Understanding the Impact of Covid-19 on Mental Health in Canada

Fitting logistic regression models using 2020 Mental Health Survey data

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Code supporting this analysis can be found at:

Introduction

Amidst one of the biggest global health crises of the past century, people around the world have experienced a lot of uncertainty about their future, whether it be around their health, financial status, or other reasons. Like many countries around the world, Canadians have spent the majority of 2020 in varying degrees of pandemic related lockdown. With people's daily lives changing so much during the coronavirus pandemic, it is important to address increasing concerns around mental health. Through large scale mental health surveys like the one in this paper, state and federal governments can understand the most vulnerable populations for poor mental health and launch targeted support programs.

This paper analyzes a survey done by the Center for Addiction and Mental Health to gauge the overall mental health of Canadians at various points throughout the Covid-19 pandemic. This data is used to create logistic regression models for anxiety, depression, and alcohol abuse. Since the same survey was done at different times of the year, this paper will also look at the trends over time.

Methodology

Results of this survey are from a total of 1,003 Canadian adults. The survey was collected online on the Asking Canadians web panel, which is an online research community of participants of different demographic backgrounds who voluntarily complete surveys. The same survey was rerun five times throughout 2020: on May 8, May 29, June 19, July 10, and September 18. Each iteration had different participants, but was sampled in the same way as outlined above (COVID-19 Pandemic, 2020).

Data

The basic frequency distributions of the participants by province, age group, gender, and race are shown in Table A in the Appendix. From these charts, we see a fairly equal gender distribution and age distribution, with slightly more respondents from the 18-39 age group. Within the race and province distributions, there were a lot more whites than any other race and more people from Ontario than any other province. However, given the demographic data of Canada, this is to be expected in a random survey and therefore this does not indicate a flaw in the survey (Government of Canada, 2020).

Next we look at the baseline of Canadians who reported feeling anxious, over time throughout the five iterations of the survey.

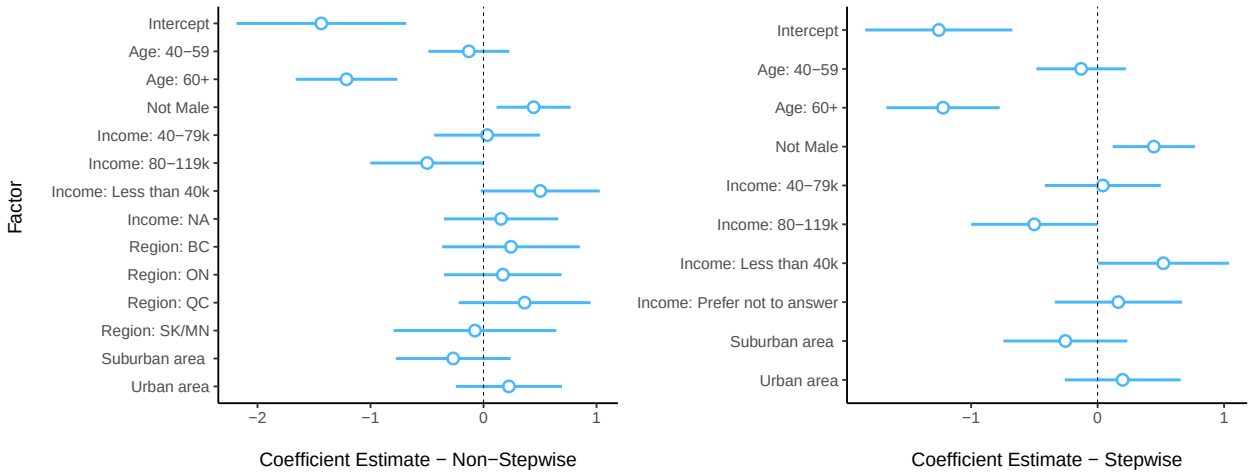
Table 1: Survey-based estimates of fraction of population with frequent anxiety

Frequent Anxiety	Mean	SE
Yes	0.253	0.0137
No	0.747	0.0137

Table 2: Survey-based estimates of fraction of population with frequent depression

Frequent Depression	Mean	SE
Yes	0.0688	0.008
No	0.931	0.008

Model



Results

Discussion

Summary

Weaknesses and Next Steps

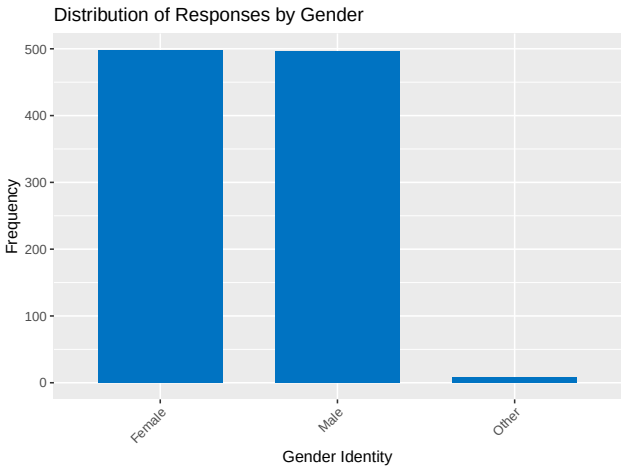
References

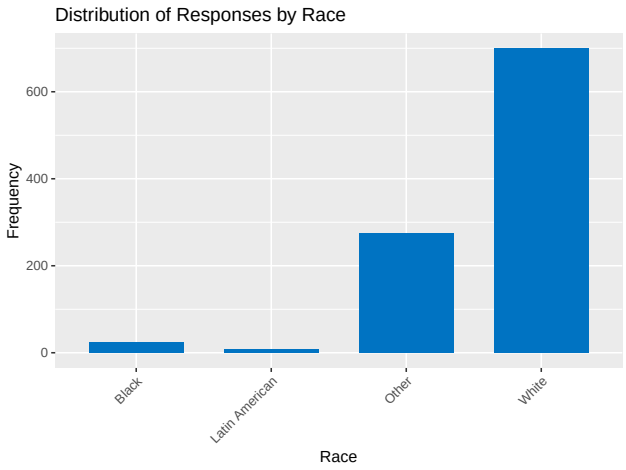
COVID-19 pandemic adversely affecting mental health of women and people with children. (2020, October 14). CAMH. https://www.camh.ca/en/camh-news-and-stories/covid-19-pandemic-adversely-affecting-mental-health-of-women-and-people-with-children

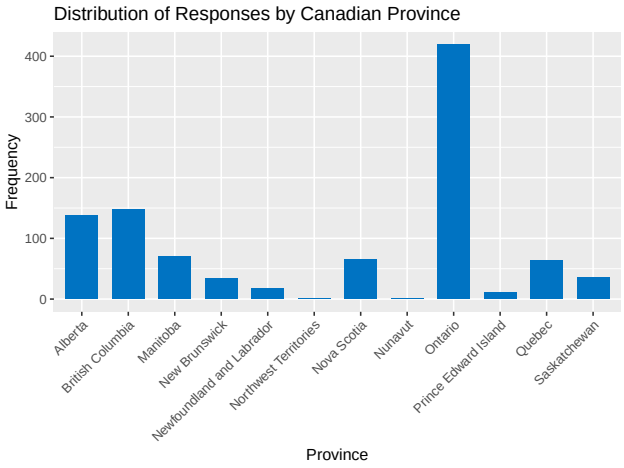
Government of Canada, S. (2020, September 29). Population and demography statistics. Retrieved December 09, 2020, from https://www.statcan.gc.ca/eng/subjects-start/population_and_demography

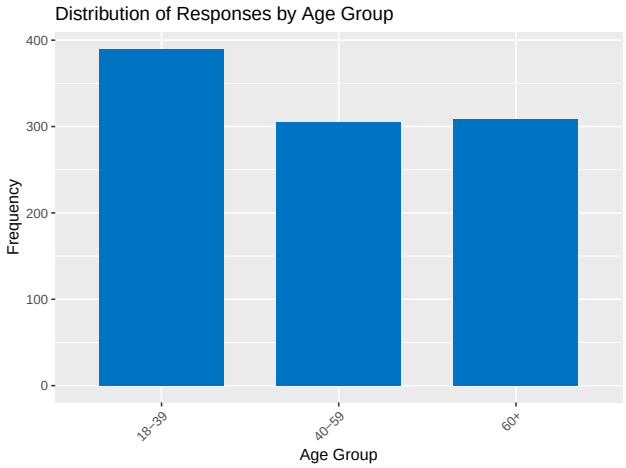
Appendix

A: Raw distributions of predictor variables









B: Model Coefficients

Table 3: Survey-based estimates of logistic model of Factors impacting Anxiety

	Coefficients, P-values
Intercept	-1.26 *** (p-value = 0.00)
Age: 40-59	-0.13 (p-value = 0.47)
Age: 60+	-1.22 *** (p-value = 0.00)
Not Male	0.44 ** (p-value = 0.01)
Income: 40-79k	0.04 (p-value = 0.86)
Income: 80-119k	-0.50 * (p-value = 0.05)
Income: Less than 40k	0.52 * (p-value = 0.05)
Income: Prefer not to answer	0.16 (p-value = 0.52)
Suburban area	-0.25 (p-value = 0.31)
Urban area	0.20 (p-value = 0.40)
N	1003
AIC	980.97
BIC	1030.08
Pseudo R2	0.10

Standard errors are heteroskedasticity robust. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.