COVID-19 Canada

THE END OF THE WORLD AS WE KNOW IT?

TECHNICAL REPORT NO. 1

Presenting the COVID-19 Survey

The project is financed by the Canadian Institutes of Health Research (CIHR)

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HIGHLIGHTS

- The survey is unique in its large sample (N_{wave1} = 3,617), longitudinal multi-wave design, and rolling cross-sectional design.
- Representativeness of the Canadian population has been established for age, gender identity, and province of residence.
- The sample is comparable to the Canadian population for household size, current occupation, and country of origin.
- It should be mentioned that Canadians with lower levels of education, native French speakers, and Indigenous people are somewhat underrepresented in the sample.

Table of Contents

Abstract

In the context of the current novel coronavirus pandemic, dramatic social changes are receiving more scientific attention. Dramatic social change refers to a situation where a rapid, impactful event leads to a profound societal transformation including a rupture in the equilibrium of social and normative structures and changes that threaten the cultural identity of group members (de la Sablonnière, 2017). In response to these social upheavals and the funding obtained from the Canadian Institute of Health Research (CIHR), our team launched a research program designed to assess the effect of public health policy formulation on the prejudices and adaptation strategies of Canadians. The core of our research program is to understand COVID-19's impact on the Canadian population using a Canada-wide longitudinal study, launched on April 6, 2020. Our COVID-19 project was designed to monitor the rapidly evolving events associated with the course of the pandemic for several months. From April to June 2020, participants answered a survey every two weeks. From July to September 2020, participants answered the survey every four to six weeks. Our plan is for participants to complete at least 10 surveys, with potentially more to come, contingent on obtaining additional financial support. This technical report provides detailed information on the COVID-19 survey following the completion of its first wave (N = 3,617). Specifically, the first objective is to describe the methodology that was used in the creation and implementation of the COVID-19 survey Canada-wide. The second objective is to assess the accuracy of the sample's representation of the Canadian population according to three basic socio-demographic quota variables—age, gender identity and province of residence. The third objective is to describe the sample in terms of critical socio-demographic variables (e.g., education, mother tongue) important for our COVID-19 project but could not be included in the quotas. The analysis shows that the sample of participants was comparable to the Canadian population on most socio-demographic variables that we studied. Equivalence testing was performed when a divergence was found.

Research Team

Principal investigator

Roxane de la Sablonnière, Ph.D.
Full professor
Department of Psychology
University of Montreal

Director and founder of the Social Change and Identity Laboratory since 2005, Roxane studies the challenges people face when they are exposed to dramatic social change, such as the colonization that affected Canada's Aboriginal peoples or immigration.

Team members

Éric Lacourse, Ph.D.
Full professor
Department of Sociology
University of Montreal

An expert in the field of social statistics and their teaching, he offers his methodological expertise in data analysis, as well as his theoretical expertise on the social impacts of change in relation to identity and personality.

Jean-Marc Lina, Ph.D.
Professor
Department of Electrical Engineering
École de technologie supérieure de Montréal

Jean-Marc is the founder and director of the PhysNum laboratory, as well as a researcher at the Center for Advanced Research in Sleep Medecine of the Hôpital du Sacré-Cœur. He studies the dynamics of complex systems including rhythms in social psychology.

Dietlind Stolle, Ph.D.
James McGill Professor
Department of Political Science
McGill University

Dietlind has directed the Centre for the Study of Democratic Citizenship. She is an expert on trust, social capital, ethnic diversity, attitudinal democratic backsliding and new forms of political participation.

Donald M. Taylor, Ph.D.
Professor Emeritus
Department of Psychology
McGill University

Author of numerous books on social psychology and a specialist in inter-group relations, Don is particularly interested in the plight of disadvantaged populations, such as indigenous communities.

Post-doctoral researchers

Anna Dorfman, Ph.D.
Post-doctoral researcher
Department of Psychology
University of Montreal

A behavioural researcher Interested in decision-making processes, Anna focuses on the interactions between emotions, cognitions and behaviours in order to understand how individuals react when faced with difficult social situations.

Mathieu Pelletier-Dumas, Ph.D.
Post-doctoral researcher
Department of Psychology
University of Montreal

A social psychology researcher in the Social Change and Identity Laboratory, Mathieu is interested in the profound changes that people face (social and personal changes), in identity, and in negative behaviours (discrimination, prejudice, disruptive behaviours in video games).

Partners

CÉCD CSDC
CENTRE POUR L'ÉTUDE DE LA CITOYENNETÉ DÉMOCRATIQUE
CENTRE FOR THE STUDY OF DEMOCRATIC CITIZENSHIP

McGill UNIVERSITY

SSHRC CRSH

CIHR IRSC

Social Change and Identity Laboratory

Fonds de recherche Société et culture Québec

ÉTS Le génie pour l'industrie
ÉCOLE DE TECHNOLOGIE SUPÉRIEURE
Université du Québec

Mitacs

Université de Montréal

The COVID-19 Survey Research Group

Our COVID-19 survey covered in this technical report aims to study the pandemic as a process of social change, i.e. a situation in which an event causes a profound social transformation by disrupting the equilibrium of societies. Although the current pandemic clearly represents a great challenge for Canada, and indeed all of humanity, dramatic social changes have always been omnipresent throughout the world, in the form of wars, natural disasters, revolutions, or rapidly accelerating technology. For our research team, the COVID-19 survey is the natural outgrowth of our long-term quest to understand dramatic social change. Since the founding of the Laboratory on Social Change and Identity (SCI), in 2005, our team has studied social change, its impact on individuals, and the adaptation processes of societies to grasp the complexity of this phenomenon. This quest has led our team to work around the world, including Russia, Kyrgyzstan, Mongolia, South Africa and Indigenous, both First Nations and Inuit communities in Canada. Today, our team brings together experts from different fields of study as they share a genuine desire to understand social change and the audacity to venture into this understudied area. Indeed, the success of the present COVID-19 survey lies in the adoption of a multidisciplinary perspective, in which different expertise are combined to capture the complexity of the pandemic.

Roxane de la Sablonnière, director of the SCI Laboratory and professor in the Department of Psychology at Université de Montréal, is a specialist in social psychology and focuses her research on the challenges people face when they are exposed to profound social change. The COVID-19 survey is part of her quest to understand social change and identify the interventions that are most beneficial for peoples' collective well-being.

Donald M. Taylor, Professor Emeritus in the Department of Psychology at McGill University in Montreal, Canada, has published extensively in social psychology with a particular interest in inter-group relations. Taylor's collaboration is central to the COVID-19 survey, both for public policy thinking and for knowledge mobilization. His expertise in the field also ensures a close link with the community.

Jean-Marc Lina is a Professor in the Department of Electrical Engineering at the École de Technologie Supérieure de Montréal and conducts research on the multifractal analysis of cerebral electrophysiological signals and the dynamics of complex systems in psycho-sociology. Lina's expertise in complexity analysis methods will provide a rigorous understanding of the dynamics of change as applied to COVID-19.

Dietlind Stolle is James McGill Professor of Political Science at McGill University and former Director of the Inter-University Centre for the Study of Democratic Citizenship (CSDC) and specializes in inter-group relations, trust and social capital. For our COVID-19 survey, Stolle contributes to the design of the studies and also brings her expertise to the team as a specialist in survey research in advanced industrialized democracies.

Mathieu Pelletier-Dumas is a post-doctoral researcher in social psychology at the Université de Montréal and has developed an expertise in identity processes and complex

statistical analyses. For the COVID-19 survey, his priority is to manage the COVID-19 survey, guide the statistical analyses and co-write research reports that can guide governments in their decision-making to improve the situation in Canada and around the world.

Anna Dorfman is a post-doctoral researcher in social psychology at the Université de Montréal studying the interplay between challenging experiences, emotions, and social preferences. She joined the COVID-19 survey in July 2020, contributes expertise in experimental design, longitudinal studies, and multi-level statistical analyses to study trust and emotions involved in social consequences of COVID-19.

Éric Lacourse is a full professor in the Department of Sociology at the University of Montreal. He is currently responsible for the bi-disciplinary baccalaureate in psychology and sociology and formerly director of the microprogram in social statistics. He has recently been interested in the integration of machine learning approaches to complex data. He adopts a multidisciplinary perspective that integrates theoretical concepts from developmental and educational psychology, psychiatry, criminology and sociology. In this project, he will offer methodological expertise in data analysis, as well as theoretical expertise on the social impacts of change on identity and personality.

Besides their keen interest in social change, the members of our team also share two fundamental values that are at the core of our COVID-19 survey. First, we believe that to gain deep understanding of social phenomena, scientific research requires careful scrutiny and may take time. The quality of the research that we produce cannot be compromised, regardless of the pressures that might arise from the research community in general and the community context of COVID-19 in particular. Second, we value the integration of students into the research team. Students have innovative ideas and instinctive insights that make important contributions to the survey and stimulate members of the research team, to address their novel thoughts. The contribution of students to the survey is not only beneficial to the senior members of the research team, but also has long-term benefits for students. Students have a unique opportunity to collaborate with senior researchers whom do their best to share their knowledge and experience. Beyond the scientific contribution, the COVID-19 survey aims to provide an opportunity for our students to develop as aspiring researchers by challenging their critical thinking, survey management skills and their ability to debate recent ideas from the scientific world.

Background

On 7 January 2020, China confirmed the presence of a novel coronavirus. Two months later, the World Health Organization (WHO) reported that COVID-19 met all the criteria to be defined as a pandemic, that is, an epidemic occurring worldwide or over a large area across international borders and affecting a large number of people (WHO, 2007). Since then, the number of confirmed cases and deaths has increased at a disconcerting rate. Figures soon revealed the severity of the virus, both in terms of its contagiousness

and its mortality rate. Currently, the number of reported deaths worldwide as a result of COVID-19 has surpassed 1M (data retrieved from https://www.worldometers.info/coronavirus/ on October 5, 2020, see Appendix A for more information). However, the consequences of such a crisis are not limited to its fatalities, since a pandemic poses a substantial threat to societal functioning (WHO, 2007). At the economic level, some experts (Fernandes, 2020) argue that the gross domestic product of some countries will fall by 2.5% to 3% on average for each additional month of crisis. Moreover, multiple psychosocial consequences are expected, including unprecedented fear and collective panic (Sohrabi et al., 2020). The international community is currently witnessing an increase in hateful sentiments (Burton, 2020) as well as online and in-person discrimination (CDC, 2020) towards citizens of Chinese origin.
All these disastrous outcomes are now eminently conceivable in the context of COVID-19 (de Medeiros Carvalho et al., 2020). The complexity of the crisis is rooted in many social phenomena such as the panic resulting from misinformation, changes in social norms, and growing social inequalities (Van Bavel et al., 2020). Therefore, the social nature of the crisis cannot be neglected (Betsch et al., 2020). For any event that threatens the equilibrium of society, understanding the resulting social consequences is essential in order to guide the measures needed to minimize negative impacts (Liu & Bernardo, 2014).

In this context, the objective of our research is to target and study the reactions, impact and preoccupations of all Canadians during the COVID-19 crisis. The first step in gaining a thorough understanding of the COVID-19 crisis was to develop a comprehensive and accurate picture of the situation of Canadians in the context of the COVID-19 crisis. The COVID-19 survey was designed to cover a wide range of social issues, including discrimination and prejudice surrounding the COVID-19 outbreak in Canada, differential trust in the government and health officials, economic consequences of the unfolding lockdown policies, voluntary compliance with COVID-19 measures, sleep disorders, social isolation, and reactions to changing behavioral rules and norms. The research team continues to adapt the survey to the context in which the pandemic evolves (e.g., Canadians' reactions to re-opening of schools).

Responding to the general call to scientists for rapid information sharing (Moorthy et al., 2020), the research team will produce brief research reports to disseminate our findings on Canadians' social responses to the COVID-19 crisis among policy makers and the general public. In addition, we will use the data to promote deeper understanding of social phenomena and the underlying psychological processes. Utilizing the longitudinal data, we will use complex statistical analyses to address why, what, and how a phenomenon occurs (e.g., why prejudice increase in times of a crisis, what makes people comply to governmental guidelines, and how can Canadians maintain positive well-being). Understanding these complex phenomena has implications beyond the current COVID-19 crisis pivotal in addressing negative consequences in similar situations in the future. Ultimately, the team aims to make recommendations to guide decision-makers in the formulation of public policy in order to promote the collective well-being and orient future interventions.

Below, we (1) describe the methodology of the COVID-19 survey; (2) assess the representativeness of the COVID-19 survey of the Canadian population in terms of age, gender, and province; and (3) describe the COVID-19 survey sample on important socio-demographic variables, making comparisons with the general Canadian population when possible.

Methodology

Global Methodology

A Canada-wide COVID-19 survey was conducted over a period of several months, starting on April 6th, 2020. A total of 3,617 participants were recruited using Delvinia's web panel, AskingCanadians ("Qu'en pensez-vous" in French), a representative participant panel of over one million Canadians. It is important to note that this company uses sophisticated data collection tools to send participation reminders via text messages or mobile applications to reduce attrition and ensure a representative sample.

The link to each survey was sent to participants by the polling firm Delvinia. Participants completed the surveys on their cell phones, electronic tablets or computer through the Confirmit platform. Due to this data collection method, participants needed Internet access to participate in the study. Using an online data collection method should not significantly bias the representativeness of the sample since the majority (94%) of Canadians have access to the Internet from home (Statistic Canada, 2019). Furthermore, the ratio of Canadians with access to the Internet may be higher than 94% as Canadians who do not have access to the Internet at home may use their cellphone to access it.

Note that the survey was planned for a total duration of 5 months. We initially planned the COVID-19 survey to be administered in a total of 10 waves: one survey was administered every two weeks over a period of five months. However, because the pandemic was still in a very dynamic state in June 2020, we decided to extend the period between each of the COVID-19 surveys. First, for Wave 1 to Wave 6, the COVID-19 survey was distributed every two weeks. Next, we prolonged the intervals between waves – Wave 7 was distributed after four weeks, Wave 8 after five weeks and Wave 9 after six weeks. Wave 10 is postponed until November – December 2020. By doing so, we aimed to lower the fatigue associated with answering similar questions every two weeks, and to cover a longer period of time, up to the end of the December, 2020 instead of the end of August, 2020.

In distributing the survey, we used a rolling cross-sectional (RCS) survey design (Johnston and Brady, 2002). For the first wave of our multi-wave study, RCS begins with a large sample of respondents. Then, every day for a given period of time, a sub-sample is randomly drawn from the initial sample and contacted to complete the survey until a daily target number of respondents is reached. This methodology allows dynamic analyses that capture real-time effects of events, an advantage that is crucial in the context of our COVID-19 survey. Following the RCS design, in the first wave, approximately 250 participants were contacted each day for 14 days to complete the COVID-19 survey. When approximately 250 participants completed the online survey on a given day, (it ranged between 244 to 265 participants each day; see Table 1), the recruitment was stopped for that day. Participants who were sent a survey link on a given day were part of the same "group". There are 14 groups of participants reflecting 14 days each survey is in the field. Participants from the first wave had a time window of 14 days to answer the survey in order to increase the representativeness of the overall sample. This procedure ensured that a minimum of 3,500 Canadians completed the survey over the two-week period and that data was collected each day. For the second wave, the survey was sent to all participants exactly 14 days after they received the Wave 1 survey.

For example, participants that were sent the first wave survey on Monday April 6, 2020, received the second wave survey on Monday April 20, 2020 (Group 1). The same procedure was repeated for the following eight waves of the survey thus combining the rolling cross-section design with the panel design of our survey. For Waves 2 to 5, participants had a one-week window to complete each survey, and for Waves 6 to 8 participants had a two-weeks window to complete the survey. The surveys took approximately 15-20 minutes. When a participant failed to complete a survey, his or her data for that wave was considered missing. Participants who had not responded to a wave were still invited to respond on subsequent waves. Participants received compensation for each completed survey. The compensation was made through the Delvinia platform in the form of points redeemable at the store chain of their choice. The compensation per completed survey is worth approximately 2.50 Canadian dollars.

Table 1. Number of participants per group for first wave

Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14
N	261	264	258	251	258	262	265	263	262	244	261	252	254	263

Planned Missingness

A procedure of planned missingness was applied in order to reduce the time in filling out the COVID-19 survey (Rhemtulla & Little, 2012). Planned missingness can be used in combination with missing data estimation methods, notably multiple imputation techniques, without compromising validity and statistical power (Enders, 2010). Data can be imputed using the IBM SPSS Multiple Imputation command, SAS MI procedure, or the Amelia or MICE packages for R software, for instance. For each survey, some items were assigned to one of three sets (A, B, and C). At each data collection wave, participants had to answer to core items as well as to items from two of the three sets (i.e., AB, AC, BC). The assignment was such that each set of items was seen by at least 2/3 of the participants (see Appendix C for details).

COVID-19 Survey: First Wave

Structure. For the first wave of our survey, we grouped the questions into 10 blocks. Each block encompassed specific themes or issues regarding COVID-19 (see Table 2). Some questions had a single item, while other questions included multiple items. For most items, participants used a 10-points Likert scales. Questions within blocks and items within most questions were administered in a randomized order to reduce the possible effects of contamination induced by the position of questions (i.e., to avoid that some questions cue answers for subsequent questions; Wilcox and Wlezien, 1993).

Table 3 displays the structure of the first wave of the COVID-19 survey. The structure for subsequent waves was adapted to reduce monotony and ensure quality in responses. All surveys included a welcome paragraph that was adapted for each wave and a consent form approved by the Research Ethics Committee in Education and Psychology of the University of Montreal (see Appendix B). All surveys also included a concluding paragraph. Starting from Wave 3 and further, upon completing the survey participants saw preliminary descriptive findings – a figure showcasing responses to one or two items the research team judged as "neutral" (i.e., unlikely to influence participants' responses to following surveys).

A total of 3,617 participants completed the first wave of the survey. The socio-demographic questions were presented only in the first wave. It included items about the age, gender identity, province of residence, the household, employment, nationality, identity, mother tongue, education level, political views and religion of participants. Please refer to Table 4 and Appendix D for the complete description of the demographic questions. Half of the demographic questions were asked at the beginning of the COVID-19 survey (part 1) and half at the end (part 2). This was done for two reasons: 1) some Part 1 questions were used to filter subsequent questions (e.g. we did not present items about spending time with one's children if participants had no children), and 2) to reduce the monotony of answering the demographic questions.

"A total of 3,617 participants completed the first wave of the survey."

Table 2. Blocks content for first wave

Blocks	Themes	Examples of items
Part 1	Socio-demographic variables	How old are you?
1	Public health measures	Using the scale from 1 to 10 below, indicate your level of agreement with this statement: The recommendations (measures) established by Canadian and provincial public health agencies are similar.
2	Trust in system	How much do you trust the following actor to address the COVID-19 crisis? Prime Minister Justin Trudeau.
3	Cultural identity	Using the 1 to 10 scale below, indicate the extent to which you agree or disagree with this statement: I think of myself as a Canadian.
4	Sleep	How much sleep did you get in the last 24 hours? (please insert the possibility for hours and minutes).
5	Social change	In the long term, do you think the overall changes related to the COVID-19 crisis will be negative or positive for our society?
6	Behavior regarding COVID-19	Currently, how often do you do this following behaviour? Invite people over for dinner or coffee.
7	Occupations	Please indicate the number of times in the last week you engaged in the following activity: Exercising outdoors.
8	Impact of quarantine experience	Using the scale from 1 to 10 below, please indicate your level of agreement: During the past week, because of the COVID-19 crisis, I often felt... Bored.
9	Concern about COVID-19	How concerned are you about the following as they relate to the COVID-19 outbreak? Discrimination against minority groups.
10	Identity clarity	*Postponed to the 2nd wave.*
11	Personnal situation about COVID-19	Have you been diagnosed with COVID-19?
Part 2	Socio-demographic variables	What is your mother tongue?

Table 3. Questionnaire structure for first wave

A. Explanatory paragraph
B. Consent form
C. Part 1 – Demographics
D. Block 1
E. Block 6
F. Block 7
G. Blocks 2, 3, 4, 5, 8, 9 (Blocks are randomly ordered)
H. Block 11
I. Part 2 – Demographics
J. End comment to participants

Table 4. Socio-demographic variables

Variables	Questions	Scales
Age	What is your age?	18-100
Gender identity	What is your gender identity?	0 = Female; 1 = Male; 2 = Other
Province of residence	In which province do you currently live?	0 to 12 = each provincel; 13 = Outside of Canada
Household description	Counting yourself, how many people are currently living with you?	1 to 8 or more
	How many people in your household are under the age of 18?	None to 8 or more
	How many people in your household are under 6 years old?	None to 8 or more
Employment	What is your current employment status?	Working for pay full-time; Working for pay part-time; Self-employed (with or without employees); Retired; Unemployed/ looking for work; Student; Caring for your family; Disabled; Student and working for pay; Caring for your family and working for pay; Retired and working for pay; Other
	What is your current job or profession?	Open question
	You are ...	A public sector employee; A private sector employee; Self-employed, business owner
	How large is the workplace where you currently work?	0 = 1 person; 1 = 2–5; 2 = 6–10; 3 = 11–50; 4 = 51–200; 5 = 201–500; 6 = 501–1000; 7 = 1001–2000; 8 = over 2000
Nationality	What is your mother's country of birth?	Open question
	What is your father's country of birth?	
	What is your country of birth?	
	In what city do you currently live?	
Identity	We would like to know how you define your cultural identity. You can choose a large group (e.g., Canadian, Indigenous person, Asian) or smaller group (e.g., province, First Nations, Cree) or religious group (e.g., Jewish, Christian) or hyphenated group (e.g., Italian-Canadian). Please tell us the group you identify with most.	Open question
	I have a clear sense of what my cultural group is.	1 = Strongly disagree to 10 = Strongly agree
	Do you identify as Indigenous - that is First Nations (North American Indian), Métis, or Inuit?	Yes or No
Mother tongue	What is your mother tongue?	French; English; Other
Education	What is the highest level of education that you have completed?	No schooling; Some elementary school; Completed elementary school; Some secondary / high school; Completed secondary / high school; Some technical, community college, CEGEP, classical college; Completed technical, community college, CEGEP, classical college; Some university; Bachelor's degree; Master's degree; Professional degree or doctorate
Politics	Regarding politics, people often speak of the "left" and "right." Where would you place yourself on the following scale?	1 = Strongly left to 10 = Strongly right
	In federal politics, do you usually think of yourself as a Conservative, Liberal, NDP, Bloc Québécois, Green, or none of these?	Conservative; Liberal; NDP; Bloc Québécois; Green; None of these; Other; Don't know
Religion	What is your religion?	Don't have one / Atheist; Agnostic; Christian; Buddhist; Hindu; Sikh; Jewish; Muslim; Other

Sample Representativeness

Representativeness is fundamental to generalise the COVID-19 survey's results to people who did not take part in our survey. To be representative of the entire Canadian population, our sample must share specific attributes with the Canadian population. Delvinia profiles its panellists through hundreds of demographic, behavioural, and attitudinal variables to meet the specific sampling needs of researchers. At our request, Delvinia selected participants for the first wave of the COVID-19 survey based on established quotas for three socio-demographic variables: age, gender identity and province of residence. Data on these descriptive variables were also collected in the first wave of the COVID-19 survey (see Table 4), which allowed a comparison of the sample with the Canadian population. Specifically, the age, gender identity and province of residence of the COVID-19 survey's participants was compared with the Canadian population by means of two different sets of data: 1) an estimate of July 2019 population carried by Delvinia through Statistics Canada's website and 2) the official 2016 Census Profile of Statistics Canada on which the estimate was based. This section is dedicated to the comparison of each of the three characteristics across the 3,617 participants who completed the first wave of the survey.

Table 5. Sample representativeness

Variables	Questions	Scales
Age	What is your age?	18-100
Gender identity	What is your gender identity?	0 = Female; 1 = Male; 2 = Other
Province of residence	In which province do you currently reside?	0 to 12 = each Canadian province; 13 = Outside of Canada

Data Specification

Delvinia estimates 2019. The first representativeness analysis for age, gender identity and province of residence of the COVID-19 survey's sample is based on the demographic calculations carried out by Delvinia, which estimated the Canadian population's description of July 2019 using Statistics Canada's guideline (Statistics Canada, May 2020). To consult the demographic information of the population from which the sample was recruited based on Delvinia's adjustments, please refer to Table 6a. The firm applied the calculations suggested by Statistics Canada to obtain data estimates for age, gender identity and province of residence values representative of July 2019. Since the age categories used by Statistics Canada and those in the COVID-19 survey did not correspond, adjustments were made to make the comparison as accurate as possible. To match the sample of the COVID-19 survey, which includes adults of 18 years old and over, people aged between 0 and 14 years old were not considered. Since Statistics Canada doesn't have specific data for 18-19-year-olds, the firm

redistributed the 15-19-year-olds to obtain an estimate of the 18-19-year-olds, i.e. 2/5 of the population of the 15-19-year-olds by gender and by region. The 20-24-year-olds category was added to the resulting value to represent the 18-24-year-olds category. For subsequent categories, Delvinia had to sum two age groups to get the same categories as in the COVID-19 survey. For example, they have added up the total number of Canadian aged between 25-29 and 30-34 to get the equivalency to the COVID-19 survey's 25-34 category. Note that for provinces with small populations (i.e., other than British Columbia, Ontario and Quebec), Delvinia grouped provinces together in their calculations. This grouping of provinces allows Delvinia to increase the probability for the COVID-19 survey sample to be representative of the Canadian population regarding the province of residence, since only 250 participants complete the survey each day. New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland and Labrador were clustered to create "The Atlantic provinces", and Alberta, Saskatchewan, Manitoba, the Northwest Territories and Nunavut were regrouped to create "The Western provinces". Finally, they included Yukon data in the British Columbia category. Therefore, 5 categories appear in Table 6a, instead of 10 in tables 6b and 6c.

Statistics Canada 2016 Census. The second representativeness analysis is a comparison of the socio-demographic values obtained in the COVID-19 survey with the original Statistics Canada 2016 Census values (Statistics Canada, May 2019). For the entire data set, please refer to Table 6b. We undertook the same calculations as Delvinia (explained above) to match Statistics Canada's data with the COVID-19 survey's age groups. Note that we did not include data for Nunavut, Northwest Territories and Yukon, since none of these provinces and territories were represented in the first wave of the COVID-19 survey.

For age, gender identity and province of residence, the data from the first wave of the COVID-19 survey (see Table 6c) was compared to that of Delvinia and Statistics Canada. Note that two participants identified themselves as "other" for the question regarding gender identity (Ontario, age group 18-24, not incuded in the table). These two participants are not included in the analysis of the representativeness of the gender identity category since Statistics Canada does not include "other" gender identities in its census profile.

Table 6a. Delvinia 2019

Atlantic provinces				
	Women	Women %	Men	Men %
18-24	93,909	9.2	101,656	10.4
25-34	141,668	13.8	144,455	14.8
35-44	148,930	14.5	140,967	14.4
45-54	170,778	16.6	165,081	16.9
55-64	196,954	19.2	190,469	19.5
65+	273,840	26.7	236,187	24.1
Quebec				
	Women	Women %	Men	Men %
18-24	325,726	9	347,084	10.1
25-34	534,274	15	566,124	16.5
35-44	563,008	16	581,640	17.0
45-54	537,135	15	549,228	16.0
55-64	626,690	18	625,992	18.3
65+	879,945	25	754,767	22.0
Ontario				
	Women	Women %	Men	Men %
18-24	661,084	11.0	718,809	12.5
25-34	1,010,351	16.8	1,049,878	18.2
35-44	960,859	16.0	920,162	16.0
45-54	979,802	16.3	952,698	16.5
55-64	1,018,300	17.0	987,555	17.1
65+	1,373,619	22.9	1,136,343	19.7
Western provinces				
	Women	Women %	Men	Men %
18-24	299,233	11.1	324,515	12.0
25-34	514,900	19.0	541,376	20.0
35-44	501,236	18.5	510,516	18.8
45-54	425,009	15.7	437,275	16.1
55-64	437,205	16.2	440,077	16.2
65+	528,393	19.5	456,284	16.8
British Columbia				
	Women	Women %	Men	Men %
18-24	215,829	10.1	234,704	11.3
25-34	355,578	16.6	370,808	17.9
35-44	340,067	15.8	333,645	16.1
45-54	350,592	16.3	331,475	16.0
55-64	379,072	17.7	359,200	17.3
65+	506,956	23.6	446,277	21.5

Table 6b. Statistics Canada 2016

New Foundland and Labrador				
	Women	Women %	Men	Men %
18-24	19,095	8.6	19,507	9.4
25-34	29,365	13.3	28,280	13.6
35-44	33,950	15.3	31,300	15.1
45-54	41,810	18.9	39,470	19.0
55-64	43,505	19.6	41,605	20.1
65+	53,855	24.3	47,170	22.8

Prince Edward Island				
	Women	Women %	Men	Men %
18-24	5,911	9.9	6,164	11.2
25-34	7,970	13.3	7,435	13.5
35-44	8,880	14.8	8,120	14.7
45-54	10,735	17.9	10,075	18.3
55-64	11,390	19.0	10,635	19.3
65+	15,070	25.1	12,640	23.0

Nova Scotia				
	Women	Women %	Men	Men %
18-24	38,016	9.6	38,646	10.7
25-34	53,540	13.5	51,920	14.3
35-44	57,255	14.4	51,805	14.3
45-54	71,235	18.0	66,335	18.3
55-64	75,805	19.1	70,660	19.5
65+	100,405	25.3	83,415	23.0

New Brunswick				
	Women	Women %	Men	Men %
18-24	28,047	8.9	29,642	10.0
25-34	40,870	12.9	38,885	13.2
35-44	47,760	15.1	45,105	15.3
45-54	57,370	18.2	54,990	18.6
55-64	61,425	19.5	58,380	19.8
65+	80,280	25.4	68,500	23.2

Quebec				
	Women	Women %	Men	Men %
18-24	331,802	9.8	340,228	10.6
25-34	506,450	15.0	504,470	15.8
35-44	528,370	15.7	528,695	16.5
45-54	569,385	16.9	569,480	17.8
55-64	608,820	18.1	590,330	18.4
65+	825,605	24.5	669,590	20.9

Ontario				
	Women	Women %	Men	Men %
18-24	594,548	8.6	624,507	9.6
25-34	881,975	12.8	857,145	13.1
35-44	893,000	13.0	821,365	12.5
45-54	1,023,450	14.8	970,275	14.8
55-64	946,820	13.8	888,785	13.6
65+	1,236,000	17.9	1,015,655	15.5

Manitoba				
	Women	Women %	Men	Men %
18-24	58,951	11.7	61,487	12.5
25-34	86,100	17.0	95,780	19.5
35-44	81,010	16.0	79,415	16.2
45-54	85,485	16.9	83,705	17.1
55-64	83,535	16.5	81,335	16.6
65+	109,945	21.8	89,025	18.1

Saskatchewan				
	Women	Women %	Men	Men %
18-24	47,177	11.0	49,945	12.0
25-34	77,150	18.0	77,900	18.8
35-44	68,090	15.9	68,455	16.5
45-54	69,810	16.3	69,010	16.6
55-64	72,110	16.9	72,005	17.4
65+	93,160	21.8	77,265	18.6

Alberta				
	Women	Women %	Men	Men %
18-24	174,404	11.0	183,440	11.7
25-34	319,845	20.3	324,270	20.7
35-44	290,510	18.4	296,200	18.9
45-54	275,280	17.4	278,060	17.8
55-64	249,760	15.8	252,005	16.1
65+	268,530	17.0	231,690	14.8

British Columbia				
	Women	Women %	Men	Men %
18-24	190,339	9.7	200,815	10.9
25-34	310,130	15.8	306,620	16.6
35-44	303,635	15.5	285,000	15.5
45-54	349,350	17.8	327,390	17.8
55-64	351,360	17.9	327,660	17.8
65+	453,425	23.2	395,560	21.5

Table 6c. First Wave Survey

New Foundland and Labrador

	Women	Women %	Men	Men %
18-24	4	14.3	2	8.7
25-34	6	21.4	1	4.3
35-44	10	35.7	2	8.7
45-54	0	0.0	4	17.4
55-64	6	21.4	9	39.1
65+	2	7.1	5	21.7

Prince Edward Island

	Women	Women %	Men	Men %
18-24	1	12.5	1	5.9
25-34	1	12.5	3	17.6
35-44	2	25.0	2	11.8
45-54	1	12.5	1	5.9
55-64	0	0.0	4	23.5
65+	3	37.5	6	35.3

Nova Scotia

	Women	Women %	Men	Men %
18-24	10	15.9	5	8.3
25-34	6	9.5	7	11.7
35-44	8	12.7	7	11.7
45-54	6	9.5	6	10.0
55-64	18	28.6	19	31.7
65+	15	23.8	16	26.7

New Brunswick

	Women	Women %	Men	Men %
18-24	6	17.1	3	8.3
25-34	1	2.9	7	19.4
35-44	6	17.1	5	13.9
45-54	9	25.7	6	16.7
55-64	5	14.3	4	11.1
65+	8	22.9	11	30.6

Quebec

	Women	Women %	Men	Men %
18-24	43	11.2	26	7.1
25-34	53	13.8	65	17.9
35-44	63	16.4	69	19.0
45-54	59	15.4	70	19.2
55-64	65	17.0	67	18.4
65+	100	26.1	67	18.4

Ontario

	Women	Women %	Men	Men %	Other	Other %
18-24	91	13.0	86	12.1	2	100.0
25-34	123	17.5	125	17.6	0	0.0
35-44	113	16.1	122	17.1	0	0.0
45-54	106	15.1	117	16.4	0	0.0
55-64	105	15.0	127	17.8	0	0.0
65+	163	23.3	135	19.0	0	0.0

Manitoba

	Women	Women %	Men	Men %
18-24	5	8.9	5	7.9
25-34	4	7.1	11	17.5
35-44	10	17.9	8	12.7
45-54	10	17.9	13	20.6
55-64	15	26.8	13	20.6
65+	12	21.4	13	20.6

Saskatchewan

	Women	Women %	Men	Men %
18-24	8	17.0	4	8.3
25-34	6	12.8	8	16.7
35-44	10	21.3	11	22.9
45-54	7	14.9	5	10.4
55-64	7	14.9	7	14.6
65+	9	19.1	13	27.1

Alberta

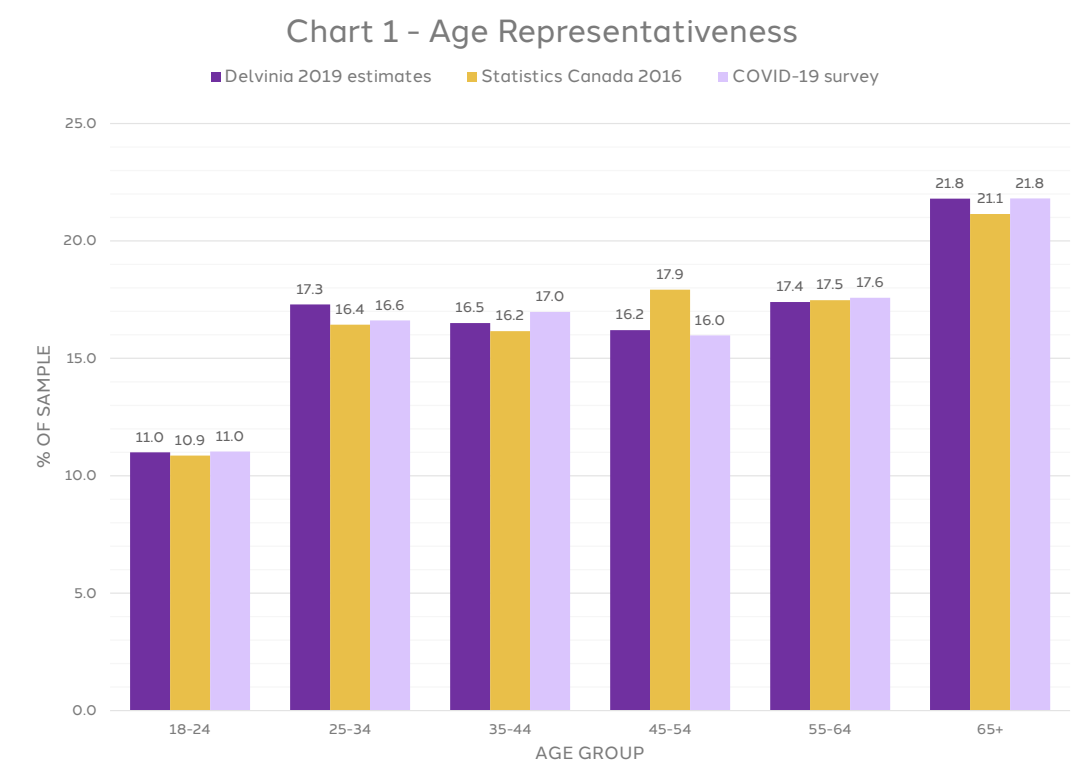
	Women	Women %	Men	Men %
18-24	16	7.1	25	11.7
25-34	47	20.8	36	16.9
35-44	40	17.7	37	17.4
45-54	43	19.0	39	18.3
55-64	36	15.9	40	18.8
65+	44	19.5	36	16.9

British Columbia

	Women	Women %	Men	Men %
18-24	30	10.7	26	10.3
25-34	49	17.5	42	16.7
35-44	42	15.0	47	18.7
45-54	42	15.0	34	13.5
55-64	45	16.1	44	17.5
65+	72	25.7	59	23.4

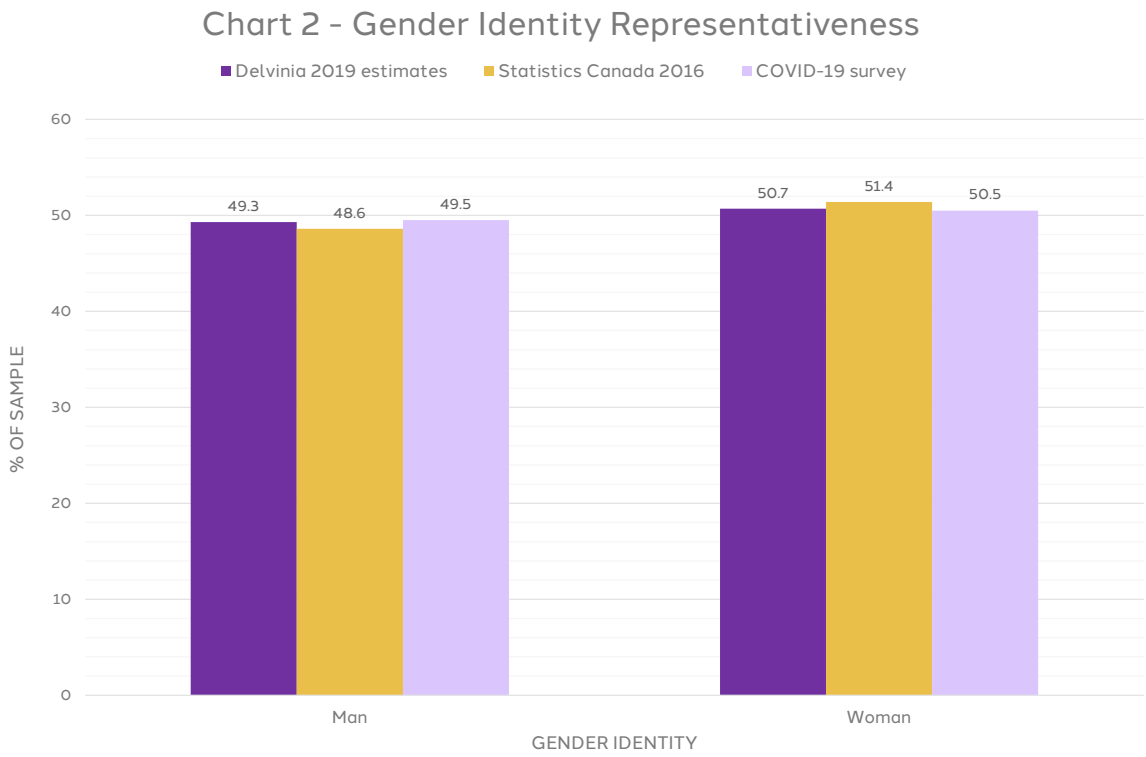
Age

In Chart 1, the proportion of participants within each age group is compared to the proportion found in the Canadian population with respect to Delvinia's 2019 demographic estimates and to Statistics Canada 2016 Census Profile. To compute proportions, the number of people classified in each age group was divided by the total number of people over 18 years old. For this comparison, the proportions represent a ratio of the values for each age group with a sample of 30,306,189 for Delvinia (total population over 18 years old estimate for July 2019), 28,024,106 for Statistics Canada (total population over 18 years old in 2016), and 3,617 for the COVID-19 survey (total number of participants to the first wave). As illustrated in Chart 1, we can conclude that the sample of participants recruited by Delvinia is representative of the Canadian age distribution of 18 years or older.



Gender Identity

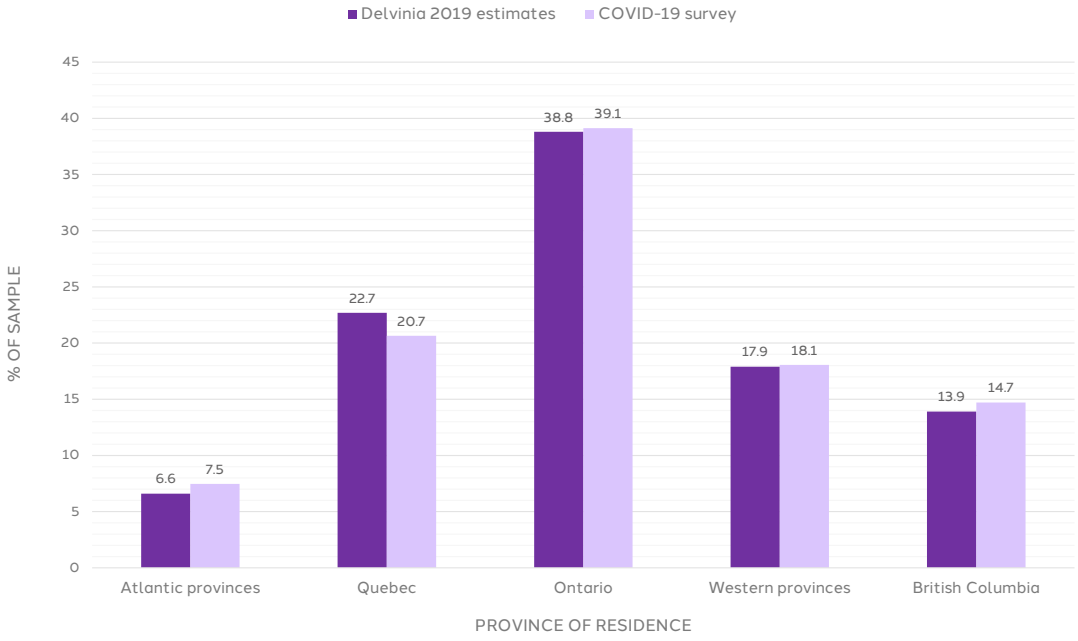
In Chart 2, the proportion of participants within each gender is compared to the proportions found in the Canadian population with respect to Delvinia's 2019 demographic estimates and to Statistics Canada 2016 Census Profile. For this comparison, the proportions represent a ratio of the values for each gender with a sample of 30,306,189 for Delvinia (total population over 18 years old estimate for July 2019), 28,024,106 for Statistics Canada (total population over 18 years old in 2016), and 3,615 for the COVID-19 survey (total number of participants who answered "Male" or "Female" in the first wave, excluding two participants who answered "other" to the question "What is your gender identity?"). We can conclude that the distribution of men and women among the participants is representative of the Canadian population.



Province of Residence

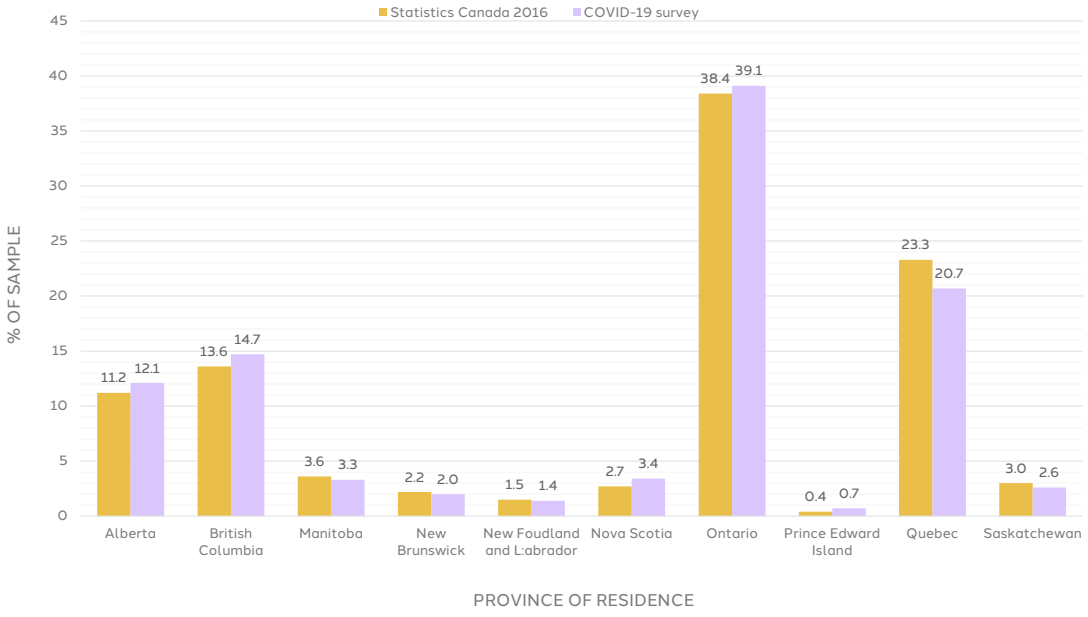
The province of residence representativeness graphic analysis was separated for data estimated for the July 2019 Canadian population (Chart 3a) and the 2016 Statistics Canada Census (Chart 3b). When carrying its estimates for 2019, Delvinia rearranged the data so that two sets of provinces were grouped together, the Atlantic and Western provinces. Thus, there is no data for each specific province included in these groups for 2019. The province of residence of the COVID-19 survey's sample was compared to 2019 Delvinia estimates and to 2016 Statistics Canada's Census in two different charts for clarification purposes. The Northwest Territories and the Yukon were excluded from both charts as no participants of the COVID-19 survey indicated them as their

Chart 3a - Province Representativeness (Delvinia)



province of residence. For both comparative datasets, the proportions represent a ratio of each value with the total population over 18 years old. For this comparison, the proportions represent a ratio of the values for each age group with a sample of 30,306,189 for Delvinia (total population over 18 years old estimate for July 2019), 28,024,106 for Statistics Canada (total population over 18 years old in 2016), and the total sample of 3,617 participants for the COVID-19 survey. As with the age and gender, the distribution of participants' provinces of residence adequately represents the distribution of the Canadian population.

Chart 3b - Province Representativeness (Statistics Canada)



Sample Description of Important Socio-demographic Variables

The second objective of this report is to describe the COVID-19 survey's sample regarding socio-demographic variables that were not used to select participants to the survey. In parallel, we will report further representativeness analyses regarding these variables. Although the assessment of the representativeness with age, gender and province of residence is validated, the recruitment of participants through a web panel induces certain biases (e.g., noncoverage bias due to the inaccessibility to the Internet of a certain proportion of the Canadian population; Svensson, 2014). It is therefore incumbent on us to assess the representativeness of the COVID-19 survey's sample regarding additional socio-demographic variables. In this section, a description of the sample that completed the first wave of the COVID-19 survey will be compiled with regards to the following socio-demographic variables: household description, employment, nationality, identity, mother tongue, education, politics and religion. Further comparison of our sample with the Canadian population was carried for the household size, the current occupation, the country of origin, the indigenous identity, the mother tongue and the level of education, for which data from Statistics Canada's 2016 Census is available.

Household Composition

For the household description section of the COVID-19 survey, participants were asked about the number of people living in their household ("Counting yourself, how many people currently live with you?"). If their answer was greater than one, they were asked the number of children under 18 years old in their household ("How many people in your household are under 18 years old?"). Finally, if participants reported living with children (that is, their answer to this second question was one or greater), they were asked about the number of children under 6 years old in their household ("How many people in your household are under 6 years old?"). A comparison of the COVID-19 survey's sample with the Canadian population was possible for the size of the household only. The average household in the COVID-19 survey's sample was 2.4, exactly comparable to the national average household size according to Statistics Canada 2016 Census Profile. Charts 4a-b-c describe the household composition of the COVID-19 survey's sample: Chart 4a presents household sizes (N = 3,617) ; Chart 4b presents percentages of children under the age of 18 in households with more than one person (N = 2,766); and Chart 4c presents percentages of children under the age of 6 in households with at least one person under 18-years-old (N = 798).

Chart 4a - Household Size

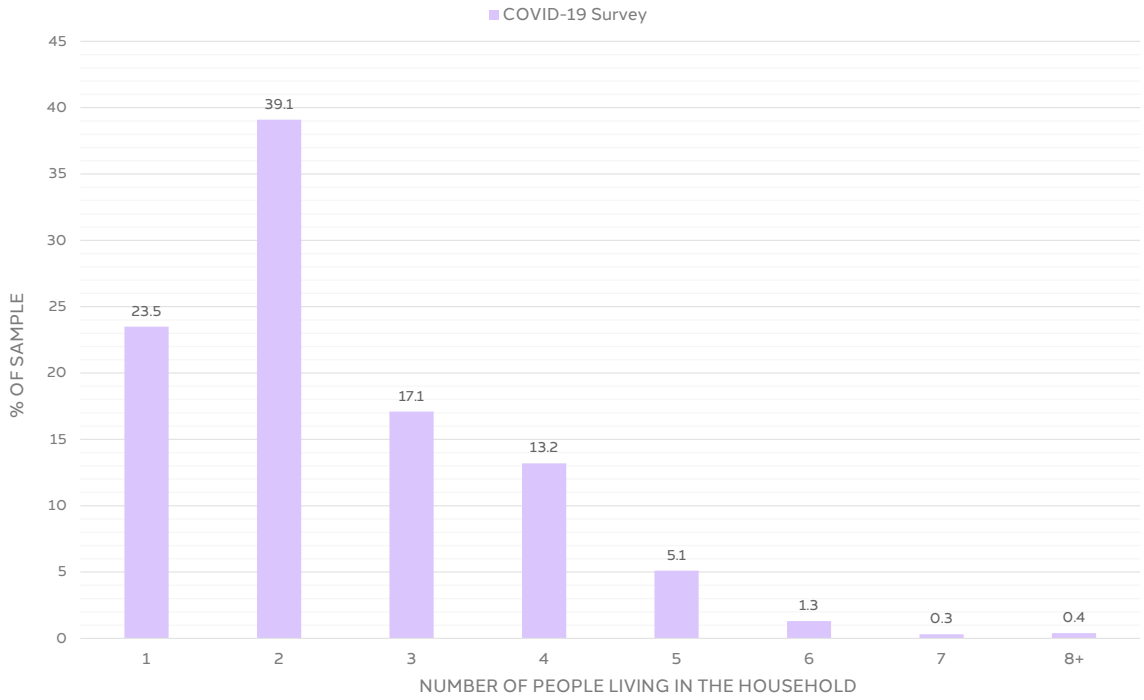


Chart 4b - Children Under 18 Years Old in the Household

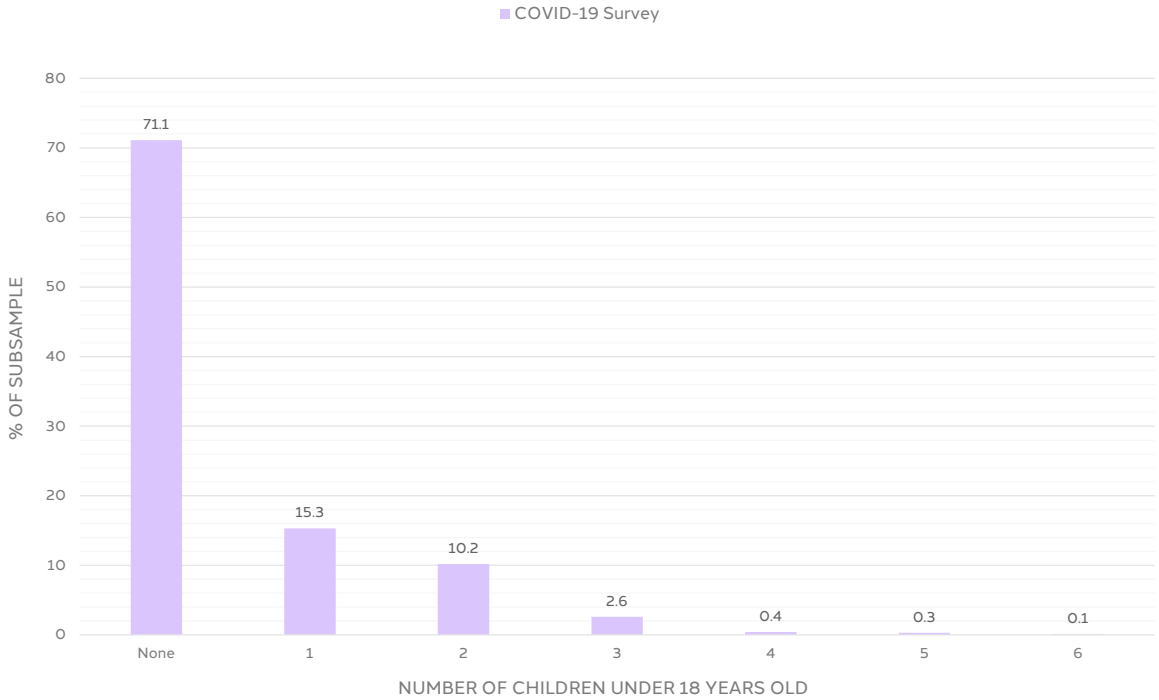
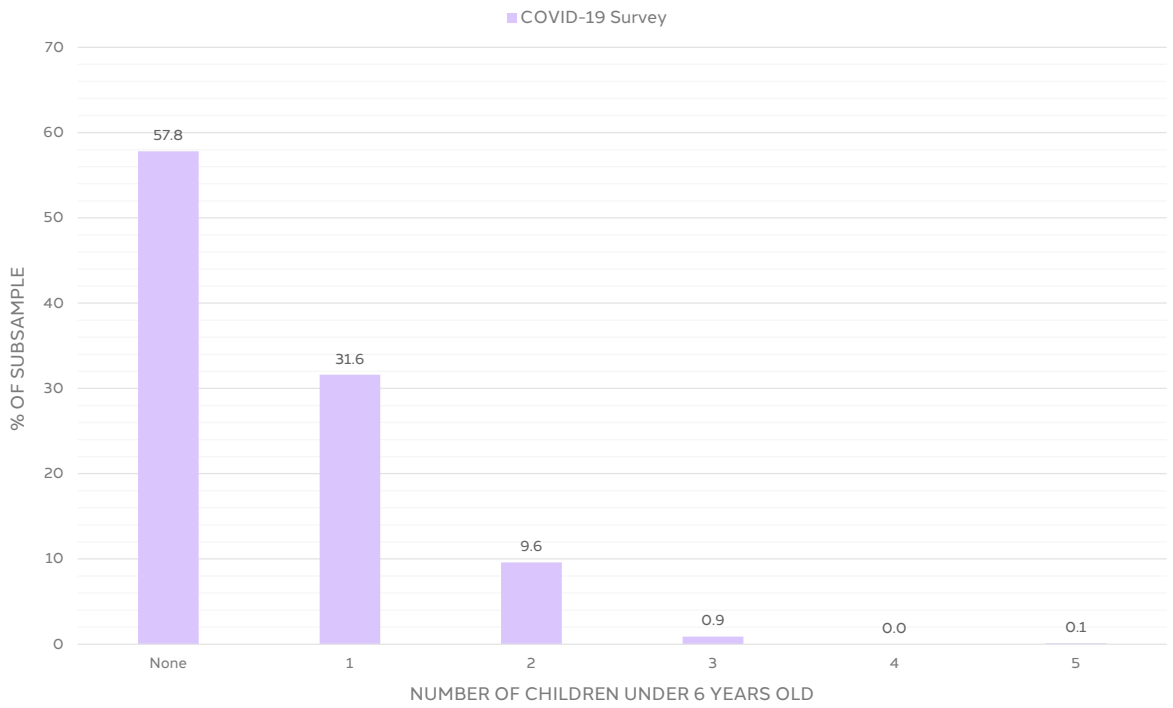


Chart 4c - Children Under 6 Years Old in the Household



Employment

For the employment section of the COVID-19 survey, all participants were asked about four aspects of employment. First, participants indicated their employment status ("What is your current employment status?"). Participants who indicated they were currently working (i.e. answered "Self-employed", "Working full-time", "Working part-time", "Student and working", "Caring for family and working", or "Retired and working"; N = 2,045), were asked about: their current job ("What is your current job or profession?"), their sector of employment (public, private or self-employed), and the size of their workplace ("How large is the workplace/company/firm/organization where you currently work?"). For respondents' employment, it was possible compare between the COVID-19 survey's sample and the Canadian population using data from Statistics Canada. First, regarding the employment status, it is possible to approximate the employment rate of the COVID-19 survey's sample by dividing the number of participants who reported working by the total number of participants. The sample presents an employment rate of 60.3%, while the national employment rate was 60.2% in 2016 (Statistics Canada, 2016), 58.5% in March 2020 and 52.1% in April 2020 (Statistics Canada, 2020, July). Note that the national employment rate is calculated as a ratio of the population 15 years and older, while the COVID-19 survey's participants are 18 years and older. Chart 5a presents the employment status of the sample. As for current occupations of

respondents, which was investigated through an open question in the COVID-19 survey, the answers were analyzed and classified with respect to the National Occupational Classification (NOC), Canada's national system for describing occupations. Note that 24 participants are excluded from this analysis, since they abstained from answering (e.g., "Prefer not to answer") or entered an invalid answer (e.g., "Freedom"). The NOC classification enabled a comparison between the sample and the Canadian population with data from Statistics Canada's 2016 census profile. Note that Statistics Canada's data on occupation was collected upon a 25% sample of the Canadian population (N = 18,268,130). Chart 5b displays the graphical comparison between the COVID-19 survey's sample (N = 2,021) and the Canadian population regarding current occupation. With regard to the other two aspects of employment addressed in the COVID-19 survey, Chart 5c describes the employment sector of the working portion of the sample, and Chart 5d describes the size of the workplace of the working portion of the sample. Note that all charts show the proportions of the sample within each category.

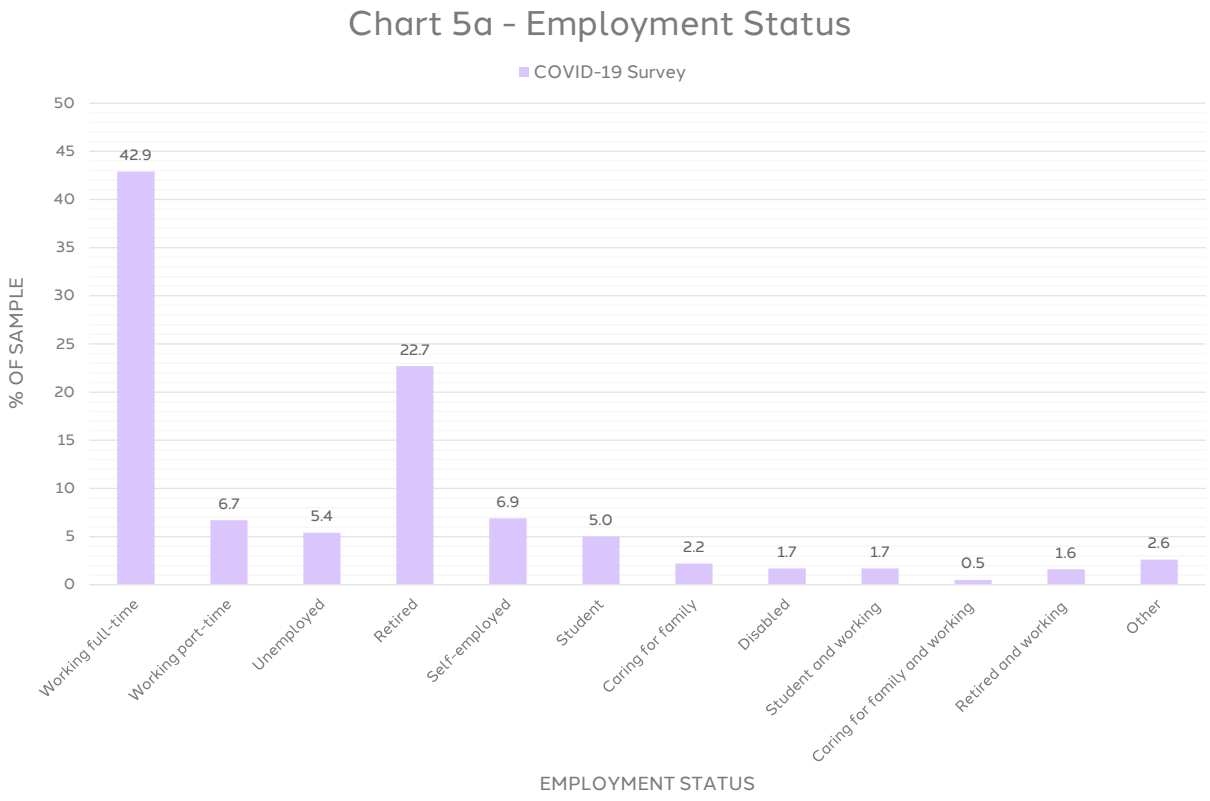


Chart 5b - Current Occupation

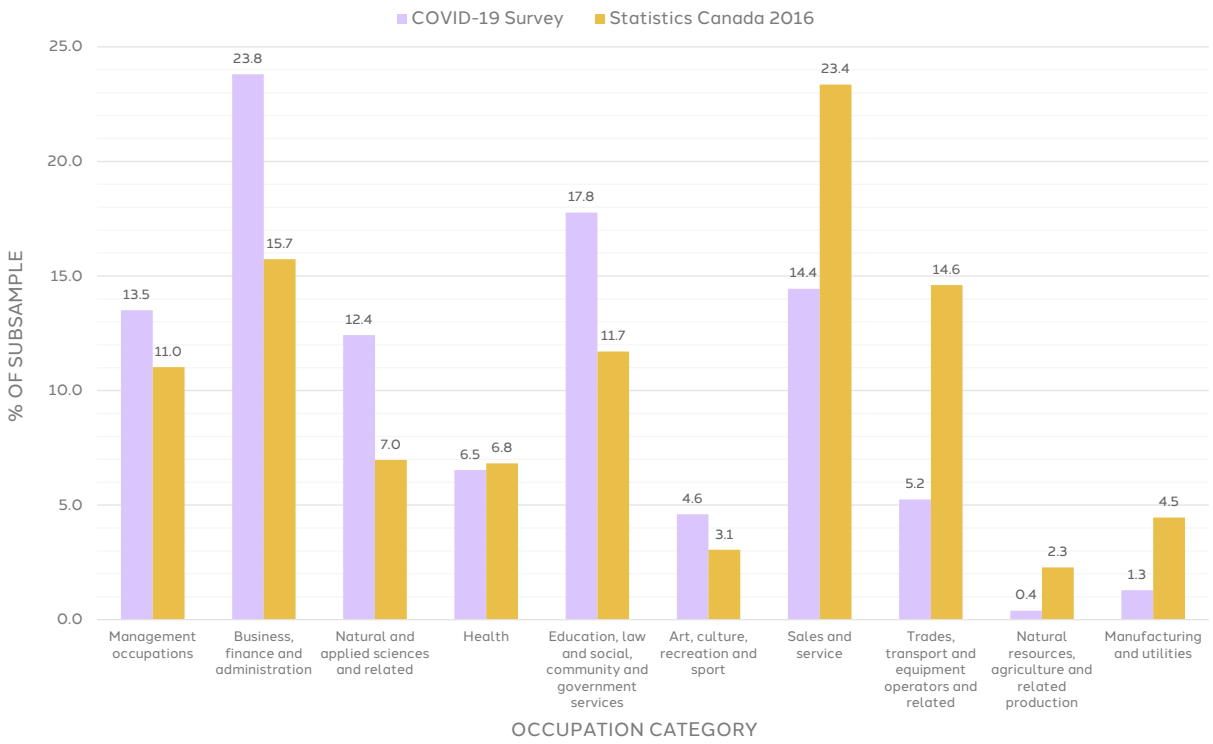
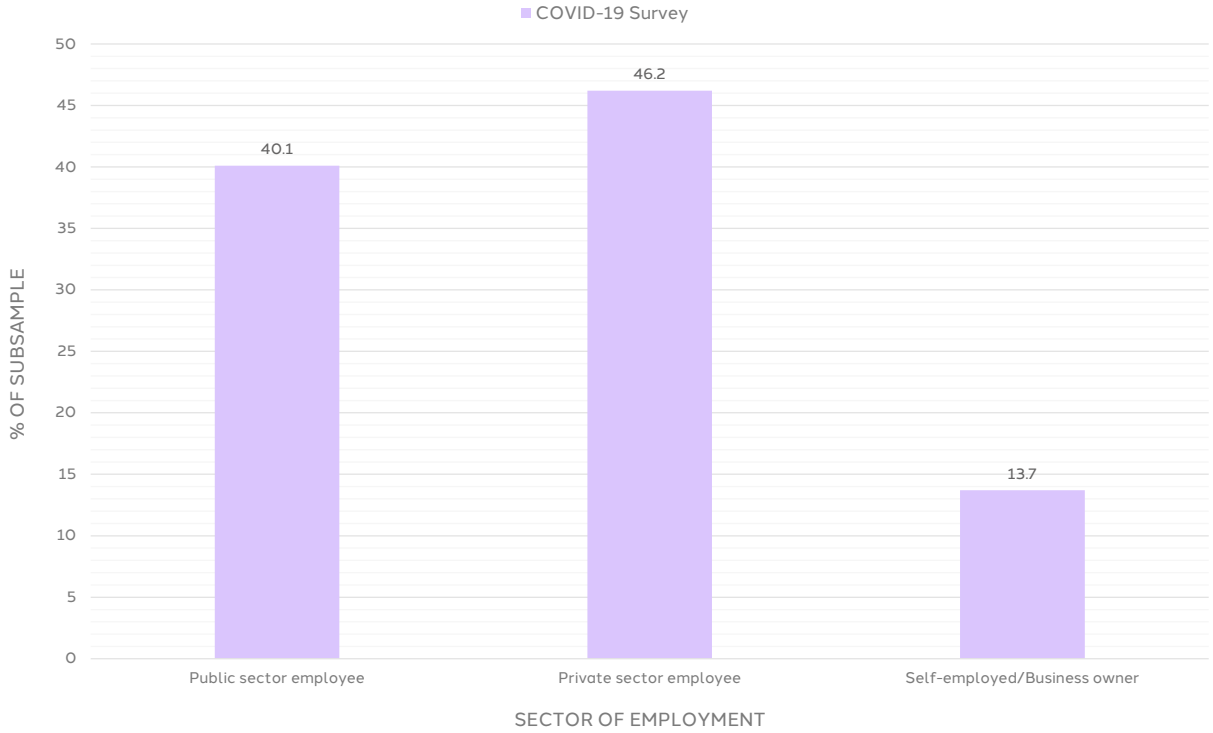


Chart 5c - Employment Sector



Country of Birth and City of Residence

In the COVID-19 survey, there were four open-ended questions about the participants' nationality – parents' country of birth ("What is your mother's country of birth?", "What is your father's country of birth?"), participants' country of birth ("What is your country of birth?"), and their city of residence ("In what city do you currently live?"). Because all questions in this section were open-ended, participants who provided an invalid response (e.g., "Earth") or who did not wish to answer this question (e.g., "Too personal") were excluded from these analyses. Nationality proportions of the sample are presented in Charts 6a-6e: the mother's origin in Chart 6a (N = 3,589), the father's origin in Chart 6b (N = 3,586), the participants' origin in Chart 6c (N = 3,595), compared to Statistics Canada's census profile of 2016 (N = 34,460,065). We also compared the proportion of foreign-born Canadians in the COVID-19 survey's sample (N = 3,595) to the Canadian population based on Statistics Canada's census profile of 2016 (N = 34,460,065). The proportion of the sample born outside of Canada was compiled from the participants' reported country of birth and compared to national data. As Chart 6d shows, the sample is consistent with the Canadian population. Participants' city of residence is presented in Chart 6e (N = 3,511). Note that only the most frequent answers appear in the charts, while less frequent answers are grouped in the "Other" category.

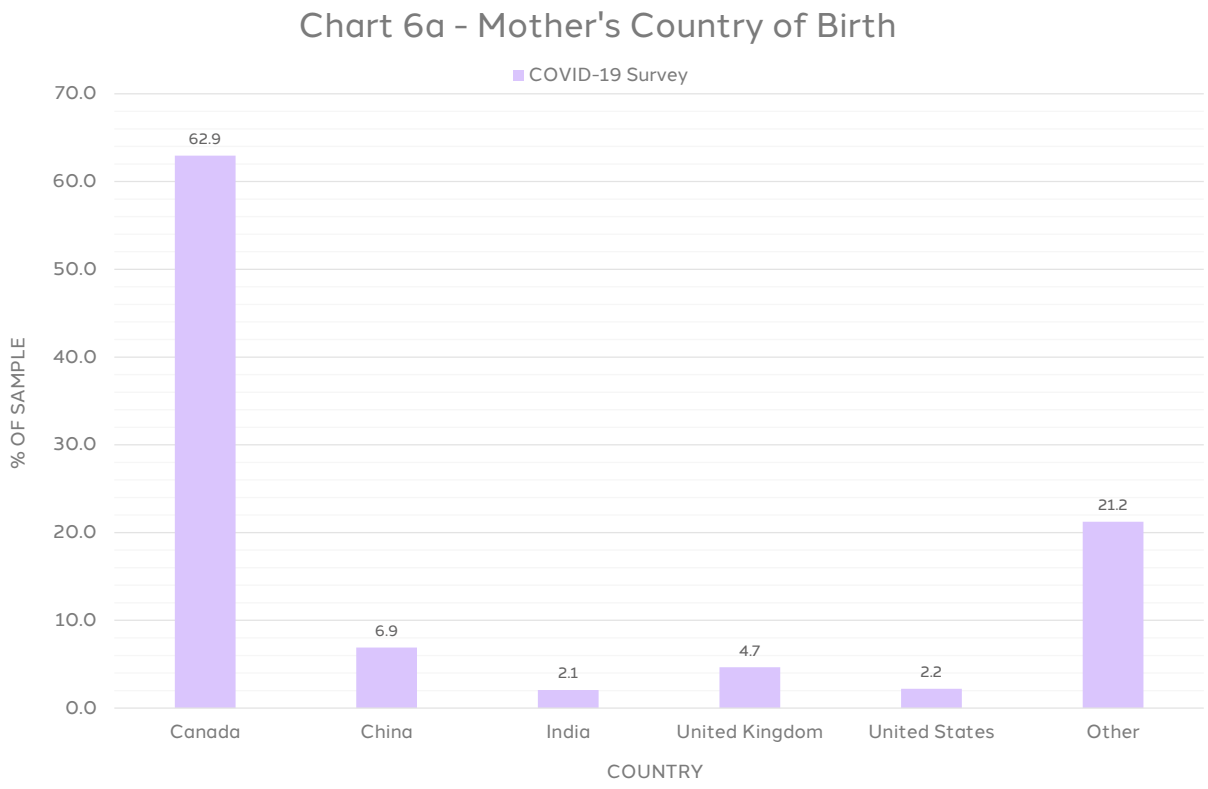


Chart 6b - Father's Country of Birth

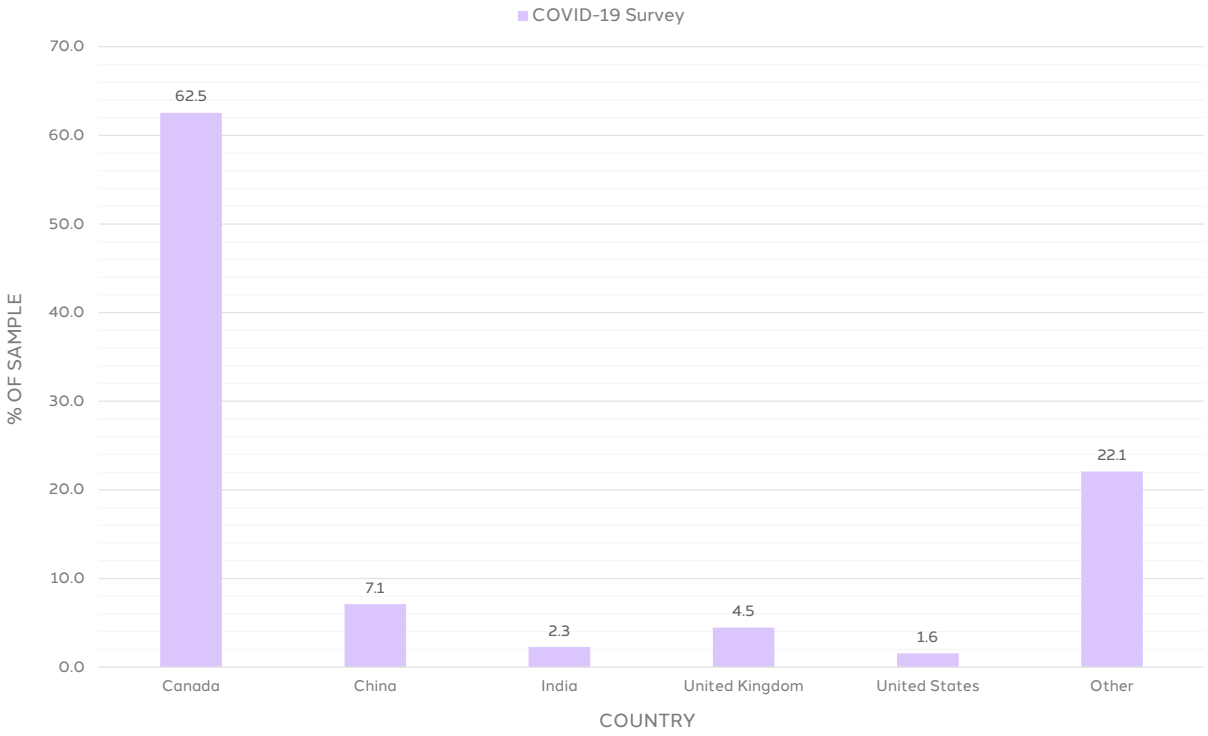


Chart 6c - Participant's Country of Birth

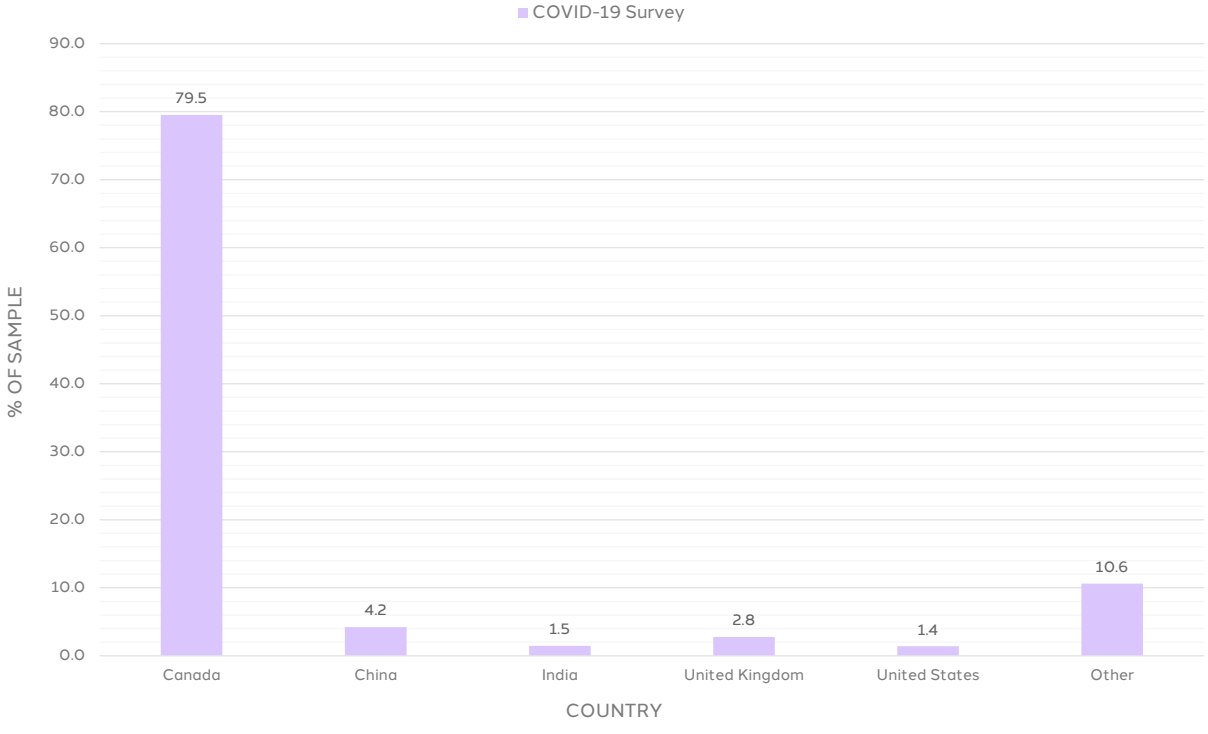


Chart 6d - City of Residence

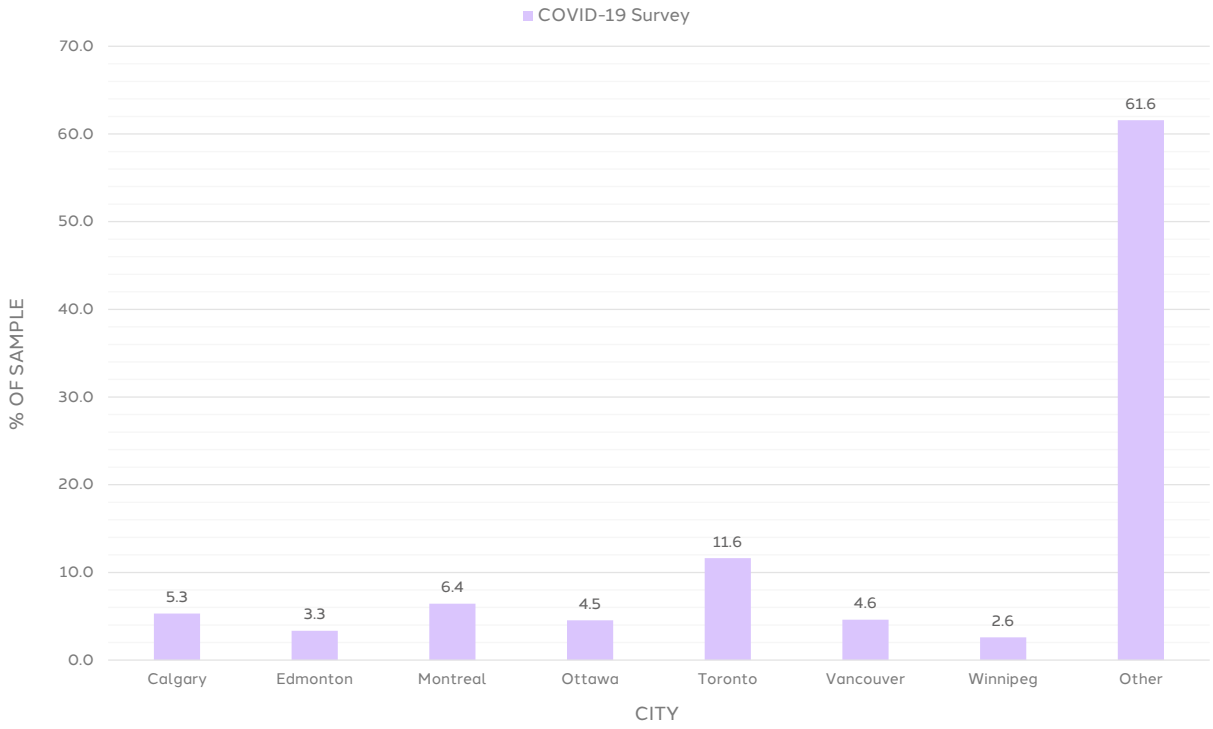
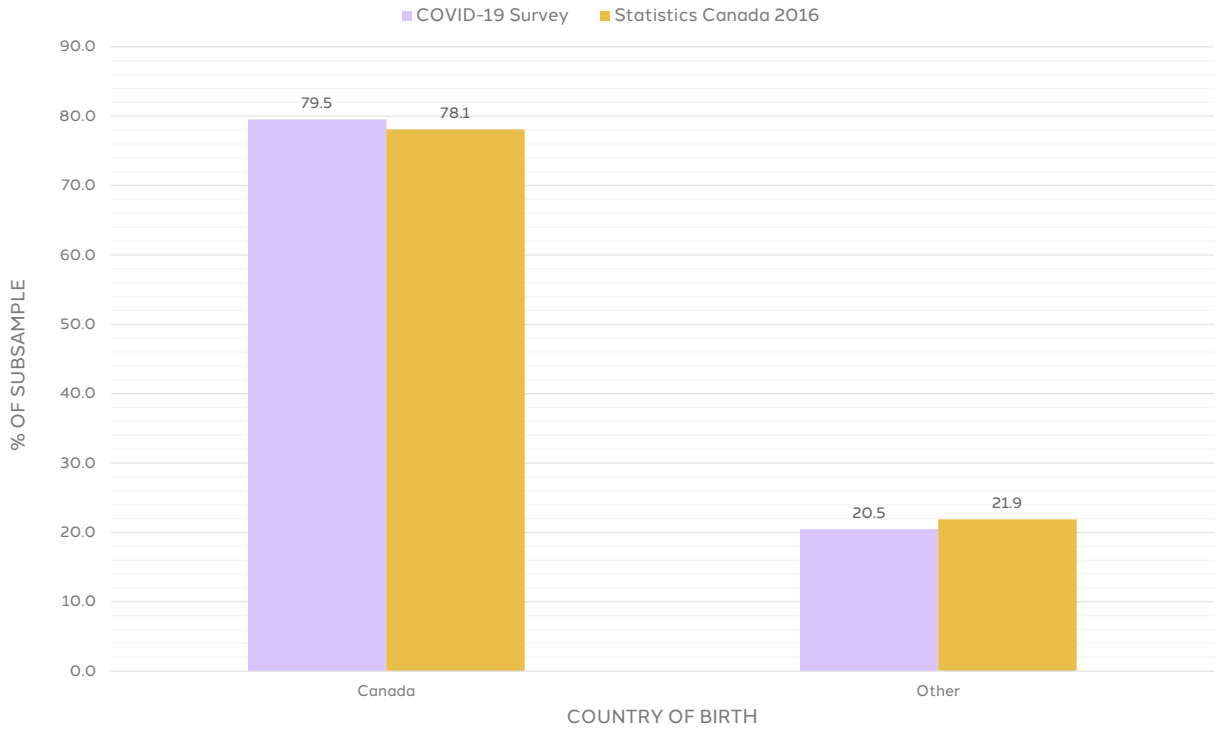


Chart 6e - Foreign-born Proportion



Cultural Identity and Mother Tongue

Regarding cultural identity, the COVID-19 survey included three questions. First, participants provided an open-ended response indicating which group they identify with the most ("We would like to know how you define your cultural identity. [...] Please tell us the group you identify with most."). Note that the participants' answers were corrected (e.g., correcting keyboard errors), with 82 participants excluded due to invalid answers (e.g., "Nerds") or refusal to answer (e.g., "Prefer not to answer"). Chart 7a graphically describes the cultural identity of the valid sample (N = 3,535). Note that only the 10 most common answers appear in the graph, while less frequent answers are grouped in the "Other" category. Second, the participants expressed their level of agreement with a statement about the clarity of their cultural identity ("I have a clear sense of what my cultural group is"). Chart 7b presents the clarity of the cultural identity of the COVID-19 survey's sample (N = 3,617). Third, participants were asked whether they identified as indigenous ("Do you identify as indigenous - that is First Nations, Métis, or Inuit?"). For this aspect of cultural identity, we used available data from Statistics Canada. A comparison was drawn between the Indigenous identification of the COVID-19 survey's sample and the proportion of Canadians with indigenous identity. Note that national data was collected from a sample which represents 25% of the Canadian population (N = 34,460,065). Chart 7c presents the percentage of participants that identified as indigenous in the sample (2.7%, N = 3,617) and the Canadian population with indigenous identity (4.9%), indicating that the COVID-19 sample might be underrepresented in terms of Indigenous identity.

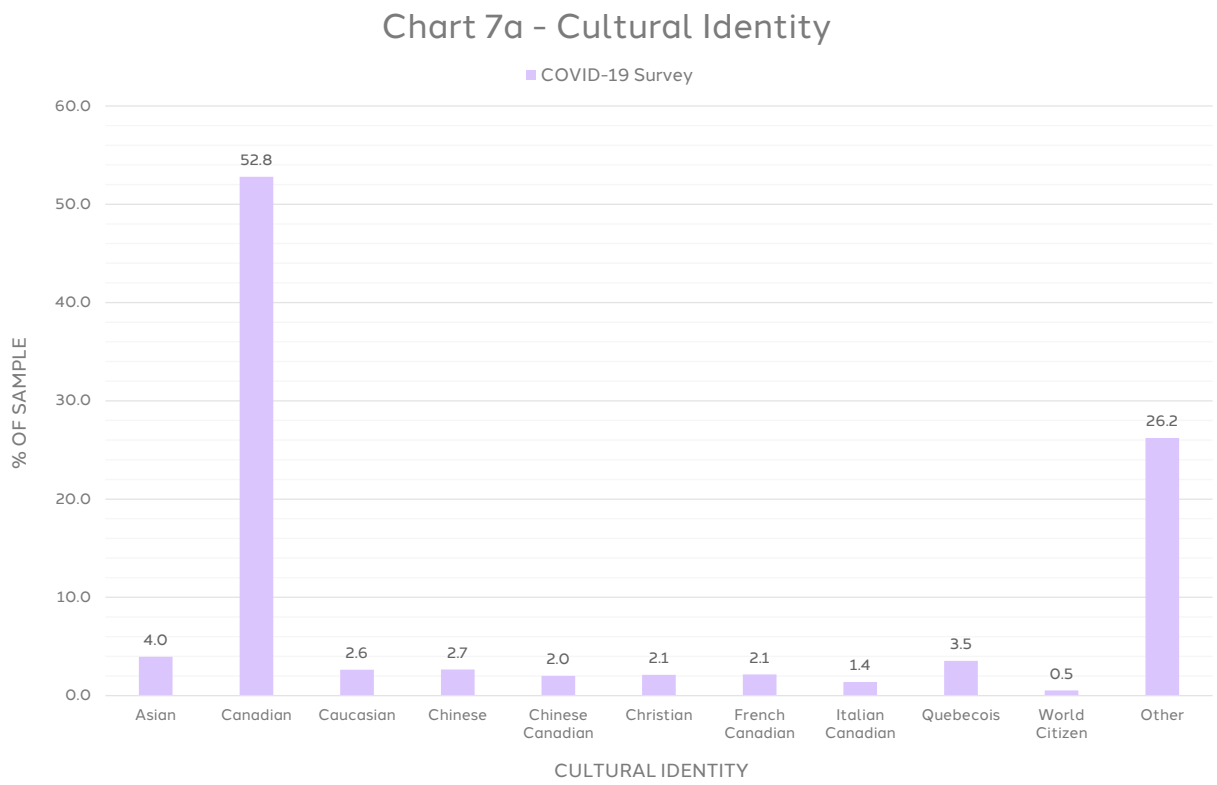


Chart 7b - Clarity of Cultural Identity

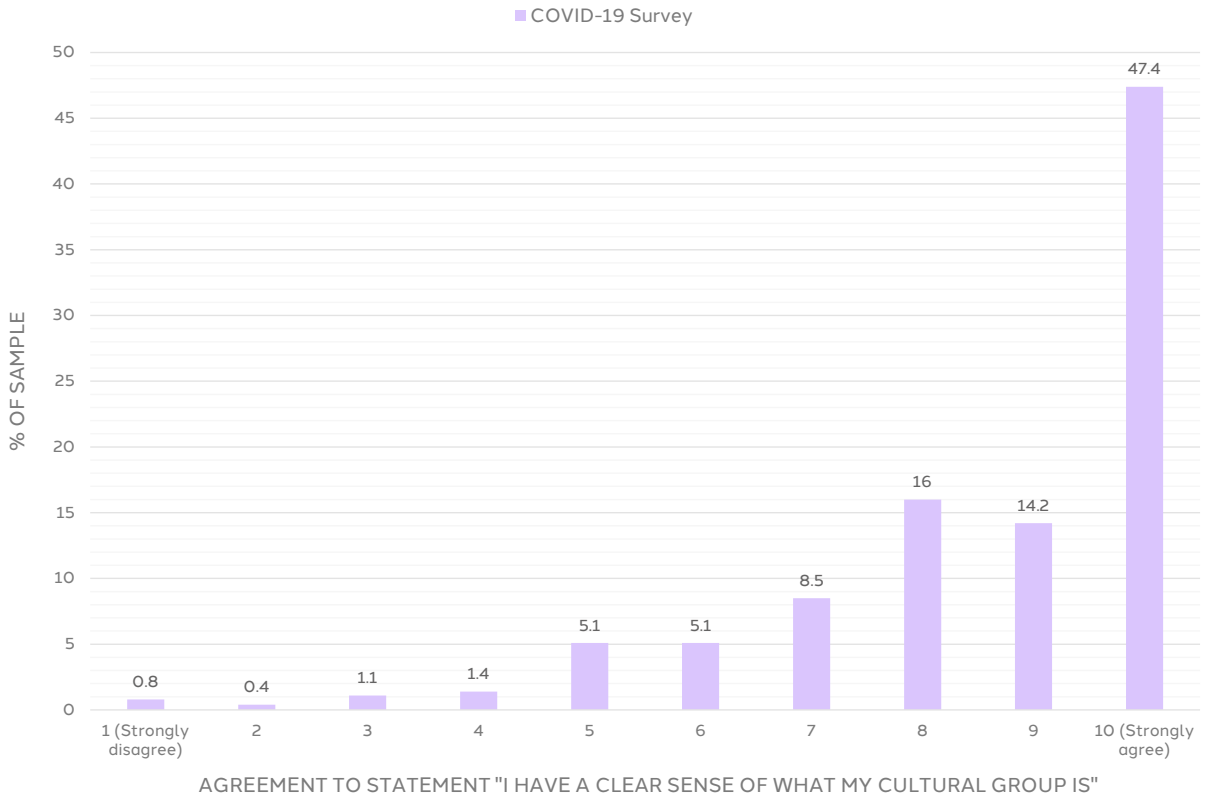
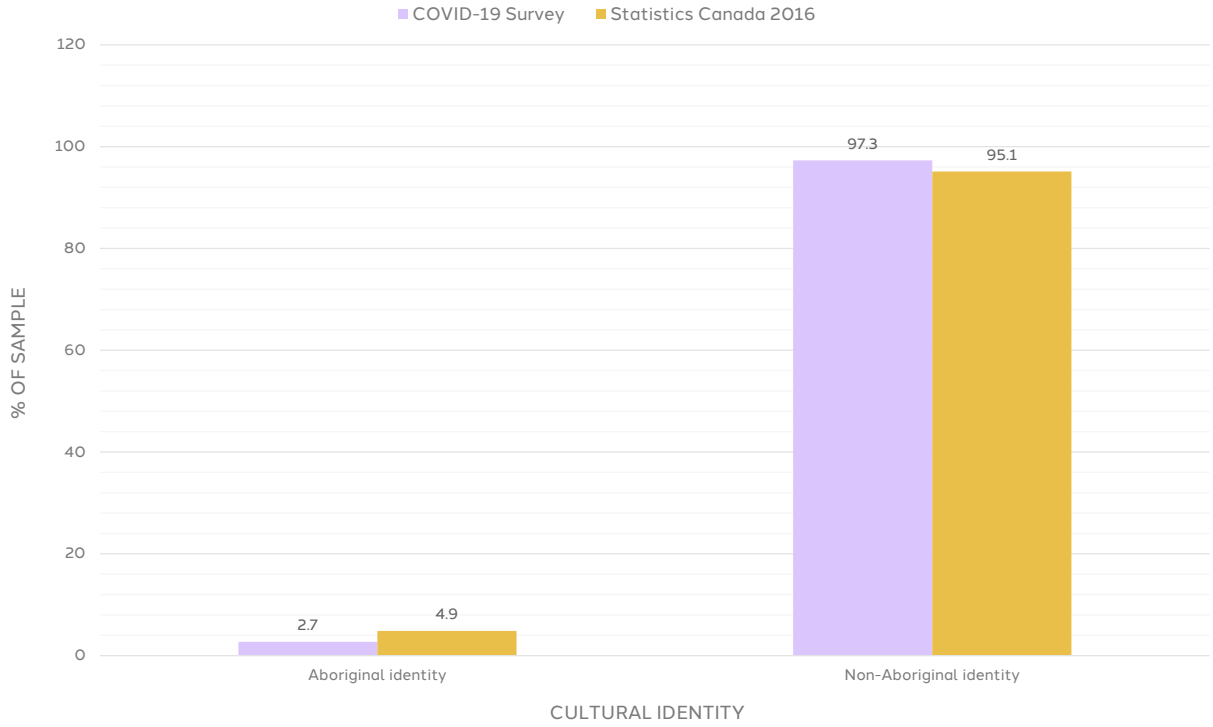
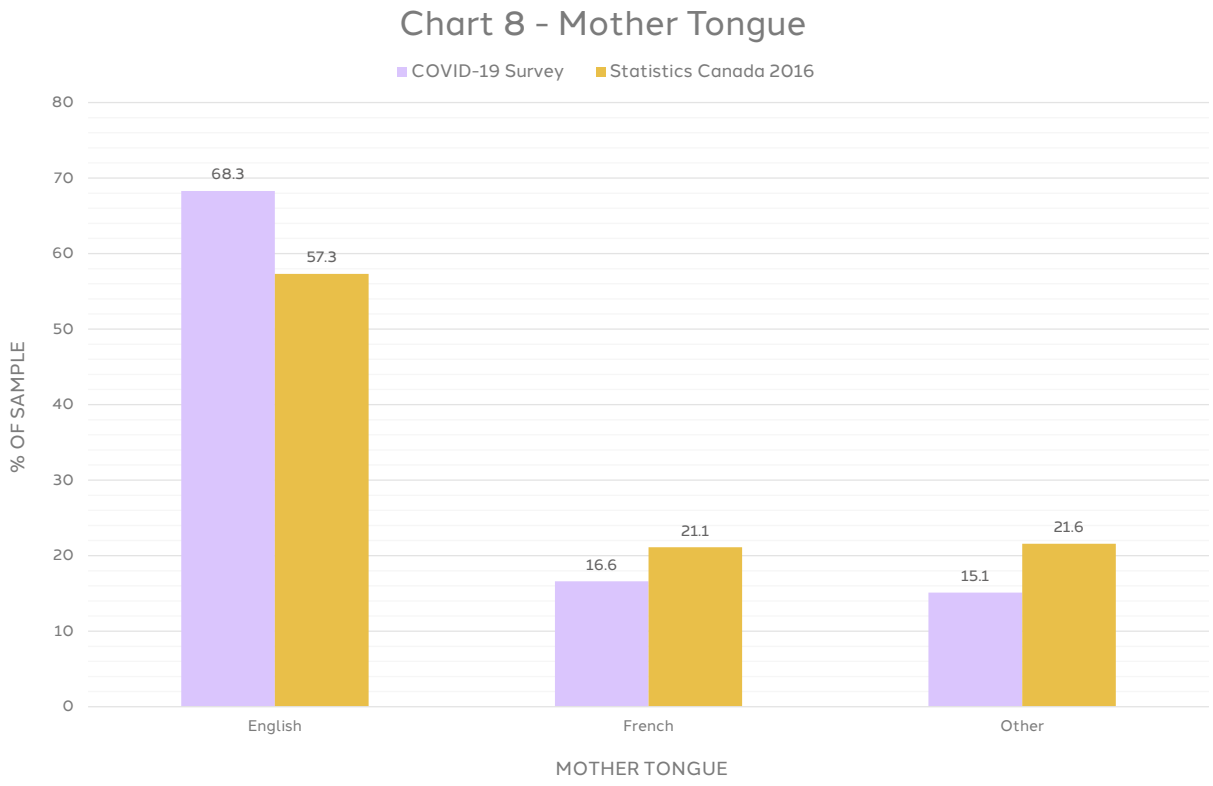


Chart 7c - Aboriginal Identity



All participants of the COVID-19 survey (N=3,617) were questioned about their mother tongue ("What is your mother tongue?"). To compare the COVID-19 survey's sample with the Canadian population regarding the mother tongue, we compared the proportions of participants who chose "French", "English" and "Other" as their mother tongue with national data from Statistics Canada 2016 Census Profile (N=33,948,620). As Chart 8 shows, English speakers are overrepresented while native French speakers are underrepresented in our sample compared to the Canadian population.



Education

In the COVID-19 survey, all participants were questioned about their level of education ("What is the highest level of education that you have completed?"). Chart 9a describes the education level of the entire COVID-19 survey's sample (N = 3,617). At the national level, Statistics Canada compiled 2016 data on the highest certificate, diploma or degree obtained within the Canadian population. National data was collected from a sample representing 25% of the Canadian population aged 25 to 64 years old (N = 18,931,375). To increase accuracy in comparing the level of education of the COVID-19 survey's sample with that of the Canadian population, the comparison only includes participants to the COVID-19 survey aged between 25 and 64 (N = 2,429). Chart 9b presents a comparison

between the education level of the COVID-19 survey's sample and the Canadian population. Note that the COVID-19 survey comprised more answer choices than the national census. For instance, the participants could answer "primary school", whereas there is no national data for that category. Only those categories of the COVID-19 survey that had a match in the national data are presented in Chart 9b. To see the chosen correspondence of the pan-Canadian categories with the answer choices of the survey regarding the highest diploma obtained, please refer to Table 7. For illustrative purposes, another comparison was carried between the two datasets, separating both samples in two categories: the proportion that has not obtained a Bachelor's degree, and the proportion that completed at least a Bachelor's degree (Table 7 presents the corresponding categories for the COVID-19 survey and for Statistics Canada). Chart 9c compares percentages of Bachelor's degree attainment among 25-64 years-old respondents to the COVID-19 survey's sample (N = 2,429) and the corresponding subsample of the Canadian population (N = 18,931,375).

Table 7. Category correspondence for Highest Diploma Obtained

Category in Chart 9b	Survey's answer choices included	Statistics Canada categories included
No diploma	No schooling Some elementary school Completed elementary school Some secondary/high school	No certificate, diploma or degree
Secondary/High School	Completed secondary/high school Some technical, community college, CEGEP, classical college	Secondary (high) school diploma or equivalency certificate
College/CEGEP	Completed technical, community college, CEGEP, classical college	Apprenticeship or trades certificate or diploma College, CEGEP or other non-university certificate or diploma
Some university	Some university	University certificate or diploma below bachelor level
Bachelor's degree	Bachelor's degree	Bachelor's degree University certificate or diploma above bachelor level
Master's degree	Master's degree	Master's degree
Professional degree or Doctorate	Professional degree or Doctorate	Degree in medicine, dentistry, veterinary medicine or optometry Earned doctorate

Chart 9a - Highest Level of Education Completed

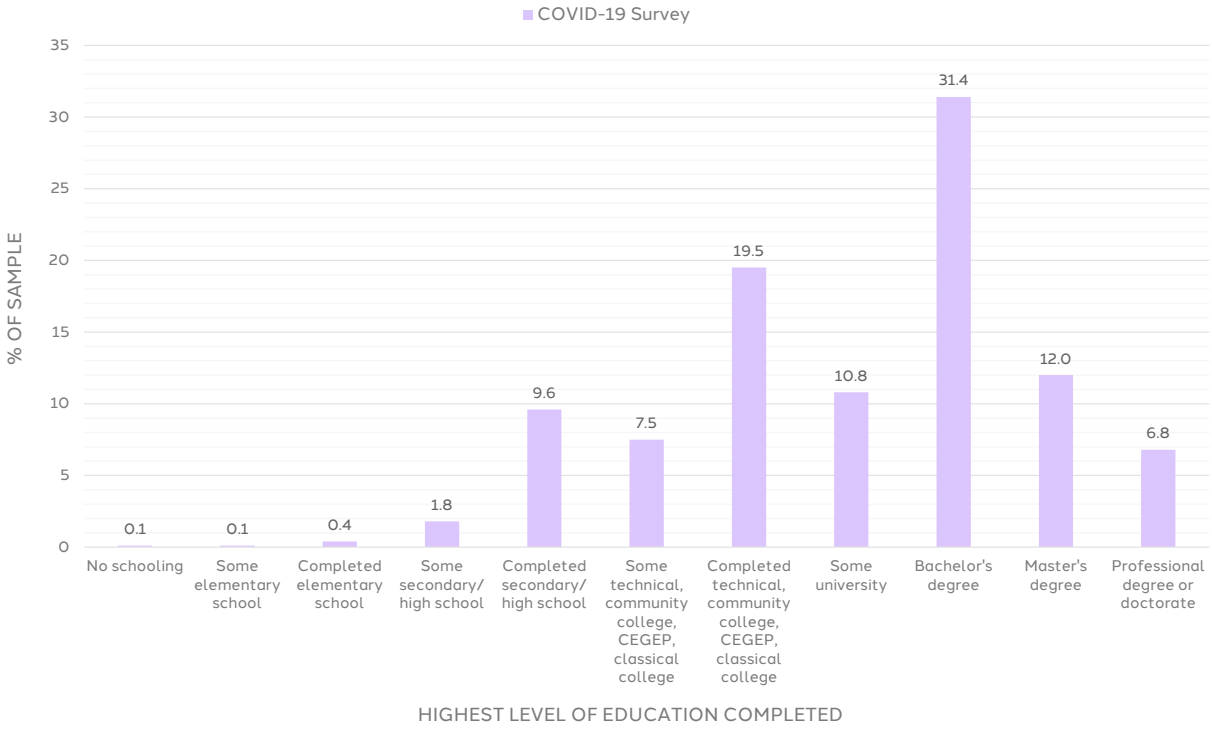
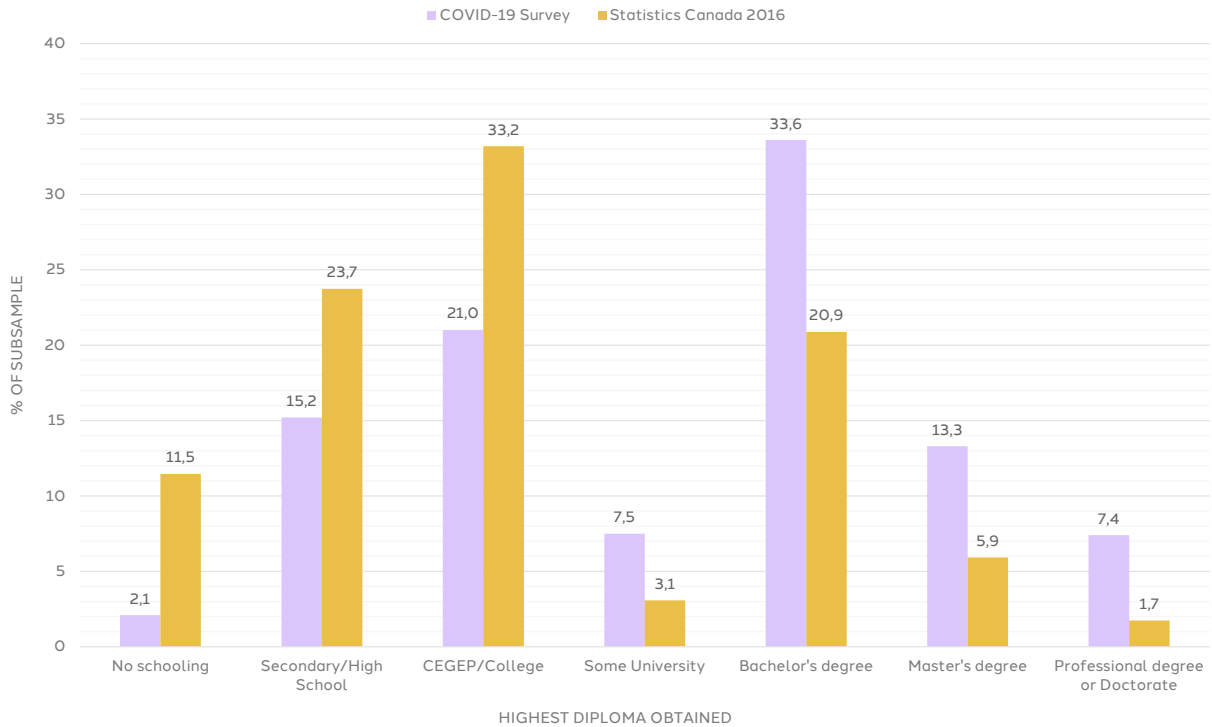


Chart 9b - Highest Diploma Obtained



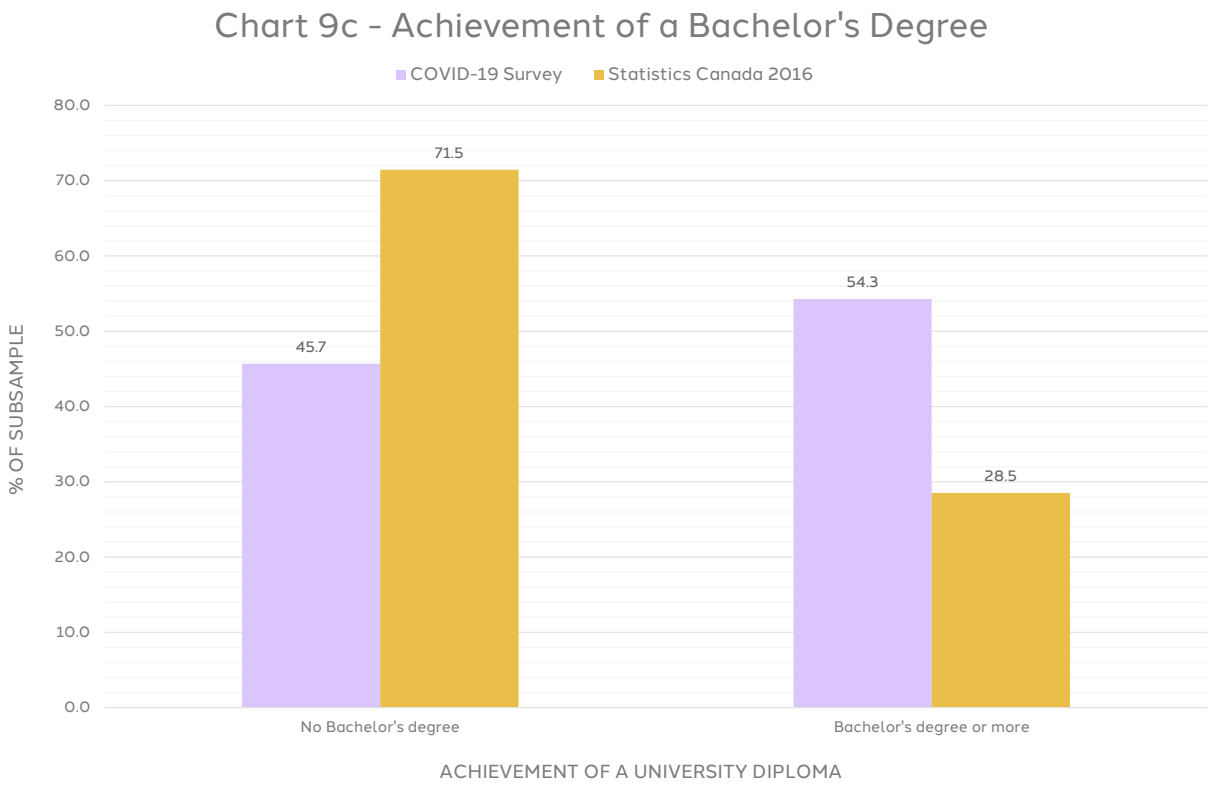


Chart 9b and 9c show that the COVID-19 survey sample is more educated compared to the national distribution. For example, 54.3% of the COVID-19 survey participants reported having a bachelor's or graduate degree, while only 28.5% of the Canadian population holds a university degree. The fact that the sample is more educated when compared to the general population probably results from a noncoverage bias, a known disadvantage of web panel surveys. The target population of the COVID-19 survey is wider than people who have access to or are familiar/comfortable with the Internet, and this bias effect is often more severe for low-educated groups (Svensson, 2014).

In addition, because education is related to socio-economic status, underrepresentation of less educated Canadians could also suggest that people with lower socio-economic status (Statistics Canada, 2017) might be underrepresented.

To estimate if the answers from university graduates differ from the rest of our sample, we performed two series of equivalence tests on every continuous variable of the survey (Blocks 1 - 9). Equivalence test allows us to test for significant difference between the mean of two groups and if this difference is meaningful (Lakens et al., 2018). To evaluate what is a "meaningful difference", we rely on Cohen's d score. Cohen's d is an effect size that measures the strength of a phenomenon. Here, Cohen's d is an index of how much we can expect a difference between groups on different variables. Cohen's d values spread from 0.0 to 1.0. Values around 0.2 are considered a small effect, 0.5 as medium effect and 0.8 as a large effect (Cohen, 1988). We relied on a meta-analysis that evaluated the effect of education on well-being (Bücker et al., 2018) to fix the size of Cohen's d used in

equivalence testing. We consider well-being as an inclusive and neutral variable to base our estimation of education effect size. Everyone can report their levels of well-being and it is not specific to some people. Furthermore, we consider well-being as a neutral variable since it was not directly measured in Wave 1 of the survey. As such, the choice of relating on well-being to estimate education effect size is not dependent of the variables of interest of the COVID-19 survey. The meta-analysis of Bürke and colleagues (2018) reported a global correlation of r = 0.164 between educational achievement and subjective well-being. We used a simple transformation (https://www.polyu.edu.hk/mm/effectsizefaqs/calculator/calculator.html) to convert the correlation into a d-score of .333, that we round to .34.

The first series of equivalence tests compared university graduates (N = 1,817) with all other respondents (N = 1,800). The two groups differ on 32 variables (see Appendix E for more details), but remain equivalent in all 88 continuous variables. A second series of more conservative equivalence tests were also performed. We compared people at the extreme levels of education; university graduates (N = 1,817) and respondents that obtained a high school diploma or less (N = 707). The groups differ on 38 variables (see Appendix F) and are not equivalent on two questions: (1) "I am very proud to be (group membership)" (Muniversity degree = 7.91, SD = 2.41; Mhigh-school or less = 8.50, SD = 2.32), and (2) "the COVID-19 crisis is a great threat to Canadian values" (Muniversity degree = 5.30, SD = 2.78; Mhigh-school or less= 6.26, SD = 2.83) . For both questions, participants who held a degree were, on average, lower than those who did not hold a degree.

Because of our rolling-cross-section design, whereby we recruit only about 250 participants per day, we could not add an education variable in our quotas for representativeness. However, we recommend including education systematically in future research when the sample size and the study methodology allow. As solutions for the current COVID-19 survey, we suggest controlling for the education level in most of the analyses, especially when the two variables we identified are used. One solution in such a situation is to use weights to balance the population. In the COVID-19 survey, it would mean that answers from participants with a Bachelor's degree or above would carry the least weight. In the present case, this option is not viable because of the longitudinal nature of our data. That is, because of attrition, the weight attributed at Wave 1 would not be meaningful at Wave 2, and so on.

The overall goal of the project is to study the consequences of the COVID-19 pandemic from Canadians on topics ranging from sleep and well-being to prejudice and group identity. One of our primary objectives is to understand the impact of public policies on prejudice (e.g., towards people of Chinese origin) in the context of the crisis.

Political Orientation

The COVID-19 survey assessed two aspects of participants' political orientation: their position on the left–right political spectrum ("Regarding politics, people often speak of the «left» and «right». Where would you place yourself on the following scale?"), and the federal party they most identify with ("In federal politics, do you usually think of yourself as a Conservative, Liberal, NDP, Bloc Québécois, Green, or None of these?"). Participants who answered by choosing a party in the second question (i.e., excluding participants who answered "None of these", "Other" or "Don't know"; N = 2,682) were further questioned regarding their level of identification with the chosen party ("How strongly [chosen party] do you feel?"). Each of these aspects of the sample's political orientation is presented in Chart 10a (left–right political spectrum), Chart 10b (preferred party) and Chart 10c (level of identification with preferred party). A comparison of the sample with the Canadian population on political orientation was not possible due to lack of national data.

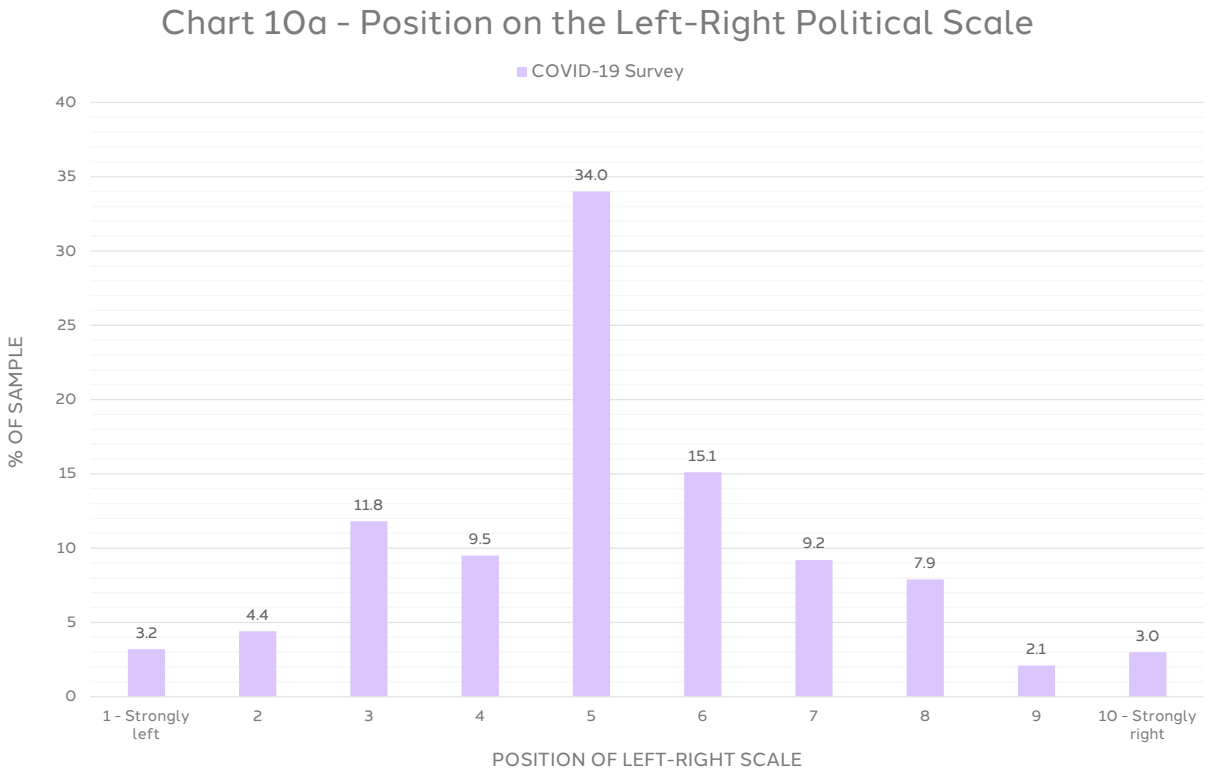


Chart 10b - Preferred Federal Political Party

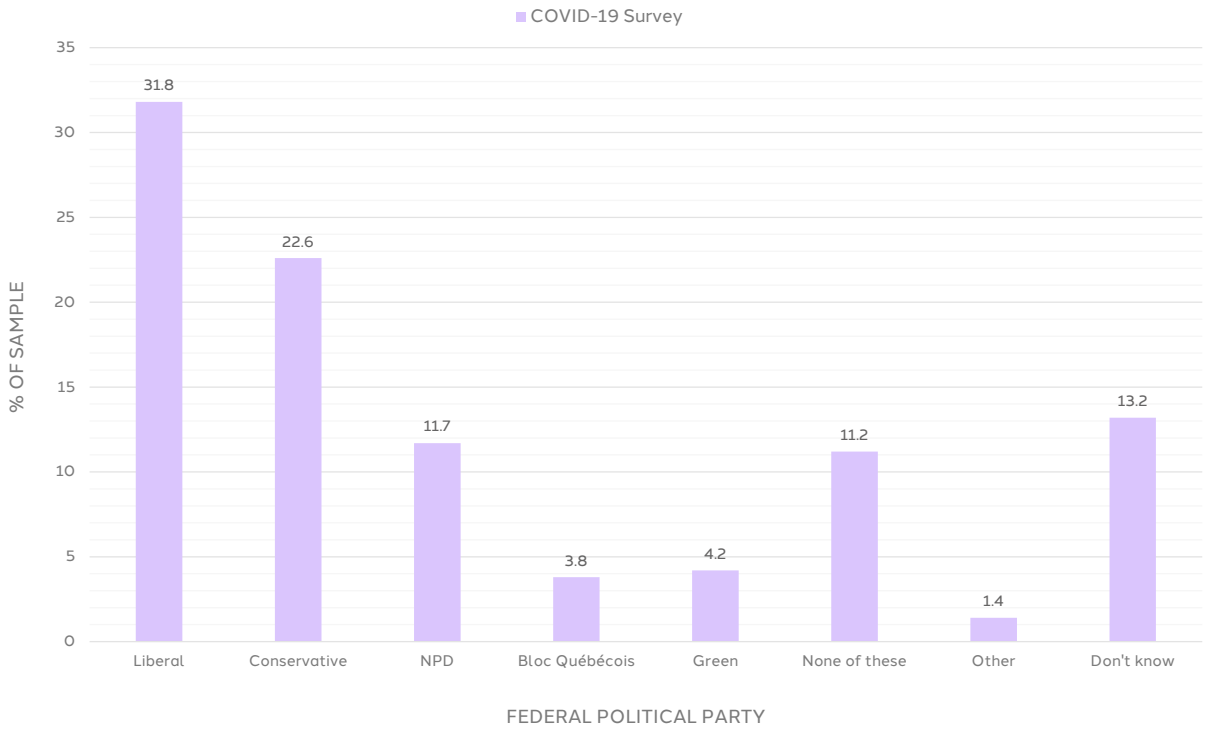
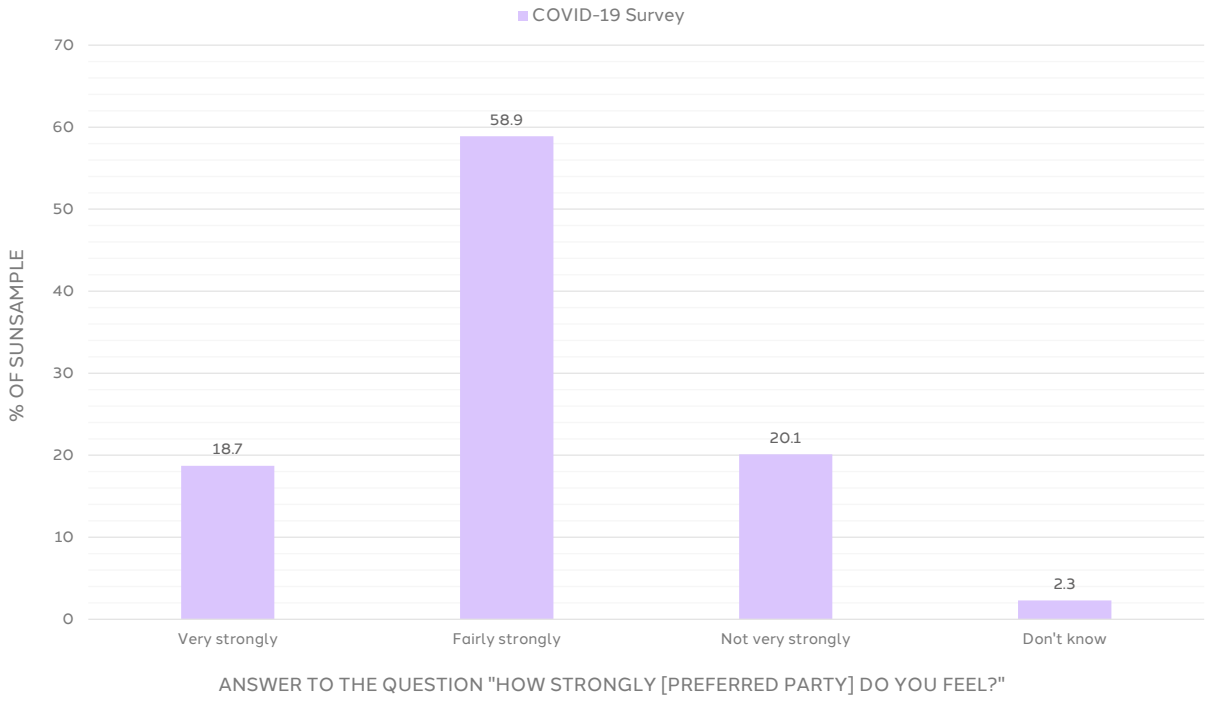
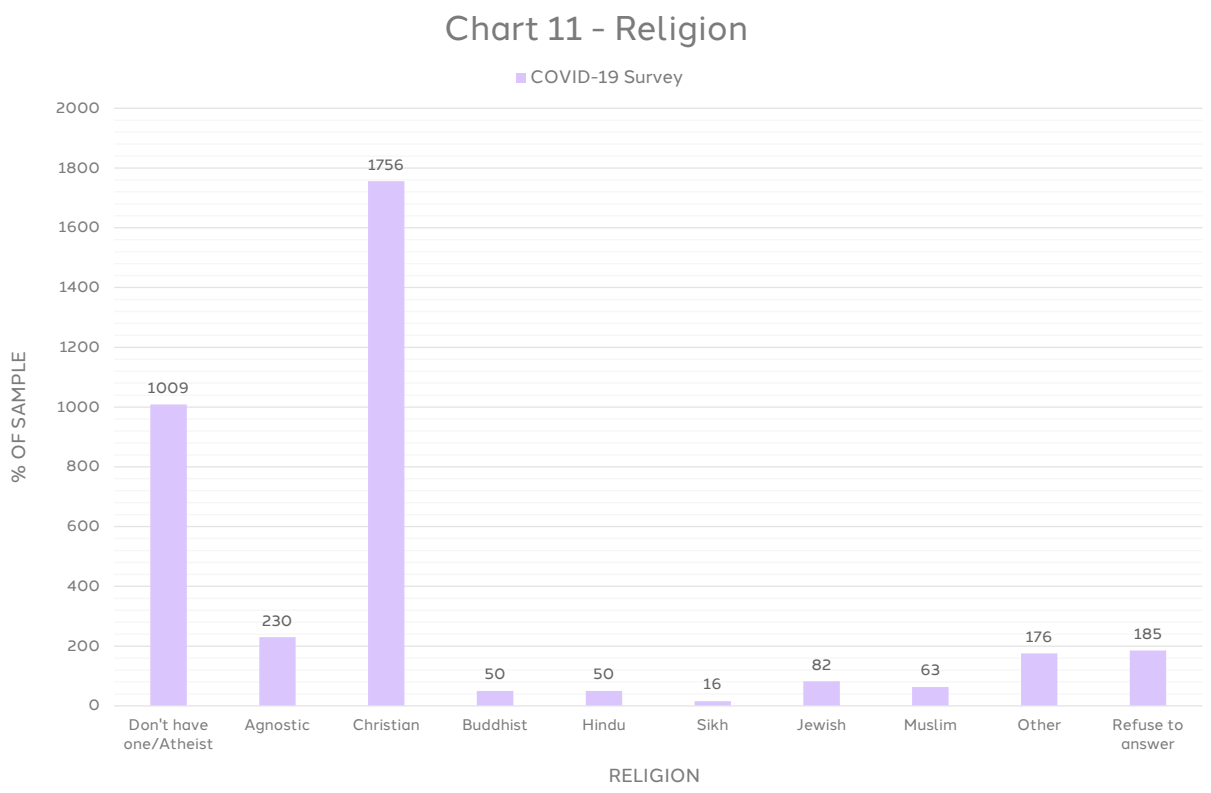


Chart 10c - Level of Identification with Preferred Federal Political Party





"The COVID-19 survey's results will provide a solid basis for a deeper understanding of adaptation processes of Canadians in times of crisis."

Conclusion

Our research team has launched a unique longitudinal Covid-19 survey in April 2020. The data from this survey will allow unique understanding of the effects of the COVID-19 crisis on Canadians' coping with the crisis and the related social changes. This technical report provides a detailed description of the methodology of the COVID-19 survey, describes the sample of respondents, and assess the sample's representativeness of the Canadian population. The analyses show that the sample is representative of the Canadian population in terms of age, gender, and province of residence. The sample is also comparable to national data for household size, current occupation, and country of origin. We note that Canadians with lower levels of education, native French speakers, and Indigenous people were underrepresented according to the Statistics Canada 2016 census profile. Going forward, we will direct special attention to cultural identity, education level, and mother tongue, and to potential biases that may result from unrepresentativeness in subsequent data analyses.

Despite these limitations to its representativeness, the COVID-19 survey has important strengths. First, the large and overall representative sample (N = 3,617) allows to realistically depict the Canadian population in the context of the COVID-19 crisis. Second, the rolling cross-sectional methodology, whereby in every wave a subsample completes the survey each day, will allow us to examine daily changes in our sample. Third, the longitudinal nature of the COVID-19 survey with multiple waves of questions for each respondent, will allow our team to describe changes in the Canadian population and to assess the trajectory of numerous variables of interest over time as the COVID-19 crisis unfolds. Utilizing this temporal characteristic will enable us to examine changes in norm perceptions, personal attitudes and prejudices, as well as understand the causes of these changes. The large coverage of the sample and its longitudinal character also allows us to identify specific profiles of these variables, for different sub-groups and in terms of temporal trajectories. The COVID-19 survey's results will provide a solid basis for a deeper understanding of adaptation processes of Canadians in times of crisis.

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csdc-cecd.wixsite.com/covid19csi?lang=en

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Appendix A

About COVID-19

In Canada, the first COVID-19 case was confirmed January 25, 2020 (Blanchette Pelletier, 2020). Since this date, the COVID-19 has become one of the leading causes of death in Canada. To this day (June 2020), since we learn more every day about this coronavirus, the COVID-19's basic reproductive rate (R0), which is a measure of contagiousness, is estimated at 5.7 (Sanche et al., 2020). This means that one infected person will infect on average 5.7 persons. On the day of June 9, 2020, the deadliness rate was at 5.7% (Worldometer, 2020) (see Table A1). On the same day, at 20:11 GMT, COVID-19 was the 9th cause of death in the world this year with 1.59% of all deaths. The first cause of death worldwide since January 1st, 2020 is hunger, representing 19.01% of deaths (https://www.worldometers.info, June, 2020) (see Table A2). Within 6 months (January 2020 to June 2020), COVID-19 became the 9th leading cause of death worldwide (Worldometer, 2020). Using data from 2018 on causes of death in Canada as a point of reference, COVID-19 is now the 7th leading cause of death in Canada (Statistic Canada, 2020; Government of Canada, 2020) (see Table A3). According to various scenarios, COVID-19 could be between the 1st and the 6th leading causes of death in Canada for 2020. The worst-case scenario, without any intervention, predicts that COVID-19 would be the 1st cause of death, while the optimistic scenario predicts it would be the 6th (Gobeil, 2020).

Table A1. Comparison of diseases' contagiousness and deadliness

Diseases	Contagiouness (R0)*	Deadliness rate
COVID-19	5.7	5.7%
SRAS	2.8	9.6%
Spanish Influenza	2.2	2.5%
Ebola	1.9	50.0%
H1N1	1.5	0.2%
Seasonal flu	1	0.1%
MERS	0.5	35.6%

*R0 = basic reproductive rate.

Sources: Labelle, 2020; Sanche & al., 2020; Worldometer, 2020.

Table A2. Leading causes of death worldwide, 2020

Rank	Diseases	Number of deaths*	% of world's deaths
1st	Hunger	4,921,408	19.01%
2nd	Cancer	3,614,029	13.96%
3rd	Smoking	2,199,784	8.50%
4th	Alcohol	1,100,586	4.25%
5th	HIV/AIDS	739,738	2.86%
6th	Road traffic accidents	594,011	2.30%
7th	Suicide	471,878	1.82%
8th	Malaria	431,629	1.67%
9th	COVID-19	411,845	1.59%
10th	Water related diseases	370,563	1.43%
11th	Seasonal flu	214,372	0.83%
World's population			7,790,254,127
World's total deaths			25,882,501

*From January 1st, 2020, to June 9th, 2020, at 20:11 GMT

Source: Worldometer, 2020

Table A3. Leading causes of death in Canada

Rank	Causes of death	Number of deaths in 2018
1st	Cancer	79,536
2nd	Heart diseases	53,134
3rd	Cerebrovascular diseases	13,480
4th	Accidents (unintentional injuries)	13,290
5th	Chronic lower respiratory diseases	12,989
6th	Influenza and pneumonia	8,511
7th	Diabetes mellitus	6,794
COVID-19: Number of deaths between March 9th and June 8th 2020		7,835
Canada's population in 2018		37,238,906
Canada's population in 2020		37,894,799

Sources : Statistic Canada, 2020; Government of Canada, 2020 (retrieved from https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039401&request_locale=en)

Appendix B

COVID-19 survey: Explanatory Paragraph and Consent

The first wave of the COVID-19 survey took place from April 6th, 2020, to April 19th, 2020, and was completed by N = 3,617 participants. The following section covers the complete explanation of the planned missingness methodology, the structure of the survey, and the demographic questions in English and in French. A back-translation method was employed for the translation of the survey.

The programming indications for the survey firm Delvinia are also included and highlighted.

Instructions: Please show participants this paragraph before they fill out the consent section.

Welcome to the COVID-19 Survey!

If you agree to participate, you will be invited to fill out an online questionnaire every two weeks for a period of five months. It will take approximately 12 minutes to answer each questionnaire. Each time, you will have the option of accepting or refusing to participate. More specifically, accepting to participate today does not mean that you agree to fill out all the questionnaires. It means that you agree to complete the current one and to be contacted again for the next questionnaire. However, we encourage everyone to fill out all the questionnaires over the next five months. By completing all the questionnaires, you will have made a very important contribution to our understanding of the current coronavirus (COVID-19) challenges and those that are sure to hit us in the future. Lastly, there are no right or wrong answers to individual questions. Our pre testing revealed the complete range of answers for each question. Thank you so much for your help. You will receive your reward points every time you fill out a questionnaire.

Consent form
Public Policies Regarding the Coronavirus (COVID-19)

INFORMATION AND CONSENT FORM

Researchers:
Roxane de la Sablonnière, full professor, Psychology Department, Université de Montréal
Jean-Marc Lina, professor, Electrical Engineering Department, École de technologie supérieure (ETS), Dietlind Stolle, James McGill Professor, Political Science Department, McGill University; Donald M. Taylor, full professor, Psychology Department, McGill University.

You are invited to participate in a research project. Before agreeing, please read the conditions of participation below. Feel free to ask any question you find relevant.

A) INFORMATION FOR PARTICIPANTS

1. Research objective
This research project aims to better understand the impact of public policies regarding the coronavirus (COVID-19) on people's attitudes and well-being.

2. Participation
Your participation entails filling out a questionnaire, which will take approximately 12 minutes of your time every 2 weeks for 5 months (10 questionnaires in total). You will receive an email informing you of the deadline for the next questionnaire. You will have about one week to answer the questionnaire.

3. Risks
Other than the time needed to answer the questionnaires (about 12 minutes every 2 weeks for 5 months), there are no known risks of your participation in this study.

4. Benefits
Although there are no particular concrete benefits for participating in our study, note that you will be playing a role in advancing our knowledge in social psychology and in better understanding society's and individual's well-being.

5. Confidentiality
Personal information will remain confidential. None of the information that could lead to discovering your identity will be published. Furthermore, each participant will be assigned a code and the research team alone will know the participant's identity. Data will

be kept on a password-secured computer. Any personal information will be destroyed seven years after the project has ended. Only data that cannot be traced back to participants will be kept after the seven-year period. After being rendered anonymous, the research data collected in this study (i.e. the answers to the questionnaire) will be made available to the scientific community. As the shared data will be completely anonymous, no information that could be used to identify you will be communicated to other researchers.

6. Compensation
Your participation will be recognized through a nominal incentive.

7. Right to withdraw
Your participation is fully voluntary. You can withdraw from the study at any moment by simply not answering the questionnaires any longer, without having to provide any explanation or justification. Your decision will not result in any repercussions.

Upon your request, all the information you have provided will be destroyed. If you decide to withdraw the data related to you collected through the study, please inform the main researcher at the phone number below. However, it will be impossible to remove your data from the analyses and modify the results after the publication process.

If needed, you can contact the main researcher to be referred to psychological resources.

If you want to access the general results of the study, contact the researcher and a research report will be sent to you.

If you have concerns regarding your rights or researchers' responsibilities, please contact the Comité d'éthique de la recherche en éducation et en psychologie.

B) CONSENT

Participant statement

I understand that I can take my time to consider participating in the study before giving my consent.
I can ask the research team questions and demand satisfactory answers.

I understand that my participation in this research project does not negate my right to withdraw and does not release researchers from their responsibilities.
I have read and understood the information in this consent form and I agree to participate in the research project.

For any question regarding the study or to withdraw from the research project, please contact Roxane de la Sablonnière at 514-343-6732 or email her at roxane.de.la.sablonniere@umontreal.ca

If you have concerns regarding your rights or researchers' responsibilities, please contact the Université de Montréal's Comité d'éthique de la recherche en éducation et en psychologie via email cerep@umontreal.ca, by phone at 514-343-6111 or via their website at http://recherche.umontreal.ca/participants

Complaints related to your participation can be addressed to the ombudsman of the Université de Montréal by calling 514-343-2100 or via email at ombudsman@umontreal.ca (the ombudsman accepts collect calls).

By answering the following question, I declare that I have read the information above. I am aware that I can demand answers to my questions concerning my participation in the research project and I understand the goal, nature, benefits, risks and inconveniences of the research project. I know that I can withdraw my participation at any time without any consequences or justifications.

(Participant must agree to continue)

S1. I agree to participate in this research project.
- Yes
- No [Screen out]

Warning: The next few questions address topics that some may find to be personal and sensitive in nature. As a reminder, your participation in this survey is voluntary and you may exit the survey at any time. Please select the option 'Prefer not to answer' to move on to the next question.

Appendix C

COVID-19 Survey Wave 1: Planned Missingness (PM) and Structure

Planned Missingness (PM)

At the beginning of the survey, participants are assigned randomly to one of three conditions (AB, BC, or AC), and please record the assignment for all participants. Participants are assigned to a combination (AB, BC, or AC) at random at the beginning of each of the 10 waves, independently of their previous assignation. The assignation is such that each set A, B or C is seen by 2/3 of the participants. The content of each set (A, B and C) may change at each wave.

For each block, participants are shown the questions pertaining to the sets corresponding to the condition to which they have been assigned (i.e., AB, BC, or AC), in addition to the core questions. To summarize, each participant will answer to 'core + AB', or 'core + BC', or 'core + AC'.

Structure of the Survey

A. Explanatory paragraph
B. Consent form
C. Part 1 – Demographics
D. Block 1
E. Block 6
F. Block 7
G. Blocks 2, 3, 4, 5, 8, 9 (Blocks are randomly ordered)
H. Block 10
I. Block 11
J. Part 2 – Demographics
K. End comment to participants

Appendix D

COVID-19 Survey, Wave 1: Demographics

Part 1 – Socio-demographic Questions

The questions regarding province will be used in a few other questions: [provincial] = Must be adapted to the respondent's province. For example: "In general, I have a good understanding of the various recommendations and measures regarding COVID-19 established by the provincial public health agency" becomes "In general, I have a good understanding of the various recommendations and measures regarding COVID-19 established by Quebec's public health agency" for the province of Quebec."

(Please put this before the questions.) The following demographic questions will only be asked in this first survey, and not in the other surveys that will follow.

Question 1. How old are you?
Instruction: dropdown box 18–100
[Under 18 y.o. = screen out]

Question 2. What is your gender identity?
0 = Female
1 = Male
2 = Other

Question 3. In which province do you currently live?
Instruction: dropdown box with provinces and territories
0 = Alberta
1 = British Columbia
2 = Manitoba
3 = New Brunswick
4 = Newfoundland and Labrador
5 = Northwest Territories
6 = Nova Scotia
7 = Nunavut
8 = Ontario
9 = Prince Edward Island

10 = Quebec
11 = Saskatchewan
12 = Yukon
13 = Outside of Canada [Screen out]

Question 3a. Counting yourself, how many people currently live with you?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 or more (8)

(Ask ONLY if above is greater than 1)
(This question will be used later in the questionnaire, in Block 7)

Question 3b. How many people in your household are under 18 years old?

- None (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 or more (8)

Next questions: Only if previous is 1 or higher

Question 3c. How many people in your household are under 6 years old?

- None (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)

- 5 (5)
- 6 (6)
- 7 (7)
- 8 or more (8)

Question 9. What is your current employment status?
- Working for pay full-time (2)
- Working for pay part-time (15)
- Self-employed (with or without employees) (1)
- Retired (3)
- Unemployed / looking for work (4)
- Student (5)
- Caring for your family (6)
- Disabled (7)
- Student and working for pay (9)
- Caring for your family and working for pay (10)
- Retired and working for pay (11)
- Other (12) _____

Question 10. The next three questions are only for 1, 2 and 15 from the previous question:

What is your current job or profession?
Open-ended...

Question 10. You are...
1. A public sector employee
2. A private sector employee
3. Self-employed, business owner

Question 11. How large is the workplace /company/firm/organization where you you currently work?
0 = 1 person
1 = 2–5
2 = 6–10
3 = 11–50
4 = 51–200
5 = 201–500
6 = 501–1000
7 = 1001–2000
8 = over 2000

Part 2 - Demographics

This is the last part of the questionnaire. Please note that these questions will not be repeated in two weeks, so the questionnaire will be shorter. We truly thank you for your contribution for enhancing our understanding of the COVID 19 crisis.

Question 1. What is your mother's country of birth?
(this is an open question, please add a line so that participant can put their response on it)

Question 2. What is your father's country of birth?
(this is an open question, please add a line so that participant can put their response on it)

Question 3. What is your country of birth?
(this is an open question, please add a line so that participant can put their response on it)

Question 4. In what city do you currently live?
(this is an open question, please add a line so that participant can put their response on it)

Question 5. We would like to know how you define your cultural identity. You can choose a large group (e.g., Canadian, Indigenous person, Asian) or smaller group (e.g., province, First Nations, Cree) or religious group (e.g., Jewish, Christian) or hyphenated group (e.g., Italian-Canadian). Please tell us the group you identify with most.

Question 5.1 I have a clear sense of what my cultural group is.
- Strongly disagree 1
- Strongly agree 10

Question 6. Do you identify as Indigenous - that is First Nations (North American Indian), Métis, or Inuit?
- Yes
- No

Question 7. What is your mother tongue?
- French
- English
- Other

Question 8. What is the highest level of education that you have completed?

- No schooling (1)
- Some elementary school (2)
- Completed elementary school (3)
- Some secondary / high school (4)
- Completed secondary / high school (5)
- Some technical, community college, CEGEP, classical college (6)
- Completed technical, community college, CEGEP, classical college (7)
- Some university (8)
- Bachelor's degree (9)
- Master's degree (10)
- Professional degree or doctorate (11)

Question 9. Regarding politics, people often speak of the «left» and «right». Where would you place yourself on the following scale?

- Strongly left 0
- Strongly right 10

(on a scale with these labels at each end)

Question 10. In federal politics, do you usually think of yourself as a Conservative, Liberal, NDP, Bloc Québécois, Green, or none of these?

- Conservative (2)
- Liberal (1)
- NDP (3)
- Bloc Québécois (4)
- Green (5)
- None of these (6)
- Other (7)
- Don't know (8)

Question 11. ***Instructions: only for 1 through 5 above***
How strongly [choice above] do you feel?

- Very strongly (1)
- Fairly strongly (2)
- Not very strongly (3)
- Don't know (4)

Question 12. What is your religion?

- Don't have one / Atheist
- Agnostic
- Christian
- Buddhist
- Hindu
- Sikh
- Jewish
- Muslim
- Other _____

End comment

We sincerely thank you for participating in a better understanding of the COVID-19 crisis. We will contact you again in two weeks. Please remember that the survey will be shorter next time!

Appendix E

Equivalence testing between participants with a bachelor's degree or more (N = 1,817) and other participants (N = 1,800)

Equivalence Testing

Objective: Evaluate if participants who have a bachelor's degree or a higher degree (group 1) have given equivalent responses to participants who do not have at least bachelor's degree (group 2).

Test: To test the different patterns of responses between the two groups of participants, equivalence tests were used. Equivalence testing does two things. First, it informs about a significant difference between two groups. Second, it indicates if that difference is meaningful considering a criterion that is fixed by the user. To determine if a difference is meaningful (i.e., the two groups are not statistically equivalent), it is first needed to fix a lower and an upper border between which the difference will be considered not meaningful. We rely on an effect size of Cohen's d = -.34 and .34 found in a meta-analysis that investigate the effect of education achievement on subjective well-being (Bürke et al., 2018) to determinate the lower and upper bounds. If the mean difference is comprised inside our lower and upper border, we will consider the two groups as equivalent. If not, the two groups will be considered inequivalent (see, Lakens, 2017; Lakens et al., 2018 for more information on equivalence testing).

Outcomes: Four scenarios can happen with equivalence testing (see Figure 1). The mean difference could be: (A) Statistically Equivalent and Not Different, (B) Not Equivalent and Statistically Different, (C) Statistically Equivalent and Statistically Different and (D) Not Equivalent and Not Different.

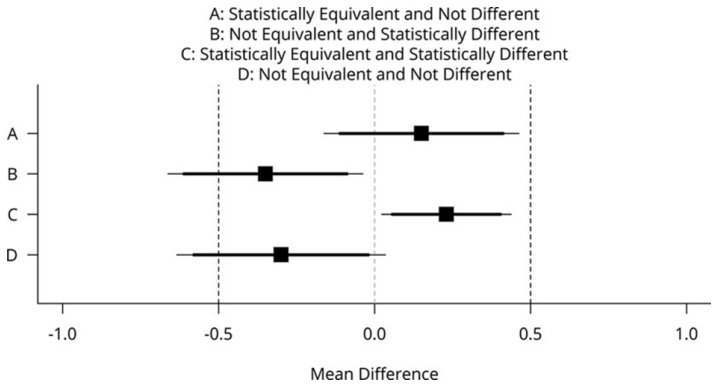

Figure 1: Possible scenarios of an equivalence test (from Lakens, 2017)

Table 1 shows the results of equivalence tests that were performed. The letters in the "Scenarios" column represent the outcomes of equivalence tests (A = statistically equivalent and not statistically different, B = not statistically equivalent and statistically different, C = statistically equivalent and statistically different, D = not statistically equivalent and not statistically different).

Table E1 (part 1)

Equivalence testing between people with a bachelor's degree or more and others

Variables	Scenarios			
	A	B	C	D
Block 1				
b1xq1_1_1	■			
b1xq1_2_1	■			
b1xq1_3_1			■	
b1xq1_4_1	■			
b1xq1_5_1			■	
b1xq1_6_1	■			
b1xq1_7_1			■	
b1xq1_8_1			■	
b1xq1_9_1			■	
b1xq1_12_1			■	
b1xq1_13_1	■			
Block 2				
b2xq2_1_1	■			
b2xq2_2_1			■	
b2xq2_3_1			■	
b2xq2_4_1			■	
b2xq3_1_1			■	
b2xq3_2_1	■			
Block 3				
b3xq1_1_1			■	
b3xq1_2_1	■			
b3xq1_3_1			■	
b3xq1_4_1			■	
b3xq1_5_1	■			
b3xq1_6_1			■	
b3xq2_1_1			■	
b3xq2_2_1	■			
b3xq2_3_1	■			
b3xq2_4_1	■			
b3xq2_5_1	■			
b3xq2_6_1	■			
b3xq2_7_1	■			
b3xq2_9_1	■			
b3xq2_10_1	■			

Table E1 (part 2)

Equivalence testing between people with a bachelor's degree or more and others

Variables	Scenarios			
	A	B	C	D
Block 4				
b4xq1b_1	■			
b4xq2a_1_1			■	
b4xq2c_1_1			■	
b4xq2d_1	■			
Block 5				
b5xq1_1_1			■	
b5xq2_1_1	■			
b5xq2_2_1	■			
b5xq2_3_1	■			
b5xq2_4_1	■			
b5xq2_5_1	■			
b5xq3_1_1	■			
b5xq3_3_1	■			
b5xq3_4_1			■	
b5xq5_1_1			■	
b5xq5_2_1	■			
Block 6				
b6xq2_1_1	■			
b6xq2_2_1	■			
b6xq2_3_1	■			
b6xq2_4_1	■			
b6xq2_5_1			■	
b6xq2_8_1	■			
b6xq2_9_1	■			
b6xq2_10_1	■			
Block 7				
b7xq2_1_1	■			
b7xq2_2_1			■	
b7xq2_3_1			■	
b7xq2_4_1	■			
b7xq2_5_1	■			
b7xq2_7_1	■			
b7xq2_9_1	■			
b7xq2_10_1	■			
b7xq3_1_1	■			
b7xq3_2_1	■			

Table E1 (part 3)

Equivalence testing between people with a bachelor's degree or more and others

Variables	Scénarios			
	A	B	C	D
Block 8				
b8xq1_1_1			■	
b8xq1_2_1			■	
b8xq1_3_1			■	
b8xq1_4_1			■	
b8xq1_5_1			■	
b8xq1_6_1	■			
b8xq1_7_1	■			
b8xq1_8_1	■			
b8xq1_9_1	■			
b8xq1_10_1	■			
b8xq1_11_1	■			
b8xq1_12_1	■			
Block 9				
b9xq1_1_1	■			
b9xq1_2_1			■	
b9xq1_3_1			■	
b9xq1_5_1	■			
b9xq1_8_1	■			
b9xq1_9_1			■	
b9xq1_10_1	■			
b9xq1_11_1			■	
b9xq1_12_1	■			
b9xq1_13_1	■			
b9xq1_14_1	■			

Appendix F

Equivalence testing between people with a bachelor's degree or more (N = 1,817) and people with a high school degree or less (N = 707)

Equivalence Testing

Objective: Evaluate if participants who have a bachelor's degree or a higher degree (group 1) have given equivalent responses to participants with a high school degree or less (group 2).

Test: To test the different patterns of responses between the two groups of participants, equivalence tests were used. Equivalence testing does two things. First, it informs about a significant difference between two groups. Second, it indicates if that difference is meaningful considering a criterion that is fixed by the user. To determine if a difference is meaningful (i.e., the two groups are not statistically equivalent), it is first needed to fix a lower and an upper border between which the difference will be considered not meaningful. We rely on an effect size of Cohen's d = -.34 and .34 found in a meta-analysis that investigate the effect of education achievement on subjective well-being (Bürke et al., 2018) to determinate the lower and upper bounds. If the mean difference is comprised inside our lower and upper border, we will consider the two groups as equivalent. If not, the two groups will be considered inequivalent (see, Lakens, 2017; Lakens et al., 2018 for more information on equivalence testing).

Outcomes: Four scenarios can happen with equivalence testing (see Figure 1). The mean difference could be: (A) Statistically Equivalent and Not Different, (B) Not Equivalent and Statistically Different, (C) Statistically Equivalent and Statistically Different and (D) Not Equivalent and Not Different.

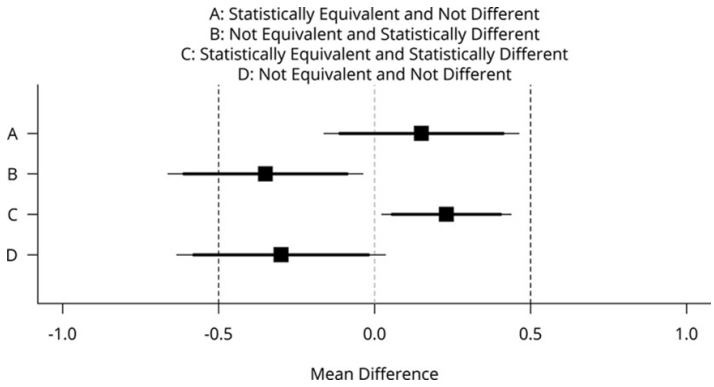

Figure 1: Possible scenarios of an equivalence test (from Lakens, 2017)

Table 1 shows the results of equivalence tests that were performed. The letters in the "Scenarios" column represent the outcomes of equivalence tests (A = statistically equivalent and not statistically different, B = not statistically equivalent and statistically different, C = statistically equivalent and statistically different, D= not statistically equivalent and not statistically different).

Table F1 (part 1)

Equivalence tests' scenarios comparing people with a high school diploma or less and people with a bachelor's degree or more

Variables	Scenarios			
	A	B	C	D
Block 1				
b1xq1_1_1			■	
b1xq1_2_1	■			
b1xq1_3_1			■	
b1xq1_4_1			■	
b1xq1_5_1			■	
b1xq1_6_1			■	
b1xq1_7_1	■			
b1xq1_8_1			■	
b1xq1_9_1	■			
b1xq1_12_1			■	
b1xq1_13_1			■	
Block 2				
b2xq2_1_1	■			
b2xq2_2_1			■	
b2xq2_3_1	■			
b2xq2_4_1			■	
b2xq3_1_1			■	
b2xq3_2_1	■			
Block 3				
b3xq1_1_1			■	
b3xq1_2_1	■			
b3xq1_3_1			■	
b3xq1_4_1			■	
b3xq1_5_1	■			
b3xq1_6_1				
b3xq2_1_1			■	
b3xq2_2_1			■	
b3xq2_3_1	■			
b3xq2_4_1			■	
b3xq2_5_1	■			
b3xq2_6_1	■			
b3xq2_7_1	■			
b3xq2_9_1	■			
b3xq2_10_1	■			

Table F1 (part 2)

Equivalence tests' scenarios comparing people with a high school diploma or less and people with a bachelor's degree or more

Variables	Scénarios			
	A	B	C	D
Block 4				
b4xq1b_1	■			
b4xq2a_1_1			■	
b4xq2c_1_1	■			
b4xq2d_1	■			
Block 5				
b5xq1_1_1			■	
b5xq2_1_1			■	
b5xq2_2_1	■			
b5xq2_3_1			■	
b5xq2_4_1	■			
b5xq2_5_1	■			
b5xq3_1_1	■			
b5xq3_3_1	■			
b5xq3_4_1				
b5xq5_1_1			■	
b5xq5_2_1	■			
Block 6				
b6xq2_1_1	■			
b6xq2_2_1	■			
b6xq2_3_1			■	
b6xq2_4_1	■			
b6xq2_5_1			■	
b6xq2_8_1	■			
b6xq2_9_1	■			
b6xq2_10_1	■			
Block 7				
b7xq2_1_1	■			
b7xq2_2_1			■	
b7xq2_3_1	■			
b7xq2_4_1	■			
b7xq2_5_1	■			
b7xq2_7_1	■			
b7xq2_9_1	■			
b7xq2_10_1	■			
b7xq3_1_1	■			
b7xq3_2_1			■	

Table F1 (part 3)

Equivalence tests' scenarios comparing people with a high school diploma or less and people with a bachelor's degree or more

Variables	Scénarios			
	A	B	C	D
Block 8				
b8xq1_1_1			■	
b8xq1_2_1			■	
b8xq1_3_1			■	
b8xq1_4_1			■	
b8xq1_5_1			■	
b8xq1_6_1			■	
b8xq1_7_1			■	
b8xq1_8_1	■			
b8xq1_9_1	■			
b8xq1_10_1	■			
b8xq1_11_1	■			
b8xq1_12_1	■			
Block 9				
b9xq1_1_1	■			
b9xq1_2_1	■			
b9xq1_3_1	■			
b9xq1_5_1	■			
b9xq1_8_1	■			
b9xq1_9_1			■	
b9xq1_10_1	■			
b9xq1_11_1			■	
b9xq1_12_1			■	
b9xq1_13_1			■	
b9xq1_14_1			■	