The Gendered Effects of the COVID-19 Pandemic on Mental Health of Canadians

Maryam Dilmaghani[1], Min Hu [2] and Daniel Keays[3]

[1] *Dept. of Economics, Saint Mary's University, Halifax, NS, Canada*
[2] *Dept. of Economics, Philosophy and Political Science, University of British Columbia, Okanagan, BC, Canada*
[3] *Dept. of Management, Saint Mary's University, Halifax, NS, Canada*

Reception date of the manuscript: 25/05/2024
Acceptance date of the manuscript: 15/07/2025
Publication date: 03/09/2025

Abstract— Using the Statistics Canada survey on the Impacts of COVID-19 on Canadians and the General Social Survey of 2016, this paper examines the gender gap in self-rated mental health and perceived life stress, among working Canadians. The two datasets are pooled to account for the fact that a gender gap in these outcomes already existed prior to the COVID-19 pandemic. The estimation approach is akin to the difference-in-difference methodology. Females are found more strongly strained by the pandemic in both of these outcomes. Interestingly, these gender gaps are driven by those who do not face an immediate financial concern. Moreover, the post-pandemic data reveal that females have much larger concerns for societal factors such as the effects of the pandemic on health of vulnerable people and the overloading of the healthcare system than men. This pattern is consistent with two well-documented gender differences: (i) the greater prosociality and (ii) the greater "safetyism" of women. Policy implications are discussed.

Keywords— Mental Health; Life Stress; COVID-19; Gender

1 I. Introduction

The emergence of the COVID-19 pandemic disrupted lives across the globe in more than one way (Alacevich et al. 2023; Davis 2021). Aside from pervasive concerns for health of oneself and others, and considerable life loss (Davis 2021), many lost their job and income (Lemieux et al. 2020). Among those who remained employed, most worked from home (Haider & Anwar 2023). Household members spent exceptionally more time together, while they were cut-off from other family members, friends, and colleagues (Hamermesh 2020). Travel and leisure outside the house were halted, reducing wellbeing especially among the young adults (Fatmi 2020). In contrast, many were pleased not to deal with the hassles of commuting to work (Kroesen 2022). In the greater context, a layer of uncertainty settled on future outlooks, as it was not clear when the lockdowns would be lifted and when the normal would return (Alacevich et al. 2023; Alfano & Ercolano 2020; Soofi et al. 2020). Did these circumstances affect the mental health of men and women differently?

There is a multiplicity of reasons to expect that the onset of the pandemic had impacted the mental health of men and women differently. But, several of these factors act in opposing directions, making the assessment an empirical matter. First, while women as the main caregiver may have faced greater strain due to the closure of schools and childcare centres, men could have been more concerned about the prospects of job loss as the main breadwinner of the family (Alfano 2022). Second, at the onset of the pandemic, the level of uncertainty was very high with policymakers taken by surprise, in face of rampant misinformation (Gandjour 2021; Veldwijk et al. 2023). To the extent that females are reported to be more risk averse than males (Cerda & García 2021; Charness & Gneezy 2012), the negative effects of uncertainty might have been greater on women's mental health than on men's.

Third, men, who are usually more reliant on outside activities with friends and colleagues, could have been more affected by safety regulations, such as the lockdown and social distancing than women. In contrast, the widespread and stringent lockdowns made life monotonous and isolative (Homaie Rad et al. 2021). The negative effects of social isolation during the pandemic might have been higher among mothers who largely rely on in-person interactions with other mothers through playdates and similar child-centric activities (Alfano 2022). Fourth, the continuous confinement of both spouses to home exacerbated the prevalence of domestic violence, more detrimental to the mental health of (vulnerable) women (Dlamini 2021; Usher et al. 2021). Fifth, as about 70% of the frontline health workers (e.g. physi-

Contact data: Maryam Dilmaghani, Maryam.Dilmaghani@smu.ca

cians, nurses, and social workers) are female, women generally faced a higher level of exposure to the COVID-19, complicating their familial caregiving activities with deleterious mental health effects (Kamas & Preston 2021; Olsson et al 2021). Sixth, with the lockdowns, the great majority of people worked from home (i.e. teleworked). There is evidence that long commutes to work are more detrimental to the mental wellbeing of females (Roberts et al. 2011; Dilmaghani 2020a). At the same time, commute to work provides a boundary between the job and home life, with positive wellbeing effects. The erosion of this work-home life boundary is likely more detrimental to men, who are generally more rigid than women (Dilmaghani 2021b). Finally, there is an emerging literature devoted to the empirical evidence about greater safetyism of women, where "safetyism" is understood as an "excessive" safety concern with counterproductive effects (de Castro Neves 2025; Haidt 2024).

Despite the intense interest in the mental health effects of the pandemic, relatively few studies with large national samples, like ours, have focused on the gender differences (Borrescio-Higa & Valenzuela 2021; Bryson & Blanchflower 2022; Dal Santo et al. 2022; Kumar & Nayar 2021; Pongou et al. 2021; Proto & Quintana-Domeque 2021). Among these studies, for instance, Pongou et al. (2021) use a Survey Monkey dataset of 2,756 Canadian adults aged 18 years and above, reporting a small gender difference in the psychological distress caused by the pandemic. Our paper differs from previous studies in using a much larger sample collected by Statistics Canada (Statistics Canada 2020) and by focusing on working men and women. More precisely, we exploit a unique survey by Statistics Canada, with a large crowdsourced sample (32,466 observations on working men and women), conducted from April 2020 to October 2020, titled the "Impacts of the COVID-19 pandemic on Canadians" (ICC). We pool the ICC with the 2016 General Social Survey of Statistics Canada (GSS-2016), to compare the gender differences pre- and post-pandemic through a "difference-in-difference "methodology, and assess the severity of the effects by gender. The GSS-2016 contains 10,323 observations (Statistics Canada 2017b). This survey is selected among other available datasets, such as the more recent General Social Surveys (GSS) and the Canadian Community Health Survey (CCHS) cycles**,** since only in the GSS-2016, mental health and life stress questions and their response-items are identical to those used in the ICC, strengthening the validity of the assessments. The remainder of this paper is organized as follows. In the next section, the data and methodology are presented. Section III reports the results. A discussion and the concluding remarks follow.

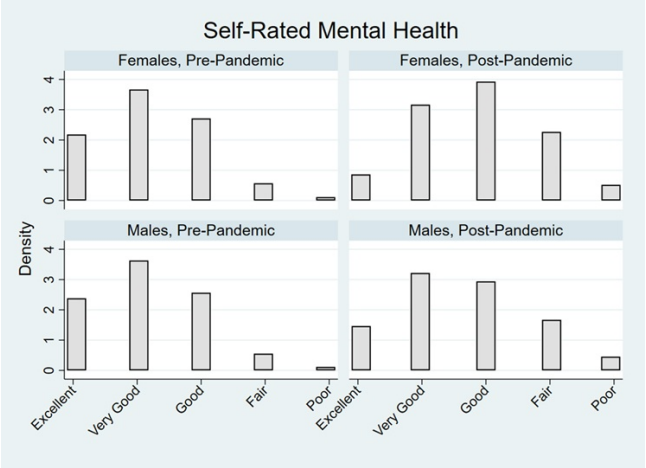
2 Data and Methodology

The data used in this paper are from two sources, the Statistics Canada survey on Impacts of COVID-19 on Canadians (ICC-2020), and the Canadian General Social Survey of 2016 (GSS-2016). Both of these datasets are collected by Statistics Canada, the official statistical agency of Canada, and are available in all libraries of Canadian universities. For the ICC-2020, starting from April, 2020 until October 2023, Statistics Canada conducted a crowdsourced survey, on the Impacts of the COVID-19 on different segments of Canadians (e.g. general population, students). The purpose of this data collection was to quickly gather information on the pandemic's impacts on the physical and mental health of individuals, as well as on their social and employment circumstances (Statistics Canada 2020). This makes the dataset a unique source for learning about the early impacts of the pandemic. Unlike other Statistics Canada surveys which rely on a carefully designed random sample, the ICC-2020 has been "crowdsourced," i.e. all Canadians were eligible to participate, of their own volition. Given the non-probabilistic nature of the crowdsourced data and the absence of a sample design, based on the February 2020 projections of the number of people by province, sex, and age groups, Statistics Canada has provided a "benchmarking factor" for every survey respondent to compensate for over/under-representations (Statistics Canada 2020). In this study, we followed Statistics Canada's protocols in treating the benchmarking factors as weights, throughout the estimations to mitigate the issue (Statistics Canada 2020). The ICC-2020, with 45,989 total observations, contains data on gender, immigration and ethnic background, age in 10 categories, employment status, province of residence, residence in rural areas, questions on mental health, life stress, and anxiety, as well as a list of specific concerns relevant to the effects of the pandemic. But, the ICC-2020 does not contain marital status, education, income, number of children, and household composition.

The second data source used in this paper is the Canadian General Social Survey of 2016 (GSS-2016). Statistics Canada started conducting the Canadian General Social Surveys in 1985. Since 1985, the Canadian GSS has been conducted yearly. But, the Canadian GSS has a cross-sectional design and each cycle uses a new random sample, focusing on a specific theme (Statistics Canada 2017a). The GSS-2016' self-rated mental health and perceived life stress questions are identical to those used in the ICC-2020, in formulation and response items. Hence, pooling these two data sources, it is possible to examine the same outcomes pre and post-pandemic.

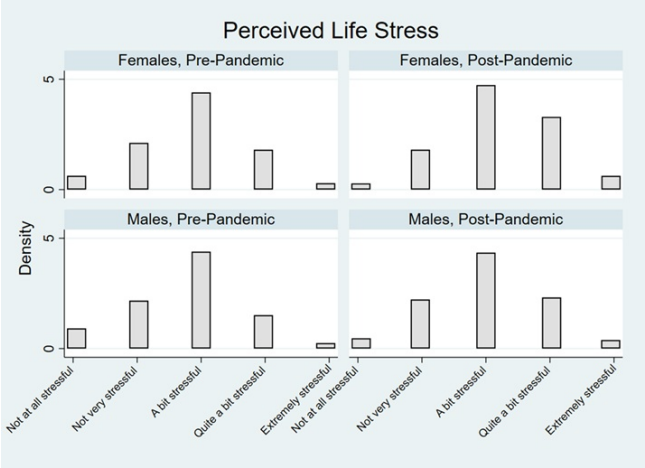
The mental health questions in both the GSS-2016 and ICC-2020 are "*In general, how would you describe your mental health?";* with the identical response items of Excellent, Very Good, Good, Fair, and Poor. Also identically formulated, the perceived life stress question of these two survey is "*Thinking about the amount of stress in your life, how would you describe most of your days?";* with the response items of Not at all stressful, Not very stressful, A bit stressful, Quite a bit stressful, Extremely stressful. Another useful and almost identical question present in both surveys is about job security. The ICC-2020 asks respondents to respond with Strongly agree, Agree, Neutral, Disagree, and Strongly disagree to the question "*I might lose my main job or main self-employment income in the next 4 weeks*." The respondents who did not work are recorded under "*Not working at a job or business*," which allowed to identify employment status. The GSS-2016's statement on job security, on the other hand, is "*You might lose your job in the next 6 months;"* with the same response items of Strongly agree, Agree, Neutral, Disagree, and Strongly disagree. This GSS-2016 question is also asked from the self-employed. Hence, the only difference between these two job security questions

Fig. 1: Self-Rated Mental Health



Note: The data are from the Statistics Canada survey on the Impacts of Covid-19 on Canadians (ICC-2020) and the Canadian General Social Survey of 2016.

Fig. 2: Perceived Life Stress



Note: The data are from the Statistics Canada survey on the Impacts of Covid-19 on Canadians (ICC-2020) and the Canadian General Social Survey of 2016

is in the duration of forecast (4 weeks versus 6 months). Both ICC-2020 and GSS-2016 also allow to identify immigrants, visible minorities (as defined by the Canadian Employment Equity Act, which separately accounts for Aboriginals), and an indicator for Aboriginals. The province of residence and residence in rural areas also exist in both surveys. The GSS-2016 contains detailed information on sociodemographic indicators, such as marital status, number of children, living arrangement, education, and income. But, these questions did not exist in the ICC-2020. Given the missing information in the ICC-2020, in order to reduce the heterogeneity among respondents, the samples are restricted to the working individuals. With this restriction, and dropping the missing observations (minimal and assumed occurring at random), the number of observations is 32,466 in the ICC and 10,323 in the GSS-2016.

Appendix Tables 1 and 2 show the descriptive statistics for pre- and post-pandemic times by gender. The tables report means and standard deviations, computed using survey weights for the GSS-2016, and the "benchmarking factors" for the ICC-2020, which act the same way as the "weights" in a random sample (Statistics Canada 2020). The tables also show the t-tests. While the mean age is very similar between the two data sources, there are differences between the surveys in the share of immigrants and visible minorities. Moreover, the ICC-2020 includes substantially more females (74.2%) than males (25.8%). This likely introduces a selection bias into the estimates. With no reliable selection correction variable, unfortunately, there is no way to circumvent this limitation aside from the use of benchmarking factors. As shown in Appendix Tables 1 and 2, self-rated mental health has declined, and perceived life stress has increased, among both men and women. The outlook about job security has also deteriorated, for both men and women. Figures 1 and 2 show the entire distributions of self-rated mental health and perceived life stress by data source and gender.

To compare the effects of the COVID-19 pandemic on working men and women, several regressions akin to the "difference-in-difference" approach are estimated. Of course, given that the data are limited to a single set of observations before and after the onset of the pandemic, the estimated equation is the simplest version of the "difference-in-difference" approach. Moreover, since the ICC is crowd-sourced (as opposed to being a random sample), we must caution the readers to this limitation. The generic form of the equation is as follows:

$$\begin{aligned} y_i &= \delta_0 + \delta_1 Covid19 + \delta_2 Female + \delta_3 Covid19 \times Female \\ &+ X\beta + \varepsilon \qquad i = 1,2 \end{aligned} \tag{1}$$

The variables denoted by y_i capture self-rated mental health and perceived life stress, dichotomized to simplify the exposition of the results. Namely, y_1 is a dummy taking the value of 1 for those who report their mental health to be Excellent or Very Good, while y_2 is a dummy taking the value of 1 for those who report life to be Quite a bit stressful or Extremely stressful. The controls included in the vector **X** are age, age squared, dummies for immigrants, visible minorities, Aboriginals, province of residence, residence in rural areas, and the responses to the job security question. A linear probability model is assumed, and the equations are estimated using OLS. Standard errors are clustered by the province of residence and the data source. As shown in the robustness tests, the findings are not sensitive to the choice of dichotomizing the dependent variables and the use of OLS.

To refine the analysis and reduce the unobserved heterogeneity, the samples are split based on the implied financial vulnerability of the respondents. Particularly, one major consequence of the COVID-19 pandemic was financial distress on some households. To examine whether the gender gap in mental health and life stress vary by the level of financial vulnerability, the equations are re-estimated, splitting the sample in two. In the ICC-2020, there is a question about the financial concerns of the respondents. This question is "*COVID-19's impacts on my ability to meet financial obligations or essential needs are,*" with the response items of Major, Moderate, Minor, No impact, and Too soon to tell. Financially vulnerable respondents of ICC-2020 are defined as those who responded with Major and Moderate Impact (20.23% of the sample). Obviously, the GSS-2016 does not include such

question. But, the "perceived social class" question of the GSS-2016 is used to identify financially vulnerable households of 2016. Namely, the GSS-2016 asks the respondents to report their social class in Upper, Upper Middle, Middle, Lower Middle, and Lower class. Those who responded as Lower and Lower Middle classes are classified as potentially financially vulnerable in 2016 (17.29 % of the sample). Unfortunately, we did not find a better proxy for financial vulnerability in the GSS-2016. One caveat of our approach is possible differences in reference point that we hope is mitigated by choosing roughly similar proportion of respondents as financial vulnerable (20.2% vs. 17.3%).

Finally, the ICC-2020 contains a set of questions on the specific concerns of the respondents about the pandemic. Restricting the sample to the post-pandemic era, the gender differences in these concerns are estimated, using this equation:

$$Outcome_j = \delta_0 + \delta_1 Female + X\beta + \varepsilon \qquad i = 1,2,..,13$$

The dependent variable, $Outecome_j$ refers to a set of 13 binary outcomes. These dependent variables take the value of 1 for those who reported being Extremely or Very concerned for (1) Own health; (2) Member of the household's health; (3) Vulnerable people's health; (4) Canadian population's health; (5) World population's health; (6) Overloading the health system; (7) Civil disorder; (8) Maintaining social ties; (9) Ability to cooperate and support one another during the crisis; (10) Ability to cooperate and support one another after the crisis; (11) Family stress from confinement; (12) Violence in the home; and (13) Ability to meet financial obligations or essential needs.

3 Results

Table 1 reports the results of 5 estimations, based on Equation (1). The dependent variable is a dummy taking the value of 1 for those rating their mental health as Excellent or Very Good. The controls are sequentially added to the equation. Column (1) only includes the variables of interest, that is, a dummy for COVID-19 (ICC-2020 data source), a dummy for females, and the interaction of the two dummies. Column (2) adds age and age-squared. Column (3) further includes dummies for immigrants, visible minorities, and Aboriginals. Column (4) adds dummies for the location of residence. Finally, Column (5) adds 4 dummies for the 5 response items of the job security question. Since this variable, rather than being a confounder, is likely a mechanism through which COVID-19 affects mental health, it is included last. Hence, we can see the changes in the coefficients after a benchmark is established through controlling for basic demographic confounders, generally unaffected by the COVID-19. The dummies for the province of residence, which did not show major differences, are suppressed to save space. The full set of results are available upon request.

As shown in Column (1), men in post-COVID-19 era have been 16.8 percentage points less likely to rate their mental health as excellent or very good than before pandemic. Women in general are 2.1 percentage points less likely than males to report this outcome. The coefficient on the main variable of interest, the interaction between female and COVID-19 dummies, indicate an additional 7.8 percentage points lower likelihood of excellent and very good mental health among women, post-COVID-19. With the inclusion of the controls, these coefficients only slightly change. As shown in Column (5), the coefficient for female interacted with COVID-19 dummy indicates 7.0 percentage points lower likelihood of excellent or very good mental health. Among the controls, the coefficient for visible minorities (Aboriginals) is positive (negative). And, feeling very secure about one's job is found to be a potent predictor of a better mental health, evident from the coefficients on the dummies for those who (strongly) disagreed with the statement that they face an imminent job loss.

Table 2 proceeds in the same manner as Table 1; only, it replaces the dependent variable with a dummy for those who reported their lives being Quite a Bit or Extremely stressful. As shown in Column (1), the post COVID-19 males (females) are 6.2 ($6.2 + 3.2 + 4.0 = 13.4$) percentage points more likely to report this outcome than pre-pandemic males. The coefficient of the main variable of interest, the interaction between female and COVID-19 dummies, indicates 4.0 percentage points higher likelihood of reporting this outcome. Here too, with the inclusion of controls, these coefficients only slightly change. Interestingly, immigrants and visible minorities are less likely to report this outcome. Again, the variables pertaining to job security are all statistically significant with expected signs and non-negligible coefficients.

To further the analysis, Appendix Table 3 splits the sample by the respondents' implied financial vulnerability. In the ICC-2020, these respondents are identified based on their expressed concerns about the financial impacts of the COVID-19 (expecting Major and Moderate impacts). In the GSS-2016, these respondents are identified based on their perceived social class (Lower and Lower Middle classes). In the absence of data on incomes, this analysis allows to somewhat separate the negative financial effects of the COVID-19 pandemic, from its other impacts. Columns (1) and (2) focus on mental health, while Columns (3) and (4) use life stress as the dependent variable. As shown in Column (1), in the subsample of the financially vulnerable, the coefficient of the interaction term between COVID-19 and female is statistically insignificant. In contrast, as shown in Column (2), in the subsample of financially comfortable, women are 10.7 ($8.6 + 2.1 = 10.7$) percentage points less likely to report excellent or very good mental health, post-pandemic than men. The results are similar when the dependent variable is life stress. Particularly, as shown in Column (3), the coefficient of the interaction term between COVID-19 and female is statistically insignificant among the financially vulnerable. But, among the comfortable, women are found to have a 7.8 ($4.9 + 2.9 = 7.8$) percentage points higher likelihood of experiencing life stress, post-pandemic than comparable men. This pattern might be due to the greater mental health and life stress impact of unemployment and financial loss on men (Knabe et al. 2016), acting to close the gender gap among the financially vulnerable.

Finally, Table 3 shows a set of 13 regressions, only using the ICC-2020 data. In light of the greater mental health strain and life stress of females, it is interesting to compare men

TABLE 1: SELF-RATED MENTAL HEALTH

	No Control	+ Demo.	+ Ethnicity	+ Locations	+ Job Security
	(1)	(2)	(3)	(4)	(5)
Covid-19	-0.168***	-0.165***	-0.162***	-0.161***	-0.167***
	(0.023)	(0.023)	(0.025)	(0.009)	(0.009)
Female	-0.021**	-0.022**	-0.022***	-0.022***	-0.026***
	(0.008)	(0.008)	(0.007)	(0.007)	(0.004)
Female × Covid-19	-0.078***	-0.077***	-0.075***	-0.075***	-0.070***
	(0.010)	(0.010)	(0.010)	(0.009)	(0.007)
Age	—	0.006	0.006	0.005	0.004
		(0.004)	(0.003)	(0.004)	(0.004)
Age Squared	—	-0.000	-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)	(0.000)
Immigrant	—	—	0.011	0.016	0.030
			(0.014)	(0.014)	(0.018)
Visible Minority	—	—	0.039	0.049*	0.055**
			(0.028)	(0.024)	(0.025)
Aboriginal	—	—	-0.045**	-0.036*	-0.032*
			(0.016)	(0.018)	(0.017)
Rural	—	—	—	0.012	0.013
				(0.007)	(0.008)
Strongly Agree, Job Loss	—	—	—	—	0.034
					(0.070)
Agree, Job Loss	—	—	—	—	-0.014
					(0.026)
Disagree, Job Loss	—	—	—	—	0.065**
					(0.026)
Strongly Disagree, Job Loss	—	—	—	—	0.168***
					(0.023)
Observations	42,789	42,789	42,789	42,789	42,789
R-squared	0.002	0.004	0.006	0.012	0.033

Note: Data are from the Canadian General Social Survey (2016) and the Statistics Canada survey on the Impacts of COVID-19 on Canadians (Apr-May 2020). Robust SE in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

and women in their specific COVID-19 concerns. As shown in the table, women have a higher likelihood than men to be concerned with these 13 issues, evident from the statistically significant and positive coefficient of female across all the 13 columns. The largest gaps are observed when the outcomes are World population's health (12.8 percentage points gap with men), Canadian population's health (11.8 percentage points gap with men), Overloading the health system (9.0 percentage points gap with men), Family stress from confinement (6.6 percentage points gap with men), and Vulnerable people's health (6.1 percentage points gap with men).

Numerous sensitivity tests have been conducted. First, implementing age cutoffs, such as younger than 45 and 45 years of age and older, did not alter the conclusion of greater strain of women. But, the gender gap in mental health became greater for older women while the opposite held regarding life stress. Second, using Ordered Probit, instead of the linear probability model, did not make any notable difference to the estimates. Third, using the raw mental health and life stress scores as cardinal values (Ng 1997), instead of the dummy dependent variables, led to similar conclusions. Finally, as could be expected (Ferrer-i-Carbonell & Frijters 2004), Ordered Logit estimations did not alter the conclusions. These sensitivity tests are available upon request.

4 Conclusion

The present paper empirically explored how the onset of the COVID-19 pandemic has affected the mental health and life stress of Canadian men and women. Notwithstanding the limitations of the crowdsourced ICC-2020 survey, the main findings of this study are as follows. First, the evidence indicates that at least at its first stages, the COVID-19 pandemic's consequences have taken a toll on the emotional and psychological well-being of individuals across both genders in Canada, which is consistent with findings in other developed countries (Blanchflower & Bryson 2022). Second, women, who initially had slightly lower (higher) mental health (life stress) ratings, have been more strongly affected by the onset of the pandemic than men. Third, the evidence suggests that the gender gap in the effects of COVID-19 pandemic is confined to those without an imminent financial challenge. Fourth, the analysis shows that females in general had greater concerns for issues not of immediate impact on themselves, such as population health and healthcare system overcrowding, than men, which may contribute to the observed differences in the mental health and stress levels between men and women during the early stages of the pandemic.

While the overall patterns are compatible with females' greater prosociality (Kamas & Preston 2021), the finding that the results are driven by those without an immediate finan-

TABLE 2: PERCEIVED LIFE STRESS

	No Control	+ Demo.	+ Ethnicity	+ Locations	+ Job Security
	(1)	(2)	(3)	(4)	(5)
Covid-19	0.062***	0.068***	0.062***	0.059**	0.053**
	(0.019)	(0.017)	(0.016)	(0.021)	(0.020)
Female	0.032***	0.030***	0.029***	0.028***	0.031***
	(0.010)	(0.009)	(0.009)	(0.009)	(0.008)
Female × Covid-19	0.040***	0.044***	0.042***	0.044***	0.042***
	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)
Age	—	0.015***	0.015***	0.015***	0.015***
		(0.002)	(0.002)	(0.002)	(0.001)
Age Squared	—	-0.000***	-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)	(0.000)
Immigrant	—	—	-0.038**	-0.039**	-0.041**
			(0.017)	(0.016)	(0.016)
Visible Minority	—	—	-0.039***	-0.038***	-0.040***
			(0.009)	(0.007)	(0.008)
Aboriginal	—	—	-0.077**	-0.057	-0.057
			(0.030)	(0.039)	(0.038)
Rural	—	—	—	-0.031**	-0.031*
				(0.015)	(0.015)
Strongly Agree, Job Loss	—	—	—	—	0.069**
					(0.028)
Agree, Job Loss	—	—	—	—	0.040**
					(0.016)
Disagree, Job Loss	—	—	—	—	-0.038**
					(0.017)
Strongly Disagree, Job Loss	—	—	—	—	-0.043***
					(0.011)
Observations	42,789	42,789	42,789	42,789	42,789
R-squared	0.002	0.008	0.013	0.021	0.026

Note: Data are from the Canadian General Social Survey (2016) and ICC-2020. Robust SE in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 3: GENDER GAPS IN CONCERNS ABOUT VARIOUS ASPECTS OF LIFE AFTER COVID-19

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Female	0.034***	0.016*	0.061***	0.118***	0.128***	0.090***	0.050***	0.030***	0.050***	0.060***	0.066***	0.003**	0.011**
	(0.006)	(0.009)	(0.004)	(0.007)	(0.012)	(0.008)	(0.005)	(0.004)	(0.003)	(0.006)	(0.008)	(0.001)	(0.004)
Obs.	32,466	32,466	32,466	32,466	32,466	32,466	32,466	32,466	32,466	32,466	32,466	32,466	32,466
R^2	0.026	0.023	0.034	0.027	0.028	0.022	0.040	0.020	0.032	0.040	0.045	0.016	0.243

Note: Data are from Statistics Canada ICC-2020. Controls identical to those in Column (5) of Tables 2-3 (suppressed). Robust SE in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

cial worry provides some support that the gender differences in "safetyism" might also be at play as a culprit, where the safetyism is often associated with the highly educated and the affluent (Haidt 2024). Regardless of the underlying reason, the results suggest that, at least in the Canadian context, the reactions to global crises such as this unprecedented pandemic are gender-specific. And, women were more affected, highlighting the need for targeted support. Financial stability seemed to protect men from psychological impacts more than women, who showed greater concerns for broader societal issues. These greater concerns likely contributed to mental health disparities observed between men and women. The non-financial impacts of the pandemic were social isolation, uncertainty and fear for future, and disrupted routines, more strongly impactful for women. Hence, policymakers should not only address economic vulnerabilities that affect men more than women. In addition, public health campaigns can promote and provide community support directed toward women.

5 Disclosure Statement

- **Ethics approval and consent to participate:** Not applicable.
- **Competing interests:** The author(s) declare no conflict of interest.
- **Funding:** This study was not externally funded.
- **Availability of data and materials:** The paper employs public use microdata files of the Canadian General Social Survey and the Survey on the Impact of COVID-19 on Canadians, both collected by Statistics Canada. These data are available through Canadian universities' libraries.

A Appendices

Avilible on the ACER-RECA website.

References

Alacevich, C., Thalmann, I., Nicodemo, C., de Lusignan, S., & Petrou, S. (2023). Symptomatic SARS-CoV-2 Episodes and Health-Related Quality of Life. *Applied Health Economics and Health Policy,* DOI: https://doi.org/10.1007/s40258-023-00810-y (Accessed 17 January 2024).

Alfano, V. (2022). The effects of school closures on COVID-19: A cross-country panel analysis. *Applied Health Economics and Health Policy, 20*(2), 223-233.

Alfano, V., & Ercolano, S. (2020). The efficacy of lockdown against COVID-19: a cross-country panel analysis. *Applied health economics and health policy, 18,* 509-517.

Borrescio-Higa, F., & Valenzuela, P. (2021). Gender inequality and mental health during the COVID-19 pandemic. *International journal of public health*, 66, 1604220.

Bryson, A., & Blanchflower, D. (2022). COVID and Mental Health in America. *PLoS One, 17*(7). DOI: 10.1371/journal.pone.0269855 (Accessed 17 January 2024).

Cerda, A. A., & García, L. Y. (2021). Willingness to pay for a COVID-19 vaccine. *Applied health economics and health policy, 19,* 343-351.

Charness, G., & Gneezy, U. (2012). Strong evidence for gender differences in risk taking. *Journal of economic behavior & organization, 83(*1), 50-58.

Chatmon, B. N. (2020). Males and mental health stigma. *American journal of men's health, 14*(4), doi: https://doi.org/10.1177/1557988320949322

Dal Santo, T., Sun, Y., Wu, Y., He, C., Wang, Y., Jiang, X., ... & Thombs, B. D. (2022). Systematic review of mental health symptom changes by sex or gender in early-COVID-19 compared to pre-pandemic. *Scientific Reports, 12*(1), 11417

Davis, G. (2021). The many ways COVID-19 affects households: consumption, time, and health outcomes. *Review of Economics of the Household, 19,* 281-289.

de Castro Neves, H. (2025). The Anxious Generation Theory and Generation Z Behaviour in the Workplace: A Correlation Analysis. *International Journal of Business Administration, 16(*1). doi: 10.5430/ijba.v16n1p74

Dlamini, N. J. (2021). Gender-based violence, twin pandemic to COVID-19. *Critical Sociology, 47(4-5)*, 583-590.

Dilmaghani, M. (2021a). The fast and the female: gender differences in wellbeing and wage consequences of commute impedance. *Transportation research part F: traffic psychology and behaviour*, 80, 295-312.

Dilmaghani, M. (2021b). There is a time and a place for work: comparative evaluation of flexible work arrangements in Canada. *International Journal of Manpower*, 42(1), 167-192.

Fatmi, M. R. (2020). COVID-19 impact on urban mobility. *Journal of Urban Management, 9*(3), 270-275.

Ferrer-i-Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness?. *The Economic Journal*, *114*(497), 641-659.

Gandjour, A. (2021). How many intensive care beds are justifiable for hospital pandemic preparedness? A cost-effectiveness analysis for COVID-19 in Germany. *Applied Health Economics and Health Policy, 19*, 181-190.

Golden, T. D., & Veiga, J. F. (2005). The impact of extent of telecommuting on job satisfaction: Resolving inconsistent findings. *Journal of Management, 31*(2), 301-318.

Haider, M., & Anwar, A. I. (2023). The prevalence of telework under Covid-19 in Canada. *Information Technology & People, 36*(1), 196-223.

Haidt, J. (2024). *The anxious generation: How the great rewiring of childhood is causing an epidemic of mental illness*. New York, NY: Penguin.

Hamermesh, D. S. (2020). Life satisfaction, loneliness and togetherness, with an application to Covid-19 lock-downs. *Review of Economics of the Household, 18*(4), 983-1000.

Homaie Rad, E., Hajizadeh, M., Yazdi-Feyzabadi, V., Delavari, S., & Mohtasham-Amiri, Z. (2021). How much money should be paid for a patient to isolate during the COVID-19 outbreak? A Discrete Choice Experiment in Iran. *Applied Health Economics and Health Policy, 19,* 709-719.

Johansen, R., Espetvedt, M. N., Lyshol, H., Clench-Aas, J., & Myklestad, I. (2021). Mental distress among young adults–gender differences in the role of social support. *BMC public health, 21*, 1-14

Kamas, L., & Preston, A. (2021). Empathy, gender, and prosocial behavior. *Journal of Behavioral and Experimental Economics, 92*, 101654. Available at: http://tinyurl.com/4574nv7r (Accessed 17 January 2024).

Knabe, A., Schöb, R., & Weimann, J. (2016). Partnership, gender, and the well-being cost of unemployment. *Social Indicators Research*, *129*(3), 1255-1275.

Kroesen, M. (2022). Working from home during the corona-crisis is associated with higher subjective well-being for women with long (pre-corona) commutes. *Transportation Research Part A: Policy and Practice, 156,* 14-23.

Kumar, A., & Nayar, K. R. (2021). COVID-19 and its mental health consequences. *Journal of Mental Health, 30*(1), 1-2.

Lemieux, T., Milligan, K., Schirle, T., & Skuterud, M. (2020). Initial impacts of the COVID-19 pandemic on the Canadian labour market. *Canadian Public Policy, 46(*S1), S55-S65.

Ng, Y. K. (1997). A case for happiness, cardinalism, and interpersonal comparability. *The Economic Journal*, *107*(445), 1848-1858.

Olsson, M. I., Froehlich, L., Dorrough, A. R., & Martiny, S. E. (2021). The hers and his of prosociality across 10 countries. *British Journal of Social Psychology, 60*(4), 1330-1349.

Pongou, R., Ahinkorah, B. O., Maltais, S., Mabeu, M. C., Agarwal, A., & Yaya, S. (2022). Psychological distress during the COVID-19 pandemic in Canada. *Plos One, 17*(11), e0277238.

Proto, E., & Quintana-Domeque, C. (2021). COVID-19 and mental health deterioration by ethnicity and gender in the UK. *PloS one, 16*(1), e0244419.

Roberts, J., Hodgson, R., & Dolan, P. (2011). "It's driving her mad": Gender differences in the effects of commuting on psychological health. *Journal of Health Economics*, *30*(5), 1064-1076.

Soofi, M., Najafi, F., & Karami-Matin, B. (2020). Using insights from behavioral economics to mitigate the spread of COVID-19. *Applied health economics and health policy, 18,* 345-350.

Statistics Canada, (2017a). *The General Social Survey:*

An Overview, Available at: https://tinyurl.com/om4jmgj (Accessed 17 January 2024).

Statistics Canada, (2017b). General Social Survey: Canadians at Work and Home (GSS), Available at: https://tinyurl.com/y7w7wu2z (Accessed 17 January 2024).

Statistics Canada, (2020). *Crowdsourcing: Impacts of COVID-19 on Canadians Public Use Microdata File*, Available at: https://tinyurl.com/yauk4cum (Accessed 17 January 2024).

Usher, K., Bradbury Jones, C., Bhullar, N., Durkin, D. J., Gyamfi, N., Fatema, S. R., & Jackson, D. (2021). COVID-19 and family violence: Is this a perfect storm?. *International journal of mental health nursing, 30*(4), 1022-1032.

Veldwijk, J., van Exel, J., de Bekker-Grob, E. W., & Mouter, N. (2023). Public Preferences for Introducing a COVID-19 Certificate: A Discrete Choice Experiment in the Netherlands. *Applied Health Economics and Health Policy*, doi: https://doi.org/10.1007/s40258-023-00808-6