one of the culturally competent physicians to come and explain the more complex medical jargon contained within these articles from WhatsApp that the patient may not be able to fully understand. (Community Advisory Group Leader—ON)

Connections to one’s birth country was also an important source of information for many. Participants discussed that South Asian community members in Ontario and

British Columbia often referred to the state of their home country when determining the seriousness of COVID-19 and reasons for mistrust or confidence in vaccine.

Broader life impacts of COVID-19 and the pandemic

During the interviews, participants described how COVID-19 affected them physically, mentally, emotionally and financially (n=10). Physically, many participants described the impacts of improved public health measures (personal protection equipment for workers, mask protocols, hand washing) on their overall health. Others described how they were negatively impacted by contracting COVID-19 or by the side effects of receiving the first dose of the COVID-19 vaccine. For example, one community member recalled the following: “After my first shot, I started getting this sinking feeling around the middle of my chest. I had a heart attack years ago so I should be worried” (Community member—BC).

Participants also described the burden that COVID-19 restrictions imposed on their mental health and well-being. Public health guidelines and regulations promoting social distancing and quarantining negatively affected many participants. For many, this led to increased stress due to minimal contact with family and friends.

I was basically robbed of my senior year, so I was kind of robbed of saying goodbye to a bunch of school friends that I haven't seen since March basically. And also, university, especially first year, was very, very difficult for me and very stressful for me [due to virtual learning]. (Community member—ON)

Others commented on the long-term mental health impacts of COVID-19 restrictions. Advocacy group leaders and public health staff described at length the need to collaborate with diverse organisations to raise funds to support youth mental health campaigns. One participant discussed the negative mental and emotional impacts of the divisive public opinions on the COVID-19 vaccine:

That's another thing that really upset me about the vaccine is that it really caused a divide. People are passionately for and passionately against and it really causes a divide, which is really sad that I've experienced that in my life. (Community member—BC)

Others described large-scale financial strains and how that resulted in mental health impacts:

We've seen mental health worsen, we've seen other health conditions be affected due to delays, we've seen incomes, people losing their homes, there's been so many different businesses closing. All these hardships that people are facing, and of course we know that stress is an independent risk factor for poor health outcomes, anxiety, and stress. (Public health staff—ON)

However, financially, there were mixed experiences on the impact of COVID-19 among participants. Some were financially stable during the pandemic and did not notice

any changes or strains on their financial health. However, others were financially impacted when they were unable to work due to contracting COVID-19 or due to loss of employment. This was further exacerbated by ineligibility for financial aid. On the other hand, a few community members were critical of the Canadian government's approach to pandemic aid as it related to the supports offered to small business owners.

COVID-19 guidelines and policies

Participants described their attitudes as well as general observations regarding the attitudes of the family and friends towards COVID-19 mandates and policies. This presented itself as varied opinions on public health mandates and restrictions. Several participants stated that they adhered to and agreed with COVID-19 mandates and policies, such as masking and social distancing. However, participants also questioned inconsistent COVID-19 mandates and policies across different settings and media outlets. For example, one participant expressed their frustration with public education efforts in reference to mask mandates. Participants also described how they perceived vaccine mandates and policies to be contradictory and unfair. Several participants believed that people should be allowed a choice without ‘carrots’ being dangled in their view or ‘sticks’ being used by workplaces. A few participants across both Ontario and British Columbia discussed the contradictory nature of vaccine mandates:

[The government] is trying to limit the people who go to hospital, I agree with that—and the restaurant and theatre. But they are not [limiting unvaccinated people], like me, to go into any store. The people who are visiting the theatre are also visiting the store as well. What kind of policy this is? It doesn't look like fair. So, I don't know what they are doing. (Community member—BC)

Another participant described how COVID-19 ‘return to work’ policies differed by workplace setting, causing frustration. Though the vaccine mandates and policies were viewed as contradictory in some instances, the overall message was that they were effective in increasing vaccine uptake within the South Asian community.

However, once the stick came out, like the workplace mandates and you can't go to a gym without getting vaccinated, stuff like that, the more serious ones like the essential ones. Then I would say it would go from 10% of the patients we saw vaccinated to 60%. Most of the people coming in were due to the mandates. (Advocacy group leader—ON)

In addition, a few participants discussed generational differences in the South Asian community's attitudes towards COVID-19 stay-at-home policies and vaccine mandates. Some found members of the older generation were more relaxed about the guidelines. For example, one advocacy group leader said:

...what we find is that the elderly especially because we are a temple, God's place and you don't get sick at God's place, you come here to get well. So, it's hard for us to tell them to stay home if you're not feeling well. So, that's a kind of conflict between what should be done, what the health department is saying and what people feel about it, but the younger generation is more accepting the guidelines and following them. (Advocacy group leader—BC)

Another advocacy group leader stated the senior population trusted medical interventions more than younger individuals. For example, a participant explained that views on COVID-19 vaccines appeared to be generational, with “the elderly, coming from the generation they do, have complete 100% trust in the vaccine and the health system whereas the views of younger individuals varied” (Advocacy group leader—BC).

Awareness and outreach

Public health staff and advocacy group leaders discussed the significance of community engagement, as well as partnerships and collaboration, in the context of vaccine uptake, provision and education. Participants described the importance of engaging with the community through both traditional (local news stations) and non-traditional media sources (radio, ethnic television stations, print media, South Asian networks (ie, Connect FM, Omni, Sher-E-Punjab) and social media) to target barriers in vaccine education and provision to meet people where they are. One participant stated engaging with the community demonstrated there was “a definite knowledge translation issue” (Public health staff—BC). Another participant said the following on the importance of engagement:

...we live in a very reactive society. ... I think we should equally spend time and energy in developing structures in prevention and health promotion. And case in point, COVID is a role of self-realisation and self-management of chronic diseases...the Public Health Agency of Canada, the Innovation Canada, should look at creating very engaged and institutional trusted multi-cultural, multi-ethnic diversity programmes which are effective. (Public health staff—BC)

Further, participants described how they used partnerships and collaborations to effectively facilitate vaccine education and provision. Two public health staff were also members of a South Asian collective of physicians aiming to improve vaccine access, education and uptake. They discussed how they partnered with Facebook and other grassroots organisations, as well as influencers and community leaders (ie, politicians, celebrities, athletes) to address knowledge gaps and universal concerns. One participant said the campaign included “people of all different ethnic backgrounds and different professions advocating and speaking in favour of the vaccine so that people had role models” (Public health staff—BC).

Another participant described having influencers from the community, such as local politicians and South Asian politicians, as a “power of strength” (Public health staff—BC).

Overall, the importance of meeting people where they are was a common theme connecting the experiences of public health staff and advocacy group leaders in vaccine education, provision and uptake. This included addressing potential barriers at vaccine clinics, such as language, advocating to bring vaccines to the people as well as facilitating vaccine education and amplifying public health messaging through various media sources the South Asian community engages with and by going to places of worship. For example:

I feel like one of the best things we're doing right now is the mobile outreach. It's very difficult to get reliable healthcare information out to the most vulnerable populations. So, I feel that instead of relying on them to come to us, us going to them in places where especially elderly populations who are not technologically savvy, who don't really watch the news or read up on articles. (Advocacy group leader—ON)

Language and cultural context

All public health staff and advocacy group leaders described language and cultural context as being rooted in their work in vaccine provision and education, as well as strategies to improve vaccine uptake. In response to how they tailored their approach to vaccine education and provision in different populations (including in partnership with faith-based organisations), participants said the following:

We had meetings to help support [the Gurdwara], follow-ups, see how we could do it better, make sure it was being done in a culturally safe and acceptable manner. (Public health staff—BC)

Honestly, the questions everyone has are universal, the concerns everyone has are universal, it's just how you're addressing them. It's basically addressing them so that they're culturally and language appropriate. So, I can go on mainstream media and talk about the same thing and then I can go on OMNI Punjabi and talk about the same thing, there is absolutely no change in my messaging and there is no change in the questions people have. It's just how I'm communicating. When you see someone who looks like you and speaks like you, you will listen. (Public health staff—BC)

Several participants emphasised the importance of translation and representation after observing language was a consistent barrier to vaccine provision in terms of registration and education (having questions and concerns addressed). For example, one physician said, “In a multi-ethnic and multi-cultural society, language is very important” (Public health staff—BC).

Some participants not only mentioned language as a barrier but also having a trusted South Asian healthcare worker who was able to relate to community members, emphasising the importance of cultural matching between physicians and community members:

... so I think a major barrier, especially when we're talking about immigrant populations, language barrier is a big one. Finding a doctor who can actually have a good conversation and can explain things in medical terms is always very tough, which is one of the benefits that we have here actually because we have a lot of Punjabi-speaking doctors here. (Public health staff—ON)

Another participant said the following in response to COVID-19 education barriers, reiterating the importance of relaying information in preferred languages instead of leaving the responsibility of translation with media staff or community members:

We were always chasing information. And what I mean is that when information was coming up from authorities, whether it's the government or from the health authority, it was always coming out in English and the translation was left to the community to do so. A lot of the education, you were relying on whether the reporters or media anchors to actually interpret what the briefing was saying, whether written or in person, and then understand that and then present it to the community. Inherently, in that multi-step process, things get lost in translation, the meaning can get altered. And so now, what I have seen, some of the briefings online, they will post in Punjabi at the same time and that was not being done... but that was something that I think would go a long way. (Public health staff—BC)

A few participants discussed South Asian representation in terms of addressing questions and debunking myths that were usually addressed in English. One participant said that representation “was lacking and that misinformation was spreading” (Community Advisory Group Leader—BC). However, they also mentioned several members of the South Asian community stepped forward to help address concerns and support vaccine uptake.

DISCUSSION

Through a comprehensive analysis of the study data, we identified six themes across the experiences and perspectives of participants from Ontario and British Columbia as they pertain to vaccine uptake, access and confidence: (1) Risk perceptions; (2) Sources of trusted information; (3) Broader life impacts of COVID-19 and the pandemic on individuals, families and society; (4) Experiences with COVID-19 mandates and policies (including temporal and generational differences); (5) Awareness and outreach; and (6) Language and cultural context. Vaccination outreach programmes that are tailored and

rooted in information that is in native languages and builds on cultural contexts and understandings can be successful in engaging socially marginalised subsets of the population. These beliefs require exploration and understanding to develop the many dynamic threads of a successful pandemic response. Many people who experience vaccine concerns may still choose to engage in conversations about COVID-19 vaccine safety, efficacy and necessity,¹⁷ which makes it vital for outreach efforts to meet individuals where they are.

Although most South Asians living in Canada have been vaccinated in major Ontario and British Columbia urban centres, some issues related to limited confidence because of long-term impacts/side effects, preference for alternative therapies and mistrust in institutions, governments and pharmaceutical companies are still observed.¹⁸ ‘19 to zero’, an interdisciplinary coalition, analysed general COVID-19 social media trends using deep-learning modelling of natural language processing. The group demonstrates that, in general and consistently since November 2020, low vaccine confidence is fuelled by mistrust in institutions, government, pharmaceutical companies and health authorities and emphasises the political nature of COVID-19 vaccination.¹⁹ Concern for vaccine safety is usually the second most important topic, and vaccine confident networks are mostly concerned about roll-out and accessibility.¹⁹ Data from the COVID CommUNITY Study describes the top three most trusted sources of information related to COVID-19 in the South Asian community being healthcare providers and public health, traditional media sources and social media⁹ parallels the descriptions provided by participants included in this qualitative exploration.

An important component of this research study is the kit of tools and recommendations that can be applied to future public health programmes, initiatives and knowledge translation activities. These include rooting outreach activities with attention to language, cultural matching between physicians and community members and local leadership that is representative of the communities of interest. The most effective interventions for addressing vaccine confidence are iterative and multi-pronged strategies that are community, culturally and language focused.^{20–22} Deep engagement has been shown to improve the promotion and implementation of vaccine programmes, resulting in a >25% improvement in vaccine uptake.^{23 24} This includes working collaboratively with religious or influential community leaders to foster trust, deliver messages and facilitate community engagement.²³ The engagement of primary care providers with communities through outreach with tailored messaging has also been shown to be effective in improving vaccine uptake.^{24–26} In addition, addressing contextual influences and tailoring messages to specific beliefs and concerns to inform outreach rooted in community-engaged approaches (eg, codesigned materials that are written first and foremost in native languages) was demonstrated to be integral in vaccination programmes.^{22 24 27 28} Integrating

these approaches into future outreach programmes could be effective in promoting vaccination and increasing uptake among this population.

The aforementioned points can provide scaffolding, concrete directions and public-informed recommendations for the implementation of successful programmes now and in future pandemics:

1. Public health programmes must take a strengths based approach that builds on historical sources of mistrust/experiences and cultural–linguistic needs. This includes working together with diverse members of the South Asian community to tailor approaches related to cultural context, demographic composition and linguistic preferences.
2. Community partnerships are key to guiding and making recommendations on how to best engage community members (including avenues for communication such as social media platforms and traditional media).
3. Key pieces of information included in vaccine outreach must address individual risk perceptions and acknowledge broader impacts of pandemic decision-making (eg, mandates).

STRENGTHS AND LIMITATIONS

The strengths of this research include: (1) the involvement of diverse beneficiaries; (2) using community-engaged research practices, allowing us to tailor the study approaches to best meet the needs of the target population and to create safe and culturally appropriate research activities; and (3) applying qualitative methods, as part of a larger series of studies, to capture a detailed review of experiences and perspectives of COVID-19 vaccination in a population that has historically faced barriers to engagement in healthcare and research.

The limitations of this research include: (1) the potential that attracting a larger or more diverse range of stakeholders may have yielded additional insights and (2) a focus only on South Asian communities residing in large urban centres—community members living in rural and remote areas may have held different perspectives or had differing experiences with COVID-19 vaccine uptake, confidence and access. Future research could aim to capture the aforementioned two areas to further deepen and strengthen the conversation within this space.

CONCLUSIONS

We identified six themes across the experiences and perspectives of participants from Ontario and British Columbia as they pertain to vaccine uptake, access and confidence: (1) Risk perceptions; (2) Sources of trusted information; (3) Broader life impacts of COVID-19 and the pandemic on individuals, families and society; (4) Experiences with COVID-19 mandates and policies (including temporal and generational differences); (5) Awareness and outreach; and (6) Language and cultural context. Awareness, outreach and being sensitive to the application of language, culture and context may help

improve the success of current and future vaccination programmes. An opportunity exists to foster culturally authentic vaccine programmes that address the direct concerns of key beneficiary groups and work to address ongoing and worsening health inequities.

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REFERENCES

- 1 Cucinotta D, Vanelli M. Who declares COVID-19 a pandemic. *Acta Biomed* 2020;91:157–60. 10.23750/abm.v91i1.9397 Available: <https://www.mattioli1885journals.com/index.php/actabiomedica/article/view/9397>
- 2 Ismail SJ, Tunis MC, Zhao L, et al. Navigating inequities: a roadmap out of the pandemic. *BMJ Glob Health* 2021;6:e004087.
- 3 Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. *Lancet Psychiatry* 2020;7:e21S2215-0366(20)30090-0.
- 4 Kendzerska T, Zhu DT, Gershon AS, et al. The effects of the health system response to the COVID-19 pandemic on chronic disease management: a narrative review. *Risk Manag Healthc Policy* 2021;14:575:575–84..
- 5 Liao Q, Wu P, Wing Tak Lam W, et al. Trajectories of public psycho-behavioural responses relating to influenza A (H7N9) over the winter of 2014–15 in Hong Kong. *Psychol Health* 2019;34:162–80.
- 6 Robinson E, Jones A, Lesser I, et al. International estimates of intended uptake and refusal of COVID-19 vaccines: a rapid systematic review and meta-analysis of large nationally representative samples. *Vaccine* 2021;39:S0264-410X(21)00140-7:2024–34..
- 7 UK government scientific advisory group for emergencies. factors influencing covid-19 vaccine uptake among minority ethnic groups. 2020. Available: www.gov.uk/government/publications/factors-influencing-covid-19-vaccine-uptake-among-minority-ethnic-groups-17-december-2020
- 8 Statistics Canada. The daily — the canadian census: A rich portrait of the country's religious and ethnocultural diversity [Internet]. www150.statcan.gc.ca. 2022. Available: <https://www150.statcan.gc.ca/n1/daily-quotidien/221026/dq221026b-eng.htm>
- 9 Anand SS, Arnold C, Bangdiwala S, et al. What factors converged to create a COVID-19 hot-spot? lessons from the south asian community in ontario. *Public and Global Health* [Preprint] 2022.
- 10 McKenzie K, Petersen S. Toronto); Tracking COVID-19 through race-based data (Wellesley Institute and Ontario Health, . 2021 Available: www.ontariohealth.ca/sites/ontariohealth/files/2021-08/Tracking%20COVID%2019%20Through%20Race%20Based%20Data-EN.pdf [Accessed 22 Jun 2022].
- 11 Clarke V, Braun V. Teaching thematic analysis: overcoming challenges and developing strategies for effective learning. *The Psychologist* 2013;26:120–3.
- 12 Sandelowski M. What's in a name? qualitative description revisited. *Res Nurs Health* 2010;33:77–84.
- 13 Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology* 2006;3:77–101.
- 14 Clarke V, Braun V, Hayfield N. Thematic analysis. *Qualitative Psychology: A Practical Guide to Research Methods* 2015;222:248.
- 15 Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: guided by information power. *Qual Health Res* 2016;26:1753–60.
- 16 Lincoln YS, Guba EG. But is it rigorous? trustworthiness and authenticity in naturalistic evaluation. *New Directions for Program Evaluation* 1986;1986:73–84. 10.1002/ev.1427 Available: <http://doi.wiley.com/10.1002/ev.v1986:30>
- 17 Mills M, Rahal C, Brazel D. Covid-19 vaccine deployment: behaviour, ethics, misinformation and policy strategies. *The Royal Society & The British Academy* 2020.
- 18 Office for national statistics. coronavirus and the social impacts on great britain. 2021. Available: www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandthesocialimpactsongreatbritain/29january2021
- 19 19 to zero research. n.d. Available: www.19tozero.ca/research
- 20 Jongen CS, McCalman J, Bainbridge RG. The implementation and evaluation of health promotion services and programs to improve cultural competency: a systematic scoping review. *Front Public Health* 2017;5:24. 10.3389/fpubh.2017.00024 Available: <https://www.frontiersin.org/articles/10.3389/fpubh.2017.00024>
- 21 MacDonald NE, Butler R, Dubé E. Addressing barriers to vaccine acceptance: an overview. *Hum Vaccin Immunother* 2018;14:218–24. 10.1080/21645515.2017.1394533 Available: <https://doi.org/10.1080/21645515.2017.1394533>
- 22 Schoch-Spana M, Brunson EK, Long R, et al. The public's role in COVID-19 vaccination: human-centered recommendations to enhance pandemic vaccine awareness, access, and acceptance in the United States. *Vaccine* 2021;39:S0264-410X(20)31368-2:6004–12 .. 10.1016/j.vaccine.2020.10.059 Available: <https://doi.org/10.1016/j.vaccine.2020.10.059>
- 23 Hussain B, Latif A, Timmons S, et al. Overcoming COVID-19 vaccine hesitancy among ethnic minorities: a systematic review of UK studies. *Vaccine* 2022;40:S0264-410X(22)00446-7:3413–32.. 10.1016/j.vaccine.2022.04.030 Available: <https://doi.org/10.1016/j.vaccine.2022.04.030>
- 24 Jarrett C, Wilson R, O'Leary M, et al. Strategies for addressing vaccine hesitancy—a systematic review. *Vaccine* 2015;33:S0264-410X(15)00504-6:4180–90.. 10.1016/j.vaccine.2015.04.040 Available: <https://doi.org/10.1016/j.vaccine.2015.04.040>
- 25 Bogart LM, Ojikutu BO, Tyagi K, et al. COVID-19 related medical mistrust, health impacts, and potential vaccine hesitancy among black Americans living with HIV. *J Acquir Immune Defic Syndr* 2021;86:200–7. 10.1097/QAI.0000000000002570 Available: <https://doi.org/10.1097/QAI.0000000000002570>
- 26 Lieu TA, Elkin EP, Escobar PR, et al. Effect of electronic and mail outreach from primary care physicians for COVID-19 vaccination of black and Latino older adults: a randomized clinical trial. *JAMA Netw Open* 2022;5:e2217004e2217004. 10.1001/jamanetworkopen.2022.17004 Available: <https://doi.org/10.1001/jamanetworkopen.2022.17004>
- 27 AuYoung M, Rodriguez Espinosa P, Chen W-T, et al. Addressing racial/ethnic inequities in vaccine hesitancy and uptake: lessons learned from the California alliance against COVID-19. *J Behav Med* 2022;1–14. 10.1007/s10865-022-00284-8 Available: <https://doi.org/10.1007/s10865-022-00284-8>
- 28 Marcelin JR, Swartz TH, Bernice F, et al. Infectious diseases society of america (IDSA inclusion, D., access, and equity taskforce, george counts interest group, and society of infectious diseases pharmacists (SIDP) diversity, equity and inclusion taskforce). *Open Forum Infect Dis* 2021;8:fab417. 10.1093/ofid/ofab417 Available: <https://doi.org/10.1093/ofid/ofab417>

Appendix A

1. Participant Interview Questions

Thank you for participating in the COVID CommUNITY Study. We would like to learn your about your knowledge, perception and attitudes towards COVID-19 vaccination. We have a set of questions to ask you. We will record this interview, however, your comments will be kept confidential and no personal information such as name, age or birthday will be recorded.

1. Tell me briefly a little bit about yourself and your current health.
 - a. Age, gender, current health, household structure?
2. What do you know about the COVID-19? Who gets it? What are the health consequences? What measures can you take to protect yourself?
3. How has the pandemic affected your life (e.g. physical/mental health, financial health, lifestyle, religious practices, family interactions)?
4. What do you know about the COVID-19 vaccines?
 - a. Prompt: What are your thoughts on the different COVID vaccines (e.g. Pfizer, Moderna, Astra Zeneca)?
 - b. Prompt: What are your views on COVID-19 vaccine side-effects?
 - c. Prompt: What are your thoughts on the COVID vaccine for children?
5. When you think of the COVID-19 vaccine, what comes to mind? What do you find the most concerning? The most reassuring?
 - a. Prompt: think back to the time before you received your first dose?
6. What views do people in your community, family & friends have regarding the COVID-19 vaccines?
7. Tell me about a time that you made a decision that involved weighing the risks of the COVID-19 vaccine. What did you decide? How did you come to that decision?
8. Are there any barriers to getting your COVID-19 vaccine? (e.g. transportation, time of day, time off work, etc)
9. How do you get information about the COVID-19 and the vaccine? What sources do you trust and what ones do you distrust? (e.g. Government websites, family/friends, my family doctor, community/spiritual leaders, healthcare professionals, family, etc.)
10. How do you distinguish between real and false information?
11. Is there anything else that you feel we should know about your experience?
12. Vaccine mandates

2. Public health staff – Interview questions

1. Tell me about yourself and your role in public health?
 - a. How have you been involved in the provision of healthcare services related to COVID-19?
2. Please tell me about your experiences of vaccine education and provision
 - a. How have you delivered education about vaccines?
 - b. What barriers have you experienced or witnessed?
 - c. What has helped in the education and delivery of vaccines?
3. When reflecting upon your experiences so far, how has vaccine education and provision been targeted across diverse populations?
 - a. How have you tailored your approach to different populations?
 - b. How have you experienced practicing with populations that face barriers to engagement?
 - i. Prompt: Language barriers, access barriers, cultural barriers, etc
 1. What have been successful solutions to barriers?
 2. Pandemic burnout, paid sick days,
4. Please tell me about your experiences of supporting and working with members of South Asian communities
 - a. Are there any barriers that may be experienced related to COVID-19 education?
 - b. Are there any barriers that may be experienced related to vaccine education and uptake?
 - c. Are there any enablers for COVID-19 education?
 - d. Are there any enablers for vaccine education or uptake? e.g. community partnerships, existing or new
5. Have you adapted your practice to reflect the needs of members of South Asian communities?
 - a. What gaps have you observed?
6. Tell me about your observations around vaccine-related knowledge and uptake in members of the South Asian community.
 - a. Where do you think that community members access their information?
 - b. What can healthcare providers do to address issues of COVID-19 vaccine hesitancy?
 - c. How might you think the opinions of others (e.g., family members and community leaders) influence decision-making or perspectives related to COVID-19 vaccination?
7. Is there anything that we haven't asked about that you think is important for us to know?

3. Community advocacy group leaders – Interview questions

1. Tell me about yourself and your organization?
 - a. How have you been involved in the provision of services related to COVID-19 education or vaccination?
2. Please tell me about your experiences of supporting and working with members of your community and organization?
 - a. Are there any barriers that may be experienced related to COVID-19 education?
 - b. Are there any barriers that may be experienced related to vaccine education and uptake?
 - c. Are there any enablers for COVID-19 education?
 - d. Are there any enablers for vaccine education or uptake? e.g. partnerships with government organizations? Existing or new partnerships?
3. When you think of the COVID-19 vaccine, what comes to mind? What do you find the most concerning? The most reassuring?
4. What views do people in your community have regarding the COVID-19 vaccines?
5. Tell me about your observations around vaccine-related knowledge and uptake in members of the South Asian community.
 - a. Where do you think that community members access their information?
 - b. What can healthcare providers do to address issues of COVID-19 vaccine hesitancy?
 - c. How might you think the opinions of others (e.g., family members and community leaders) influence decision-making or perspectives related to COVID-19 vaccination?
6. Please tell me about the experiences of your community around the COVID vaccines?
 - a. How has your organization been involved in education about vaccines?
 - b. What barriers have you experienced or witnessed?
 - c. What has helped in the education and delivery of vaccines?
7. Is there anything that we haven't asked about that you think is important for us to know?