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Examining the barriers, facilitators, and attitudes towards COVID-19 vaccine & public health measures in Black communities: A qualitative study protocol

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Abstract

Introduction: Black communities claim the highest number of cases and deaths due to COVID-19 in Canada. Generating culturally/contextually appropriate public health measures and strategies for vaccine uptake in Black communities within Canada can better support the disproportionate impact of this pandemic. This study explores the barriers and enablers to public health measures limited to: mask-wearing, disinfection, and sanitation, social distancing and handwashing, as well as the barriers and attitudes towards COVID-19 vaccines among the Black community.

Methods and analysis: We will use qualitative approaches informed by the widely accepted Consolidated Framework for Implementation Research (CFIR) to aid our analysis. We will employ semi-structured interviews and focus groups with Black populations across the major provinces of Canada to understand the barriers and facilitators to public health measures, including barriers and attitudes towards COVID vaccines. Data will be organized and analyzed based on the CFIR. Facilitators and barriers to COVID-19 preventative measures and the barriers, facilitators, and attitudes towards COVID vaccines will be organized to explore relationships across the data.

Ethics and dissemination: This study was REB approved through the Social Sciences, Humanities and Education Research Ethics Board at the University of Toronto. Participants will be informed about the study and their right to withdraw from this study. Participants will also be required to complete two consent forms prior to engaging in interviews. One consent form will be for the key informant interview and the second consent form will be for the focus group interview. Research material will be accessible to all researchers involved in this study as no personal identifiable information will be collected during the key informant semi-structured interviews and focus groups.

Strengths and limitations of this study:

- Advances the literature in understanding the barriers and facilitators of COVID-19 public health measures in Black communities in Canada;
- Provides rich data on the attitudes towards and barriers for COVID-19 vaccines in Black communities;
- Provides data that can inform the development of implementable, context-sensitive COVID-19 public health measures and vaccine uptake for Black communities in Canada
- Limitations of this study include generalizability of study findings due to potential barriers on the target population to accessing technology, as interviews will be conducted virtually;
- Language of interviews are limited to English and French, where individuals who cannot speak either one of the languages, such as some immigrants, cannot participate in the study

Keywords: barriers, facilitators, vaccines, COVID-19, public health measures, CFIR, race-based data

Background

Over the summer of 2020, several Canadian news outlets –including the Canadian Broadcasting Corporation (CBC), Financial Post, and the Toronto Star—reported a dire need for race-based data (1–3). Several peer-reviewed articles and reports also highlight the need for collecting race-based data to fully understand the grounds for the disproportionate impact of COVID-19 in the Black community in Canada (4–7). While not new, the need for race-based data has become increasingly apparent during the COVID-19 pandemic (5,6). COVID-19 has underscored the complex, systemic inequities that oppress the Canadian Black community. Due to pre-existing economic, political, and healthcare challenges, Black Canadians are disproportionately impacted by COVID-19 and continue to make up the majority of COVID-related deaths in the nation(5). A study conducted by the City of Toronto reported that, due to pre-existing health inequities, "Black people and other people of color make up 83 percent of reported COVID-19 cases while only making up half of Toronto's population" (1). According to Public Health Ontario, neighborhoods with a high concentration of ethnic minorities have "a higher percentage of confirmed positive COVID-19 tests and over twice the hospitalization rate compared to those with lower ethnic concentration" (8).

Black-led Canadian Non-Profit organizations have also recognized the disproportionate impact of COVID-19 on the Black community (9). Black Health Alliance (BHA), Black Physicians' Association of Ontario (BPAO), Black-North Initiative & Black Opportunity Fund highlight the issue of COVID-19 vaccine distrust within Black communities with efforts to address this issue on vaccine hesitancy. African-Canadian Civic Engagement Council, in collaboration with Innovative Research Group presents the results of a research study to identify the perceptions of Black Canadians and their counterparts on the health and economic impact of COVID-19 in the Black community. These NGOs recognize the disproportionate impact of COVID-19 (i.e., health outcomes, attitudes, misconceptions and unacceptance of vaccines) among Black communities in Canada. However, due to the lack of race-based

data, there is still a gap in quantifying the impact of COVID-19 on Black Canadians and understanding their experience with public health measures compared to their counterparts.

Race-based data is needed to provide a deeper understanding of the systemic structures that have led to increased COVID-19 susceptibility in Black communities, as current government data does not provide a clear enough picture to determine the context and/or environments in which Black communities experience increased vulnerability (10). Race-based data will provide evidence that supports the need for culturally appropriate healthcare for Black Canadians. The overall purpose of this study is to understand the impact of COVID-19 on the Black Canadian population. We will conduct this qualitative study to meet the following objectives: (1) Create a national, Black, data infrastructure that collects, stores, and manages data about the lives and experiences of Black Canadians (2) Help inform current and future public health services how to serve better Black communities (3) Provide a better public understanding of how Black Canadians are affected by COVID-19, through providing increased community awareness, information, and education related to COVID-19.

This qualitative study will address the barriers and facilitators to COVID-19 public health measures, including attitudes towards COVID vaccines. Previous work has also explored the barriers and enablers to COVID public health measures (11–13) and attitudes towards vaccines (14–20). Most of the studies exploring the barriers and facilitators to public health measures have only focused on the general population without taking racial differences into account (11,12). One study that collected race-based data reported perspectives of White, South Asian, Chinese, Filipino, First Nations/Metis/Inuit populations but did not include any data on the Black population (13). Therefore, there is a lack of contextual understanding of the barriers and facilitators to public health measures, specifically in the Black community.

The majority of the studies exploring the barriers and attitudes towards COVID vaccines also lacked race-based data (16,17,19–21). The few that reported race compared outcomes of minority groups to Caucasians (14,18), or only reported on the Black population (22). One of the studies found that sociodemographic factors including ethnicity and province of residence were not associated with

hesitancy towards vaccines (14). On the contrary, another study reported that medical mistrust was a barrier to vaccine uptake among marginalized Black, Indigenous, and People of color (BIPOC) communities (18). One study in the US conducted focus groups in Black population and also found that a barrier to vaccine uptake in Black populations is medical mistrust, including mistrust of the vaccine product itself due to limited data on long and short term side-effects, and the short timeframe for the development of the vaccine (22). This study also reported that the delivery of information and vaccine product from a trusted healthcare provider is a facilitator for vaccine uptake.

Although these studies provide some race-based data, there is still a dire need to collect data that will better capture and contextualize the barriers and facilitators to public health measures, including barriers and attitudes towards vaccines, as these studies report data based on questionnaire like surveys (14), most of which do not report racial outcomes (16,17,19–21). Different sociodemographic characteristics and race will have different drivers and concerns. For instance, minority populations may face more barriers to public health measures due to economic factors, level of education or environmental factors. Furthermore, attitudes and barriers towards vaccines may also vary across racial demographics due to beliefs, cultures and experiences. To address this, we will gather contextually rich data and compare perspectives from Black populations across Canada. Without such perspectives, a better understanding cannot be developed to inform intervention development for Black communities within Canada. We will use the Consolidated Framework for Implementation Research (CFIR) to assess and understand the results collected from the interviews. This conceptual framework was developed to guide the systematic assessment of implementation contexts and factors that influence the effectiveness of interventions (23).

Methods

Study setting and context

Race-based data is vital to provide a deeper understanding of the systemic structures that have led to increased susceptibility due to COVID-19 in Black communities within Canada. Current government

data is limited in determining the context and/or environments in which Black communities undergo increased vulnerability to COVID (10). Study participants will be drawn from FBC Hubs which are from Ontario, British Columbia, Alberta, and Quebec, as well as FBC's mailing list which include members from all over Canada, to capture the magnitude of the barriers and facilitators for COVID prevention measures and uptake of vaccines among Black communities across Canada. Participants will also be drawn from other Black led organizations partnering with FBC and through media outreach. In addition, an incentive program was developed for referrals from other organizations in underrepresented provinces in Canada. There are some rationales for drawing participants from FBC Hubs. Firstly, these Hubs are representative of the population of interest that we are studying. Secondly, FBC has a pre-existing mailing list that conveniently allows us to recruit participants for this study across Canadas 10 provinces. Lastly, this study maximizes its reach of the target populations by providing an incentive program in less represented provinces.

Study aims

The overall aim is to inform the development of culturally sensitive public health measures in Black communities in Canada. By comparing stakeholders' perspectives and utilizing a framework from implementation science, we will investigate the implementation of current public health measures. The specific objectives are to:

1. Identify the barriers and facilitators to public health measures limited to handwashing, mask-wearing, disinfecting/sanitizing, and social distancing.
2. Identify the attitudes towards COVID vaccines and the barriers to getting these vaccines.
3. Generate guidance for developing context-specific public health measures and strategies for vaccine uptake.

Study design

A qualitative study design, using community-based participatory research, with focus groups and key informant semi-structured interviews will be used to conduct this study. We will conduct approximately 21 key informant semi-structured interviews across the ten provinces. We will also conduct 5 focus groups with 12 participants in each focus group. We will focus on four themes: (1) Examining the barriers and facilitators of COVID-19 preventative measures and (2) Examining the impact of COVID-19 in Black communities (3) Assessing the barriers, facilitators and attitudes towards vaccines (4) Assessing recovery from COVID-19 The data will be organized based on the Consolidated Framework for Implementation Research (CFIR).

Using community based participatory action plan, we started by virtue of piloting the four themes with FBC staff and FBC Hubs, and finalized the interview guide to use for this study. **Table 1**. shows the four themes that we used for both the focus group and key informant semi structured interview and the corresponding sample questions that were drawn from the four themes (Table 1).

Table 1. Themes and sample questions for focus group and semi-structured interviews

Themes	Sample questions
Barriers and facilitators to practicing public health measures for COVID-19 in Black communities	1. What are some barriers for you to practice mask-wearing? 2. What would make it easier for you to practice wearing a mask? 3. What are some barriers for you to practice social distancing? 4. What would make it easier for you to practice social distancing? 5. What are some barriers for you to practice sanitizing and disinfecting? 6. What would make it easier for you to practice sanitizing and disinfecting? 7. What are some barriers for you to practice handwashing? 8. What would make it easier for you to practice handwashing?

Impact of COVID-19 on Black communities	1. How has COVID-19 impacted the quality of your life? 2. What are the COVID-19 public health restrictions you know of? 3. How have these COVID-19 related public health restrictions impacted you?
Attitudes and experiences towards COVID-19 vaccines	1. How do you feel about the COVID-19 vaccine? 2. What barriers or challenges have you encountered in getting the COVID vaccine? 3. What would enable or make it easier for you to get the COVID vaccine? 4. Where do you get your information on vaccines for COVID-19?
Recovery from COVID-19	1. Have you, or anyone close to you ever tested positive for COVID-19? 2. If so, how was your experience in your recovery? 3. How did you get support (from family or friends) during your recovery? 4. Did you experience stigma during or after being infected with COVID?

Patient and Public Involvement

Initiating the engagement of the Black community involved presenting the purpose and objectives of this project to FBC stakeholders. The following suggestions were taken into account when formulating the semi-structured interview and focus group questions. To explore where participants get their information related to COVID vaccines, including their experiences and attitudes towards vaccines and their driving forces. Secondly, to include questions pertaining to community cohesion, community-based vaccination clinics, and increased engagement through online platforms.

Following this initial engagement, we had four meetings for each FBC hub. These meetings were held for 60 minutes, where discussions took place to get input on our research objectives and study questions

with 5- 12 stakeholders for each session. All the attendees were able to provide feedback related to the study questions. The meetings were held virtually in July 2021. These discussions allowed stakeholders to ask questions regarding the project, and they provided specific feedback on the study questions. During the British Columbia Hub meeting, a general question emerged regarding where to collect race-based data in British Columbia, especially since health centres do not collect data that indicate ethnicity (to prevent potential discrimination). Suggestive considerations were also made during these hub meetings. One of the suggestions was to use registered members of over 7000 and supporters reach of 10,000 from members of a non-profit organization tailored to Black populations to collect this race-based data. Another suggestion is to reach out to the 30,000 petitioners who initiated this project. It was also suggested that we include participants who may speak French and appoint French-speaking interviewers for the study. For the Alberta Hub meeting, overlapping suggestions emerged relating to participants that only speak French to maximize the reach of our target population.

Other suggestions included that the focus groups could be voluntary where participants from semi-structured interviews can voluntarily attend the focus groups to answer more questions. It was also suggested that demographic information such as age group, gender, and socioeconomic status of participants should be collected to contextualize the data. Another feedback was to consider life factors that can affect interviewees' comprehension when developing study and capture differences in literacy levels and relationships, written/spoken, to ensure accessibility and feasibility.

Some suggestions were not applied to this study in particular. For instance, it was also suggested to consider examining the data on a provincial, regional, and municipal level to develop an infographic as a tool that can be disseminated to Black populations across Canada. Another suggestion was to consider addressing the experience of Black populations with COVID concerning their mental health.

Participant selection criteria

The study participants will be recruited based on a number of inclusion and exclusion criteria. Participants to be included in this study must be over the age of 18, identify as Black Canadians or

individuals of African descent (including immigrants), Black Canadians/immigrants or individuals of African descent residing in Canada, individuals that can understand and speak either English or French and individuals that have the ability to give informed consent. Participants will initially be recruited from FBCs mailing list, where those individuals have participated in previous FBC projects and/or are stakeholders with FBC. After which, we will use chain-referral sampling, where those FBC members initially recruited will suggest others from their community. Those who were suggested will then be invited to participate in this study.

Individuals to be excluded from this study are:

- All Canadians and immigrants that are not Black or of African descent,
- Black Canadians/immigrants or individuals of African descent not living in Canada,
- Individuals under the age of 18,
- Individuals that cannot speak or understand either English or French,
- Individuals unable to give informed consent to participate in this study.

Ethical considerations

This study underwent delegated review and was REB approved under the Social Sciences, Humanities and Education Research Ethics Board at the University of Toronto. Participants will be informed of the purpose and rationale of the study, through email from FBC's mailing list, online platforms and other communication channels.

There will be two consent forms for this qualitative study. A single consent form will be provided for study participants to partake in the key informant semi-structured interviews, and another consent form for the Focus Group. Participants will be informed of their right to withdraw on two occasions. The first is when the researcher introduces the study and goes over the consent form. Secondly, before the interview begins, the researcher will inform participants of their right to withdraw at any point throughout

the interview without any consequences. This project will be carried out through digital channels to ensure the safety of volunteers and community partners.

Data collection

Data will be collected through semi-structured interviews and focus groups from participants meeting the eligibility criteria. The semi-structured interviews and focus group discussions will be conducted virtually over Zoom to conduct the data collection process in a safe, timely and efficient manner. Conducting these interviews virtually will also allow for the researchers and study participants to follow these COVID-19 mandates. Participants will be informed about this study including the purpose and rationale of the study. There will be two consent forms for this qualitative study. A single consent form will be provided for study participants to partake in the semi-structured interviews. Another consent form will be provided to those participating in the focus group. We will then initiate cold calling members in community organization networks once the study participants provide informed consent to participate in the interviews.

Topics of discussion will include barriers and facilitators to community preventive measures limited to personal protective behavior (hand hygiene), mask-wearing, limiting interactions (social distancing), sanitation (disinfection/cleaning), and vaccines for COVID-19, and attitudes and beliefs towards vaccines based on literature (4,24–26) and CFIR. However, we will allow for flexibility in topics to pursue issues in more depth as they emerge from the interviews. We expect the interviews will last approximately 30 minutes. Interviews will be audio-recorded, and then, they will be transcribed verbatim for analysis. Reflective notes will be taken after the interview.

Five focus groups, one for each province of British Columbia, Alberta and Quebec, and two for Ontario, will be conducted to obtain rich data, analyze the specific nature of the barriers and facilitators to COVID-19 public health measures, and determine the attitudes towards COVID-19 vaccines. Each focus group will be held virtually by two research team members (one to facilitate discussion and one to take notes of the discussion). The facilitator will explain their role and the ground rules for the discussion

before starting the focus group. It will be stressed that the discussion is confidential, and every opinion will be respected to encourage open discussion and the group members feel comfortable.

All researchers involved in this study will have access to the research material as no personal data will be collected during the semi-structured interviews and focus groups. We will store and share data using UofT's OneDrive, where it will be stored and accessible only to the research team. Only participant ID will be stated at the beginning, maximizing the privacy of the study participants for the audio-recorded interview (semi-structured interviews and focus groups).

Data analysis

The interview transcripts will be analyzed utilizing NVivo 12 Plus (27) through directed content analysis focused on identifying barriers and facilitators mentioned by key stakeholders. Two researchers will independently analyze the interview transcripts for barriers and facilitators, meeting periodically to adjudicate coding differences and create a consensus template. As an additional reliability check for coding, a third reviewer will code a subset of interviews and resolve any conflicts arising from the barriers and facilitators identified by the two researchers. Subsequently, the identified barriers and facilitators will be coded utilizing the CFIR.

The CFIR is a conceptual framework developed to guide the systematic assessment of implementation contexts and factors influencing effective intervention implementation (23). It will be beneficial to incorporate this conceptual framework during the analysis and synthesis phase, as it will increase the study results' generalizability and interpretability. In addition, the CFIR framework is known in systematic research to support implementing health care delivery interventions to produce actionable evaluation to improve implementation (28). The CFIR includes five major domains (intervention characteristics, outer setting, inner setting, characteristics of individuals, and process) with 39 underlying constructs and sub-constructs that can potentially influence efforts to change the practice (23). We will use the 39 constructs as a priori codes. The two researchers will independently use the CFIR as a coding frame for coding the final list of barriers and facilitators together with associated quotations. The barriers

and facilitators will each be coded in one of the 39 constructs, where each construct is categorized in one of the 5 domains. This will provide a better understanding of which constructs are most representative and least representative. The investigators will aim for an inter-rater reliability score of 80% or higher. In addition, the third reviewer will review all the coded barriers and facilitators.

The results will be organized by barrier and facilitator names, coded constructs, domains, and key quotes directly from the interviewees. The results will be presented in a table to help organize the presentation of themes with illustrative quotes and discussed in narrative synthesis. To improve the quality and trustworthiness of our data, we will use multiple coders and get feedback on the summary of findings from the key informants that will be interviewed for the study.

Discussion

Understanding the barriers and facilitators to COVID-19 public health measures and attitudes towards vaccines in Black communities is essential in mitigating mortality and morbidity due to COVID-19 in this demography. Using race-based data to develop context-specific/ culturally sensitive interventions can improve the uptake of vaccines and public health measures. This research will provide race-based data to develop interventions through a health equity lens and decrease the disproportionate impact of COVID-19 in Canada by incorporating key stakeholder views and CFIR domains.

One of the benefits of this research is the uncovering of the contextual factors influencing the disproportionate impact of COVID-19 despite the efforts of public health measures. Currently, there is little understanding of the barriers and facilitators to public health measures and vaccines in Black communities within Canada (16,17,19–21). Through publishing our research findings, we will provide policymakers, healthcare professionals, and researchers crucial information about barriers and enablers of public health measures and attitudes towards COVID-19 vaccines in Black communities.

A potential limitation of the study, however, is accessibility. Since the semi-structured interviews and focus groups will be conducted virtually, we may not reach those who do not have access to the internet, resulting in gaps in our data. Although we may not target all Black communities in Canada, data

will be collected from each participant through rigorous interview questions that will provide rich data. Another potential limitation is excluding participants who do not speak English or French, such as some immigrants from Africa. These individuals excluded from the study may have different experiences in barriers and facilitators of public health measures and attitudes towards vaccines, limiting the generalizability of study findings. Due to pre-existing economic, political, and healthcare challenges, Black Canadians are disproportionately impacted by COVID-19 and continue to make up the majority of COVID-related deaths in the nation (1). The insights from this project can inform the development of context-specific/culturally sensitive public health measures and strategies for vaccine uptake that are implementable in Black communities. We will prepare a report which will be shared in an open access journal with various stakeholders including: Black community centers, medical professionals, researchers, organizations operating in Black communities, public health policymakers, and other health care professionals.

Abbreviations

BHA: Black Health Alliance

BIPOC: Black, Indigenous, People of color

BPAO: Black Physicians' Association of Ontario

COVID-19: Coronavirus disease 2019

CFIR: Consolidated Framework for Implementation Research

All participants are given information about the study and will sign a consent form in order to be included.

Declarations

Authors' contributions

All the authors contributed to the conception and design of the study. BG drafted the first version of the manuscript. OE and BG revised the manuscript. OE critically reviewed the manuscript for important intellectual content. OE, BG, TA, IJ, YA and CT approved the final version.

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Competing interests

The authors declare that they have no competing interests.

Ethics approval and consent to participate

Approval from the University of Toronto Research Ethics Board has been received to conduct this study. Written informed consent to participate in the study will be obtained from participants.

Availability of data and materials

Materials described in this paper pertain to the study protocol only, and there are no raw data reported.

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Examining the barriers, facilitators, and attitudes towards COVID-19 vaccine & public health measures for Black communities in Canada: a qualitative study protocol

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Abstract

Introduction: Black communities claim the highest number of cases and deaths due to COVID-19 in Canada. Generating culturally/contextually appropriate public health measures and strategies for vaccine uptake in Black communities within Canada can better support the disproportionate impact of this pandemic. This study explores the barriers and enablers to public health measures limited to mask-wearing, disinfection, sanitation, social distancing, and handwashing, as well as the barriers and attitudes towards COVID-19 vaccines among the Black community.

Methods and analysis: We will use qualitative approaches informed by the widely accepted Consolidated Framework for Implementation Research (CFIR) to aid our investigation. We will conduct 120 semi-structured interviews and five focus groups with Black populations across the major provinces of Canada to understand the barriers and facilitators to public health measures, including barriers and attitudes towards COVID vaccines. Data will be organized and analyzed based on the CFIR. Facilitators and barriers to COVID-19 preventative measures and the barriers, facilitators, and attitudes towards COVID vaccines will be organized to explore relationships across the data.

Ethics and dissemination: This study was approved by the Social Sciences, Humanities, and Education Research Ethics Board at the University of Toronto (41585). All participants are given information about the study and will sign a consent form in order to be included; participants are informed of their right to withdraw from the study. Research material will be accessible to all researchers involved in this study as no personal identifiable information will be collected during the key informant semi-structured interviews and focus groups. The study results will be provided to participants and published in peer-reviewed journals.

Strengths and limitations of this study

- This study will advance the literature in understanding the barriers and facilitators of COVID-19 public health measures in Black communities in Canada.

- Rich data on the attitudes towards and barriers for COVID-19 vaccines in Black communities will be provided.
- The study will provide data that can inform the development of implementable, context-sensitive COVID-19 public health measures and vaccine uptake for Black communities in Canada.
- Limitations of this study include the generalizability of study findings due to potential barriers on the target population to accessing technology, as interviews will be conducted virtually.
- Language of interviews will be limited to English and French, where individuals who cannot speak either one of the languages, such as some immigrants, will not be able to participate in the study.

Keywords: barriers, facilitators, vaccines, COVID-19, public health measures, CFIR, race-based data

Introduction

Over the summer of 2020, several Canadian news outlets –including the Canadian Broadcasting Corporation (CBC), Financial Post, and the Toronto Star—reported a dire need for race-based data (1–3). Several peer-reviewed articles and reports also highlight the need for collecting race-based data to fully understand the grounds for the disproportionate impact of COVID-19 in the Black community in Canada (4–7). While not new, the need for race-based data has become increasingly apparent during the COVID-19 pandemic (5,6). COVID-19 has underscored the complex, systemic inequities that oppress the Canadian Black community. Due to pre-existing economic, political, and healthcare challenges, Black Canadians are disproportionately impacted by COVID-19 and continue to make up the majority of COVID-related deaths in the nation(5). A study by the City of Toronto reported that, due to pre-existing health inequities, "Black people and other people of color make up 83 percent of reported COVID-19 cases while only making up half of Toronto's population" (1). According to Public Health Ontario, neighborhoods with a high concentration of ethnic minorities have "a higher percentage of confirmed positive COVID-19 tests and over twice the hospitalization rate compared to those with lower ethnic concentration" (8).

Black-led Canadian Non-Profit organizations have also recognized the disproportionate impact of COVID-19 on the Black community (9). Black Health Alliance (BHA), Black Physicians' Association of Ontario (BPAO), Black-North Initiative & Black Opportunity Fund highlight the issue of COVID-19 vaccine distrust within Black communities with efforts to address this issue of vaccine hesitancy. African-Canadian Civic Engagement Council, in collaboration with Innovative Research Group presents the results of a research study to identify the perceptions of Black Canadians and their counterparts on the health and economic impact of COVID-19 in the Black community. These NGOs recognize the disproportionate impact of COVID-19 (i.e., health outcomes, attitudes, misconceptions, and unacceptance of vaccines) among Black communities in Canada. However, due to the lack of race-based data, there is

still a gap in quantifying the impact of COVID-19 on Black Canadians and understanding their experience with public health measures compared to their counterparts.

Race-based data is needed to provide a deeper understanding of the systemic structures that have led to increased COVID-19 susceptibility in Black communities, as current government data does not provide a clear enough picture to determine the context and environments in which Black communities experience increased vulnerability (10). Race-based data will provide evidence that supports the need for culturally appropriate healthcare for Black Canadians. The overall purpose of this study is to understand the impact of COVID-19 on the Black Canadian population. We will conduct this qualitative study to meet the following objectives: (1) Create a national, Black, data infrastructure that collects, stores, and manages data about the lives and experiences of Black Canadians (2) Help inform current and future public health services how to serve better Black communities (3) Provide a better public understanding of how Black Canadians are affected by COVID-19, through providing increased community awareness, information, and education related to COVID-19.

This qualitative study will address the barriers and facilitators to COVID-19 public health measures, including attitudes towards COVID vaccines. Previous work has also explored the barriers and enablers to COVID public health measures (11–13) and attitudes towards vaccines (14–20). Most of the studies exploring the barriers and facilitators to public health measures have only focused on the general population without considering racial differences (11,12). One study that collected race-based data reported perspectives of White, South Asian, Chinese, Filipino, First Nations/Metis/Inuit populations but did not include any data on the Black population (13). Therefore, there is a lack of contextual understanding of the barriers and facilitators to public health measures, specifically in the Black community.

The majority of the studies exploring the barriers and attitudes towards COVID vaccines also lacked race-based data (16,17,19–21). The few that reported race compared outcomes of minority groups to Caucasians (14,18), or only reported on the Black population (22). One of the studies found that sociodemographic factors, including ethnicity and province of residence, were not associated with

hesitancy toward vaccines (14). On the contrary, another study reported that medical mistrust was a barrier to vaccine uptake among marginalized Black, Indigenous, and People of color (BIPOC) communities (18). One study in the US conducted focus groups in the Black population and also found that a barrier to vaccine uptake in Black populations is medical mistrust, including mistrust of the vaccine product itself due to limited data on long and short term side-effects and the short timeframe for the development of the vaccine (22). This study also reported that delivering information and vaccine product from a trusted healthcare provider facilitates vaccine uptake.

Several studies revealed that the unwillingness to receive the COVID-19 vaccine was attributed to systemic racism, structural inequalities, vaccination attitudes/opinions gathered from social media, and ongoing racial healthcare inequalities that continue to persist, especially in the US, UK, and Canada (23,24). In the context of the United States, Black/African American adults were less likely to report intent to vaccinate against COVID-19 than their White counterparts, partly due to mistrust of the medical establishment, racial injustice, and harmful historical health policies such as the Tuskegee syphilis study (25–28). Another study suggests socioeconomic privilege and political ideology play a role in racial disparity for COVID-19 vaccination (29). More specifically, factors associated with COVID-19 vaccine disparities (CVD) identified were education, median income, and political ideology, whereas other social determinants of health were not strongly correlated to CVD (29).

Although these studies provide some race-based data, there is still a dire need to collect data that will better capture and contextualize the barriers and facilitators to public health measures, including barriers and attitudes towards vaccines, as these studies report data based on questionnaire-like surveys (14), most of which do not report racial outcomes (16,17,19–21). Different sociodemographic characteristics and races will have different drivers and concerns. For instance, minority populations may face more barriers to public health measures due to economic factors, level of education or environmental factors. Furthermore, attitudes and barriers toward vaccines may also vary across racial demographics due to beliefs, cultures, and experiences. To address this, we will gather contextually rich data and compare perspectives from Black populations across Canada. Without such perspectives, a better understanding

cannot be developed to inform intervention development for Black communities within Canada. We will use the Consolidated Framework for Implementation Research (CFIR) to assess and understand the results collected from the interviews. This conceptual framework was developed to guide the systematic assessment of implementation contexts and factors that influence the effectiveness of interventions (30).

Methods and analysis

Study setting and context

Race-based data is vital to understand better the systemic structures that have led to increased susceptibility due to COVID-19 in Black communities within Canada. Current government data is limited in determining the context and environments in which Black communities undergo increased vulnerability to COVID (10). Study participants will be drawn from FBC Hubs which are from Ontario, British Columbia, Alberta, and Quebec, as well as FBC's mailing list which include members from all over Canada, to capture the magnitude of the barriers and facilitators for COVID prevention measures and uptake of vaccines among Black communities across Canada. Participants will also be drawn from other Black-led organizations partnering with FBC and through media outreach. In addition, an incentive program was developed for referrals from other organizations in underrepresented provinces in Canada. There are some rationales for drawing participants from FBC Hubs. Firstly, these Hubs represent the population of interest we are studying. Secondly, FBC has a pre-existing mailing list that conveniently allows us to recruit participants for this study across Canada's 10 provinces. Lastly, this study maximizes its reach of the target populations by providing an incentive program in less represented provinces.

Study aims

The overall aim is to inform the development of culturally sensitive public health measures in Black communities in Canada. By comparing stakeholders' perspectives and utilizing a framework from implementation science, we will investigate the implementation of current public health measures. The specific objectives are to:

1. Identify the barriers and facilitators to public health measures limited to handwashing, mask-wearing, disinfecting/sanitizing, and social distancing.
2. Identify attitudes towards COVID-19 vaccination
3. Identify barriers to and facilitators of COVID-19 vaccination
4. Generate guidance for developing context-specific public health measures and strategies for vaccine uptake.

Study design

A qualitative study design, using community-based participatory research, with focus groups and key informant semi-structured interviews will be used to conduct this study. We will conduct approximately 120 key informant semi-structured interviews across the ten provinces. We will also conduct 5 focus groups with 12 participants in each focus group. We will focus on four themes: (1) Examining the barriers and facilitators of COVID-19 preventative measures and (2) Examining the impact of COVID-19 in Black communities (3) Assessing the barriers, facilitators and attitudes towards vaccines (4) Assessing recovery from COVID-19 The data will be organized based on the Consolidated Framework for Implementation Research (CFIR).

Using a community-based participatory action plan, we started by piloting the four themes with FBC staff and Hubs and finalized the interview guide for this study. **Table 1** shows the four themes that we used for the focus group and key informant semi-structured interview and the corresponding sample questions drawn from the four themes (Table 1).

Table 1. Themes and sample questions for focus group and semi-structured interviews

Themes	Sample questions

Barriers and facilitators to practicing public health measures for COVID-19 in Black communities	1. What are some barriers for you to practice mask-wearing? 2. What would make it easier for you to practice wearing a mask? 3. What are some barriers for you to practice social distancing? 4. What would make it easier for you to practice social distancing? 5. What are some barriers for you to practice sanitizing and disinfecting? 6. What would make it easier for you to practice sanitizing and disinfecting? 7. What are some barriers for you to practice handwashing? 8. What would make it easier for you to practice handwashing?
Impact of COVID-19 on Black communities	1. How has COVID-19 impacted the quality of your life? 2. What are the COVID-19 public health restrictions you know of? 3. How have these COVID-19 related public health restrictions impacted you?
Attitudes and experiences towards COVID-19 vaccines	1. How do you feel about the COVID-19 vaccine? 2. What barriers or challenges have you encountered in getting the COVID vaccine? 3. What would enable or make it easier for you to get the COVID vaccine? 4. Where do you get your information on vaccines for COVID-19?
Recovery from COVID-19	1. Have you, or anyone close to you ever tested positive for COVID-19? 2. If so, how was your experience in your recovery? 3. How did you get support (from family or friends) during your recovery? 4. Did you experience stigma during or after being infected with COVID?

Patient and public involvement

Initiating the Black community's engagement involved presenting this project's purpose and objectives to FBC stakeholders. The following suggestions were considered when formulating the semi-structured interview and focus group questions. To explore where participants get their information related to COVID vaccines, including their experiences and attitudes towards vaccines and their driving forces. Secondly, to include questions pertaining to community cohesion, community-based vaccination clinics, and increased engagement through online platforms.

Following this initial engagement, we had four meetings for each FBC hub. These meetings were held for 60 minutes, where discussions took place to get input on our research objectives and study questions with 5- 12 stakeholders for each session. All the attendees were able to provide feedback related to the study questions. The meetings were held virtually in July 2021. These discussions allowed stakeholders to ask questions regarding the project and provided specific feedback on the study questions. During the British Columbia Hub meeting, a general question emerged regarding where to collect race-based data in British Columbia, especially since health centers do not collect data that indicate ethnicity (to prevent potential discrimination). Suggestive considerations were also made during these hub meetings. One of the suggestions was to use registered members of over 7000 and supporters reach of 10,000 from members of a non-profit organization tailored to Black populations to collect this race-based data. Another suggestion is to reach out to the 30,000 petitioners who initiated this project. It was also suggested that we include participants who may speak French and appoint French-speaking interviewers for the study. For the Alberta Hub meeting, overlapping suggestions emerged relating to participants that only speak French to maximize the reach of our target population.

Other suggestions included that the focus groups could be voluntary where participants from semi-structured interviews can voluntarily attend the focus groups to answer more questions. It was also suggested that demographic information such as age group, gender, and socioeconomic status of participants should be collected to contextualize the data. Another feedback was to consider life factors that can affect interviewees' comprehension when developing study and capture differences in literacy levels and relationships, written/spoken, to ensure accessibility and feasibility.

Some suggestions were not applied to this study in particular. For instance, it was also suggested to consider examining the data on a provincial, regional, and municipal level to develop an infographic as a tool that can be disseminated to Black populations across Canada. Another suggestion was to consider addressing the experience of Black populations with COVID concerning their mental health. Unfortunately, we could not incorporate these suggestions as they were beyond the scope of the study objectives and would have required additional resources.

Participant selection criteria

The study participants will be recruited based on a number of inclusion and exclusion criteria. Participants to be included in this study must be over the age of 18, identify as Black Canadians or individuals of African descent (including immigrants), Black Canadians/immigrants or individuals of African descent residing in Canada, individuals that can understand and speak either English or French and individuals that can give informed consent. Participants will initially be recruited from FBCs mailing list, where those individuals have participated in previous FBC projects and/or are stakeholders with FBC. After which, we will use chain-referral sampling, where those FBC members initially recruited will suggest others from their community. Those who were suggested will then be invited to participate in this study.

Individuals to be excluded from this study are:

- All Canadians and immigrants that are not Black or of African descent,
- Black Canadians/immigrants or individuals of African descent not living in Canada,
- Individuals under the age of 18,
- Individuals that cannot speak or understand either English or French,
- Individuals unable to give informed consent to participate in this study.

Data collection

Data will be collected through semi-structured interviews and focus groups from participants meeting the eligibility criteria between March and September, 2022. The semi-structured interviews and focus group discussions will be conducted virtually over Zoom to conduct the data collection process in a safe, timely, and efficient manner. Conducting these interviews virtually will allow the researchers and study participants to follow these COVID-19 mandates. Participants will be informed about this study including the purpose and rationale of the study. There will be two consent forms for this qualitative study. A single consent form will be provided for study participants to partake in the semi-structured interviews. Another consent form will be provided to those participating in the focus group. We will then initiate cold calling members in community organization networks once the study participants provide informed consent to participate in the interviews.

Topics of discussion will include barriers and facilitators to community preventive measures limited to personal protective behavior (hand hygiene), mask-wearing, limiting interactions (social distancing), sanitation (disinfection/cleaning), and vaccines for COVID-19, and attitudes and beliefs towards vaccines based on literature (4,31–33) and CFIR. However, we will allow for flexibility in topics to pursue issues in more depth as they emerge from the interviews. We expect the interviews will last approximately 30 minutes. Interviews will be audio-recorded, and then, they will be transcribed verbatim for analysis. Reflective notes will be taken after the interview.

Five focus groups, one for each province of British Columbia, Alberta and Quebec, and two for Ontario, will be conducted to obtain rich data, analyze the specific nature of the barriers and facilitators to COVID-19 public health measures, and determine the attitudes towards COVID-19 vaccines. Each focus group will be held virtually by two research team members (one to facilitate discussion and one to take notes of the discussion). The facilitator will explain their role and the ground rules for the discussion before starting the focus group. It will be stressed that the discussion is confidential, and every opinion will be respected to encourage open discussion and the group members feel comfortable.

All researchers involved in this study will have access to the research material as no personal data will be collected during the semi-structured interviews and focus groups. We will store and share data

using UofT's OneDrive, where it will be stored and accessible only to the research team. Only participant ID will be stated at the beginning, maximizing the privacy of the study participants for the audio-recorded interview (semi-structured interviews and focus groups).

Data analysis

The interview transcripts will be analyzed utilizing NVivo 12 Plus (34) through directed content analysis focused on identifying barriers and facilitators mentioned by key stakeholders. Two researchers will independently analyze the interview transcripts for barriers and facilitators, meeting periodically to adjudicate coding differences and create a consensus template. As an additional reliability check for coding, a third reviewer will code a subset of interviews and resolve any conflicts arising from the barriers and facilitators identified by the two researchers. Subsequently, the identified barriers and facilitators will be coded utilizing the CFIR.

The CFIR is a conceptual framework developed to guide the systematic assessment of implementation contexts and factors influencing effective intervention implementation (30). It will be beneficial to incorporate this conceptual framework during the analysis and synthesis phase, as it will increase the study results' generalizability and interpretability. In addition, the CFIR framework is known in systematic research to support implementing health care delivery interventions to produce actionable evaluation to improve implementation (35). The CFIR includes five major domains (intervention characteristics, outer setting, inner setting, characteristics of individuals, and process) with 39 underlying constructs and sub-constructs that can potentially influence efforts to change the practice (30). We will use the 39 constructs as a priori codes. The two researchers will independently use the CFIR as a coding frame for coding the final list of barriers and facilitators together with associated quotations. The barriers and facilitators will each be coded in one of the 39 constructs, where each construct is categorized in one of the 5 domains. This will provide a better understanding of which constructs are most representative and least representative. The investigators will aim for an inter-rater reliability score of 80% or higher. In addition, the third reviewer will review all the coded barriers and facilitators.

The results will be organized by barrier and facilitator names, coded constructs, domains, and key quotes directly from the interviewees. The results will be presented in a table to help organize the presentation of themes with illustrative quotes and discussed in a narrative synthesis. In addition, we will provide a summary table of the socio-demographic characteristics of the study participants to provide context for the interpretation of the results. To improve the quality and trustworthiness of our data, we will use multiple coders and get feedback on the summary of findings from the key informants that will be interviewed for the study. The data analyses will be completed between October 2022 and March 2023.

Ethics and dissemination

This study was approved by the Social Sciences, Humanities and Education Research Ethics Board at the University of Toronto (41585). Participants will be informed about the study and their right to withdraw from this study. Participants will also be required to complete two consent forms prior to engaging in interviews. A single consent form will be provided for study participants to partake in the key informant semi-structured interviews, and another consent form for the focus groups. Participants will be informed of their right to withdraw on two occasions. The first is when the researcher introduces the study and goes over the consent form. Secondly, before the interview begins, the researcher will inform participants of their right to withdraw at any point throughout the interview without any consequences. Research material will be accessible to all researchers involved in this study as no personal identifiable information will be collected during the key informant semi-structured interviews and focus groups. Our results will be disseminated through reports sent to participants, and available through the Federation of Black Canadians website. We will disseminate our findings to researchers locally and internationally through conference presentations and publications in peer-reviewed journals.

Discussion

Understanding the barriers and facilitators to COVID-19 public health measures and attitudes towards vaccines in Black communities is essential in mitigating mortality and morbidity due to COVID-19 in this demography. Using race-based data to develop context-specific/ culturally sensitive interventions can improve the uptake of vaccines and public health measures. This research will provide race-based data to develop interventions through a health equity lens and decrease the disproportionate impact of COVID-19 in Canada by incorporating key stakeholder views and CFIR domains.

One of the benefits of this research is the uncovering of the contextual factors influencing the disproportionate impact of COVID-19 despite the efforts of public health measures. Currently, there is little understanding of the barriers and facilitators to public health measures and vaccines in Black communities within Canada (16,17,19–21). Through publishing our research findings, we will provide policymakers, healthcare professionals, and researchers crucial information about barriers and enablers of public health measures and attitudes towards COVID-19 vaccines in Black communities.

A potential limitation of the study, however, is accessibility. Since the semi-structured interviews and focus groups will be conducted virtually, we may not reach those who do not have access to the internet, resulting in gaps in our data. A systematic review examining the relationship between the use of social media and COVID-19 vaccine hesitancy found that the outcomes of the two variables vary across studies. Most of the studies showed that higher social media use translated to lower vaccine acceptance rates, where a few studies showed a positive correlation between the two variables (36). Most social media platforms covering the topic of COVID-19 vaccines focused on concerns related to the safety of getting vaccinated, and other concerns such as the fast development of the vaccine and the vaccines ability to protect individuals from the virus (36). Although these findings show the impact social media use has on vaccine acceptance rates, there's no clear ethnic representation of social media users and their attitudes and responses based on their engagement on platforms that are pro-vaccine or anti-vaccine.

Although we may not target all Black communities in Canada, data will be collected from each participant through rigorous interview questions that will provide rich data. Another potential limitation is excluding participants who do not speak English or French, such as some immigrants from Africa. These

individuals excluded from the study may have different experiences in barriers and facilitators of public health measures and attitudes towards vaccines, limiting the generalizability of study findings. Due to pre-existing economic, political, and healthcare challenges, Black Canadians are disproportionately impacted by COVID-19 and continue to make up the majority of COVID-related deaths in the nation (1). The insights from this project can inform the development of context-specific/culturally sensitive public health measures and strategies for vaccine uptake that are implementable in Black communities. We will prepare a report which will be shared in an open-access journal with various stakeholders including: Black community centers, medical professionals, researchers, organizations operating in Black communities, public health policymakers, and other health care professionals.

Abbreviations

BHA: Black Health Alliance

BIPOC: Black, Indigenous, People of color

BPAO: Black Physicians' Association of Ontario

COVID-19: Coronavirus disease 2019

CFIR: Consolidated Framework for Implementation Research

Declarations

Contributors

All the authors contributed to the conception and design of the study. BG drafted the first version of the manuscript. OE and BG revised the manuscript. OE critically reviewed the manuscript for important intellectual content. OE, BG, TA, IJ, YA and CT approved the final version.

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Competing interests

The authors declare that they have no competing interests.

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