Psychological distress and suicidal behaviours in Indigenous and non-Indigenous adults living off-reserve in Canada: What explains the differences?

| Abstract: | BACKGROUND: Indigenous peoples are disproportionately affected by mental health issues in Canada. We investigated factors underlying the difference in psychological distress and suicidal behaviours between Indigenous peoples living off-reserve in Canada and the non-Indigenous population.

METHODS: Using data from the 2012 Canadian Community Health Survey – Mental Health we measured the variation in psychological distress (10-item Kessler Psychological Distress Scale [K10] scores, ranging from 10 [no distress] to 50 [severe distress]) and the prevalence of lifetime suicidal ideation and suicide plan between the two populations and explained these differences using the Blinder–Oaxaca approach.

RESULTS: Among 18,300 representing 18,573,280 adults (aged≥18 yr), we found higher mean scores of psychological distress among Indigenous peoples compared to the non-Indigenous population (16.04 v. 15.05, P<0.001), and a higher prevalence of lifetime suicidal ideation (9.2% v. 16.8%, P<0.001) and plan (2.3% v. 6.8%, P<0.001). Results indicated that 60% (women: 51.2%; men: 78.3%) of the variation in psychological distress was explained by the differences in demographic, socioeconomic and geographical factors between the two populations. The group differences in response to the characteristics and unobserved characteristics mainly explained the differences in suicidal behaviours. We found if socioeconomic status in Indigenous peoples were made to be similar to non-Indigenous population, the differences in mean distress |

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scores, prevalence of lifetime suicide ideation and plan would have been reduced by 25.7% (women: 20.8%; men 36.9%), 10.2% (women: 11.2%; men 11.9%) and 5.8% (women: 7.8%; men 8.1%), respectively.

INTERPRETATION: Improving socioeconomic covariates among Indigenous peoples through plans like income equalisation may reduce the gap in mental health outcomes between Indigenous and non-Indigenous populations in Canada.

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Title: Psychological distress and suicidal behaviours in Indigenous and non-Indigenous adults living off-reserve in Canada: What explains the differences?

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INTERPRETATION: Improving socioeconomic covariates among Indigenous peoples through plans like income equalisation may reduce the gap in mental health outcomes between Indigenous and non-Indigenous populations in Canada.

The historical, political and socioeconomic factors that uniquely affect Indigenous peoples have resulted in poorer health outcomes compared to non-Indigenous people in Canada.[1–8] Of particular concern is the disproportionate burden of mental health issues among Indigenous peoples.[9–11] A growing number of studies reveal the extent of inequality in physical health and mental health between Indigenous and non-Indigenous populations.[4,12–14]. For example, just under one-quarter of Inuit (23.5%) and First Nations adults living off-reserve (24.0%), and one in five Métis (19.6%) reported lifetime suicidal ideation, compared to just over one in ten among non-Indigenous adults.[15] Furthermore, a recent study[16] published in this journal uncovers inequalities in mental health outcomes *within* Indigenous peoples in Canada.

To assist effective policy making based on the emerging evidence of the extent of inequalities, it is critical to understand what explains these inequalities. Recent studies[16,17] highlighted the importance of social determinants of health in inequalities in health and mental health outcomes *within* Indigenous peoples in Canada. These studies show, for example, policies designed to address food insecurity may help reduce mental health issues among Indigenous peoples living off-reserve in Canada. Extending the increasing efforts to document and understand health inequalities faced by Indigenous populations, this study aims to explain inequalities in mental health outcomes *between* Indigenous peoples and the non-Indigenous population in Canada. We used data from the 2012 Canadian Community Health Survey – Mental Health (CCHS–MH) to quantify the extent and explain various demographic, socioeconomic and geographical factors that account for inequalities in psychological distress, suicidal ideation, and suicide plans *between* Indigenous peoples living off-reserve in Canada and non-Indigenous Canadians.

Methods

Sample

Data for the study derived from the 2012 CCHS–MH. This cross-sectional survey collected information on major mental health status and the provision of mental health care services from the Canadian population. The survey is a large nationally representative survey of individuals aged≥15 yr living in the ten provinces in Canada, except those living on reserves and other Indigenous settlements, full-time members of the Canadian Forces, and the institutionalized population. These exclusions approximately represent 3% of the target population. The response rate of the survey was 68.9%.[18]

Variables

The outcome variables included psychological distress, lifetime suicide ideation and lifetime suicide plan. The 10-item Kessler Psychological Distress Scale (K10, see Appendix A)[19] was used to identify psychological distress of individuals. The K10 is comprised of items evaluating psychological and physiological symptoms of depression and anxiety. The overall K10 scores range from 10 (no distress) to 50 (severe distress). The K10 is shown to be appropriate and valid for use in Indigenous populations living on and off-reserve in Canada.[19–22] Based on the information available in the CCHS–MH, we constructed two binary variables (yes or no) assessing lifetime suicidal ideation and suicide plan. Indigenous populations in this study refers to all Inuit, Métis and First Nations peoples living off-reserve in Canada. As per the existing literature[16,17,23–31] and availability of questions assessed in the CCHS–MH, we considered a variety of demographics (sex, age and marital status), socioeconomic (equivalized household income, education, employment status, household arrangement and homeownership status) and geographic (urbanicity and region) variables known to be associated with mental health outcomes. We equivalized annual household income by dividing it by the square root of household size.[32] Appendix B presents the definitions and descriptive statistics of all the variables used in the study.

Statistical Analysis

We first performed the ordinary least squares (OLS) and non-linear logit regressions to investigate the effect of determinants on the continuous psychological distress, and two binary suicidal behaviours, respectively. Subsequently, we used the Blinder-Oaxaca (BO) decomposition method[33,34] to understand the contribution of each factor to the overall differences in the three mental health outcomes between non-Indigenous and Indigenous peoples. The BO technique enabled us to decompose the observed gaps between Indigenous and non-Indigenous peoples into explained and unexplained components. The explained (endowment) component captures the part of the difference in a given outcome explained by differences between groups in the level of observed characteristics (determinants) that were assessed (i.e., demographic, socioeconomic and geographic variables). The unexplained component captures the portion attributable to differences in the effects (response or return) of these characteristics and unobserved determinants on the outcome of interest in non-Indigenous and Indigenous population. The absolute value of the explained component for income factor, for example, can determine how much the gap in the mean of psychological

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distress levels between non-Indigenous and Indigenous populations would have been reduced if the income of Indigenous peoples is set to be at the similar level of non-Indigenous Canadian, *ceteris paribus*.[33–35] We used the BO decomposition for a linear model to assess the differences in the mean psychological distress. An extended version of the BO technique for a non-linear logit model[35] was used to examine the difference in the prevalence of suicidal ideation and suicide plans. Appendix C provides a detailed description of our regression and decomposition analyses.

To acknowledge potential differential results by sex, we stratified all analyses by sex. The t-test and chi-square statistics were used to test the differences in continuous (i.e., psychological distress) and categorical (i.e., suicidal ideation and lifetime suicide plan) variables between non-Indigenous and Indigenous populations, respectively. We considered $p < 0.05$ as statistically significant. As per Statistics Canada's Research Data Centre guidelines, all analyses were weighted to represent all adults living off-reserve in Canada. We performed all the analyses in Stata 14.[36]

Ethics approval

We accessed the 2012 CCHS–MH through Statistics Canada's Atlantic Research Data Centre. Data accessed through the Research Data Centres, which follow strict disclosure protocols according to the *Statistics Act*, are exempt from research ethics board review based on the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) article 2.2 (a)*.

Results

Sample characteristics

The CCHS–MH contains information of 25,113 participants.[18] After we excluded individuals aged < 18 yr and individuals with missing values in outcomes or explanatory variables, our final sample consisted of 18,300 (Indigenous: 933 and non-Indigenous: 17,367) individuals, representing 18,573,280 (Indigenous: 754,982 and non-Indigenous: 17,818,298) individuals in Canada. The mean scores of psychological distress was higher in Indigenous compared to non-Indigenous populations (total: 16.04 v. 15.05, P<0.001; women: 16.53 v. 15.32, P=0.007; men: 15.59 v. 14.78, P=0.03). The prevalence of lifetime suicidal ideation (total: 16.80% v. 9.20%, P<0.001; women: 19.10% v. 9.69%, P<0.001; men: 14.60% v. 8.70%, P=0.005) and

lifetime suicide plan (total: 6.81% v. 2.23%, P<0.001; women: 7.73% v. 2.66%, P=0.008; men: 5.94% v. 1.98%, P=0.006) among Indigenous population was found to be higher than non-Indigenous Canadians (Table 1).

<<< Insert Table 1 here>>>

The Indigenous population in Canada was younger than in the non-Indigenous population. It is apparent that equivalised household annual income of Indigenous peoples (total: C$46,550; women: C$44,482; men: C$48,488) was less than non-Indigenous population (total: C$54,426; women: C$52,076; men: C$56,846). The educational level gap exists between the two groups with Indigenous peoples having lower educational attainment compared to their non-Indigenous population. While 61.9% (women: 55.9%; men: 68.2%) of non-Indigenous men were employed in Canada, this figure was 57.6% (women: 56.1%; men: 58.9%) in Indigenous population. The proportion of homeownership was higher in non-Indigenous as compared to Indigenous peoples living in Canada.

Determinants of psychological distress and suicidal behaviours

There were negative associations between age and mental health outcomes in both women and men. A one-year increase in age was associated with a decreased of 0.054 (women: 0.068; men: 0.043) points in distress score and 0.11 (women: 0.12; men: 0.09) percentage points in the probability of having lifetime suicide ideation. The probability of lifetime suicide plan also decreases by age among men. Higher-income level was a protective factor against all the three mental health outcomes in women and men. Psychological distress among employed individuals was lower compared to those unemployed and those with other employment status. Home ownership associated negatively with distress levels and lifetime suicide ideation. Compared to Ontario female residents, distress was found to be lower among the female residents of Quebec. Individuals residing in Prairie had higher probabilities of reporting lifetime suicide ideation. The probability of lifetime suicide plan was higher among men living in Quebec and Prairie provinces. After controlling for the difference in the observable factors, there was not statistically significant difference in distress level between the Indigenous and non-Indigenous populations. However, Indigenous peoples had higher probability of reporting lifetime suicide ideation and lifetime suicide plan after adjusting for the observable characteristics.

<<< Insert Table 2 here>>>

Explaining differences in psychological distress and suicidal behaviours

The mean score of the psychological distress for non-Indigenous population in Canada was found to be 0.992 (women: 1.208; men 0.814) points lower than their Indigenous counterparts. The BO decomposition results suggested the difference in the characteristics between the two groups explains 60% (women: 51.2%; men: 78.3%) of the difference in the mean score of psychological distress. Differential distribution of factors including age, household income, and homeownership between non-Indigenous and Indigenous population, has accounted for the higher mean score of psychological distress among Indigenous population. For example, if the Indigenous population had the same equalized household income as their non-Indigenous counterparts, the difference in the mean score of psychological distress could potentially decrease by 0.132 (women: 0.132; men: 0.133) points, *ceteris paribus* (Table 3 and Figure 1).

<<< Insert Table 3 and Figure 1 here>>>

The prevalence of lifetime suicide ideation for non-Indigenous in Canada was 7.57 (women: 9.39; men: 5.90) percentage points lower than their Indigenous counterparts. The decomposition results suggested that difference in the characteristics explained 23.5% (women: 22.5%; men 25.2%) of the difference in the prevalence of lifetime suicide ideation. The differential distribution of factors such as age, income and homeownership between the two groups contributed significantly to the difference in the prevalence of lifetime suicide ideation between Indigenous and non-Indigenous population. The difference in income and homeownership between the two groups explained 0.36 (women: 0.56; men: 0.22) and 0.25 (women: 0.27; men: 0.26) percentage points of the difference in the prevalence of lifetime suicide ideation, respectively (Table 2 and Figure 1). The prevalence of lifetime suicide plan for the non-Indigenous population in Canada was 4.48 (women: 5.07; men 3.96) percentage points lower than the Indigenous population in Canada. The decomposition results suggested statistically marginally significant contribution of explained components to the overall difference in the prevalence of lifetime suicide plan between Indigenous and non-Indigenous populations and between Indigenous and non-Indigenous men. If Indigenous people had the same observed characteristics as their non-Indigenous population in Canada, the difference in the prevalence of lifetime suicide would have been reduced by 9.8% (men:17.0 %). The differential distribution of factors in income between Indigenous and non-Indigenous peoples also contributed to the overall difference in the prevalence of lifetime suicide plan between

the two groups (Table 3 and Figure 1). The sizable contribution of the unexplained component to the overall gaps in suicide behaviours indicates that there are characteristics other than the variables in our model that affect suicide behaviours but that we are unable to observe or control.

Interpretation

Health inequalities between Indigenous and non-Indigenous populations continue to exist in Canada, despite calls to action to address these gaps.[37] One particularly concerning issue is the substantial differences in certain mental health outcomes between Indigenous and non-Indigenous peoples in Canada[38,39], which were observed in the current analyses of the 2012 CCHS–Mental Health Survey. Similar to our previous study using data from the 2012 Aboriginal Peoples Survey,[16] we showed a high prevalence of psychological distress and suicidal behaviours among Indigenous peoples living off-reserve in Canada. We found that mean psychological distress scores among Indigenous peoples was 6.59% higher compared to the non-Indigenous population. The prevalence of lifetime suicidal ideation (suicide plan) among Indigenous peoples was also found to be 1.61 (3) times higher than the corresponding figures for the non-Indigenous population.

Results indicated that the difference in the mean levels of psychological distress between Indigenous and non-Indigenous was mostly explained by the differences between groups in levels of the explanatory variables that were assessed, particularly for men. The differences in demographic factors accounted for a significant proportion of the differences in distress between Indigenous and the non-Indigenous. In particular, age differences between Indigenous and non-Indigenous adults accounts for one third of the overall gap in distress between the two groups. Age contributed to the differences in distress levels between the two groups because distress decreased with increasing age and Indigenous peoples are younger than non-Indigenous Canadian; thus, distress levels of Indigenous peoples would be less if Indigenous peoples had same age characteristics as non-Indigenous population. Socioeconomic factors also accounted for a quarter of the difference in distress levels between the two groups. Improving socioeconomic status of Indigenous peoples through plans like income equalisation may decrease the gap in psychological distress between Indigenous and non-Indigenous populations in Canada, particularly for men.

Unlike results for psychological distress, results for suicidal behaviours showed that the gaps in suicide behaviours between Indigenous and non-Indigenous populations largely come from differences in the effects of the characteristics and unobserved determinants. Still, our findings underscore the importance of role of socioeconomic factors in accounting for differences in the prevalence of lifetime suicidal ideation and suicide plan. For example, improving the income of Indigenous peoples to the level of the non-Indigenous population could potentially reduce the prevalence of suicidal ideation by 0.25 (i.e., 1,887 cases in our sample of 754,982) percentage points and suicide plan by 0.11 (i.e., 830 cases in our sample of 754,982) percentage points among Indigenous peoples.

Limitations

Our study is subject to at least five limitations. First, the CCHS–MH does not collect information from individuals living in institutions (e.g., hospitals, prisons) and other collective dwellings (e.g., shelters and group homes) in which there are a disproportionate number of Indigenous peoples who might be expected to have particularly high levels of psychological distress. Restriction of the survey to persons living in private dwellings omits many Indigenous peoples with high-risk of mental health issues.[40,41] Second, due to the unavailability in the CCHS–MH, we could not assess the impact of some determinants of mental health outcomes such as food insecurity, the long-term effects of residential schools and the child welfare system, and numerous additional cultural, historical and contemporary factors that are known to be important determinants of mental health outcomes specifically among Indigenous peoples. Third, some of the explanatory factors included in the analysis are likely to be endogenous, thus, may result in unknown bias into the findings. For example, we cannot distinguish whether being unemployed lead to a mental health issue and/or mental health issues results in unemployment. Fourth, we could not consider those who have died by suicide in our study, also disproportionately represented among Indigenous populations.[13] Fifth, we combined the three Indigenous populations to ensure a large enough number of Indigenous respondents for the analyses. Since there exist differences in mental health outcomes between and within the three Indigenous groups in Canada[16], further studies are required to examine the differences between non-Indigenous and specific Indigenous populations, separately.

Conclusion

High prevalence of psychological distress and suicide facing Indigenous peoples is considered a health priority in Canada. A consensus is that the solution must lie in holistic interventions that go beyond mainstream mental health care services and psychiatric medication[38,42,43] and address the social determinants of health.[42,43] Our study suggested that policies designed to improve major contributing socioeconomic determinant of health such as income may help reduce inequalities in mental health outcomes between Indigenous and non-Indigenous populations. The importance of focusing on the social determinants beyond mental health services is well recognized by First Nations, Inuit and Métis peoples and in the current literature in Canada,[44,45] where psychological distress and suicide are a grave public health concern over the past three decades despite increasing access to mental health care and use of psychiatric medications.

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12

Table 1: Summary statistics of variables used in the study

	Total			Women			Men		
	Non-Indigenous	Indigenous	P value	Non-Indigenous	Indigenous	P value	Non-Indigenous	Indigenous	P value
Outcome Variables									
Kessler psychological distress scale (K10)	15.052 (5.057)	16.044 (5.941)	< 0.001	15.321 (5.304)	16.529 (6.353)	0.007	14.775 (4.773)	15.589 (5.494)	0.03
Lifetime suicide ideation	0.0920	0.168	< 0.001	0.0969	0.191	< 0.001	0.087	0.146	0.005
Lifetime suicide plan	0.0232	0.0681	< 0.001	0.0266	0.0773	0.008	0.0198	0.0594	0.006
Explanatory variables									
Demographic Variables									
Age (year)	47.38 (17.92)	41.34 (15.51)	< 0.001	48.04 (18.23)	41.65 (15.02)	< 0.001	46.70 (17.58)	41.06 (15.97)	< 0.001
Marital Status									
Married or *de facto* married	0.621	0.597	0.37	0.606	0.576	0.37	0.636	0.616	0.62
Divorced or widowed	0.134	0.115	0.18	0.177	0.161	0.51	0.091	0.071	0.17
Single	0.245	0.289	0.07	0.217	0.263	0.09	0.273	0.313	0.30
Socioeconomic Variables									
Equivalized household income†	54,426.4 (87,062)	46,550 (37,582)	< 0.001	52,076 (111,102)	44,482 (32,837)	0.012	56,846 (51,634)	48,488 (41,485)	0.002
Education									
Less than high school	0.139	0.208	0.002	0.134	0.174	0.07	0.144	0.24	0.008
High school	0.174	0.164	0.62	0.177	0.203	0.50	0.172	0.126	0.06
Some post-secondary	0.0748	0.0699	0.66	0.075	0.084	0.56	0.075	0.057	0.23
Bachelor's degree or higher	0.612	0.558	0.06	0.615	0.539	0.04	0.609	0.577	0.45
Employment Status									
Employed	0.619	0.576	0.10	0.559	0.561	0.96	0.682	0.589	0.02
Unemployed	0.289	0.345	0.03	0.337	0.377	0.31	0.24	0.316	0.03
Other employment status	0.0915	0.0790	0.35	0.104	0.062	0.003	0.079	0.095	0.44
Homeownership									
Owner	0.771	0.662	< 0.001	0.764	0.627	< 0.001	0.778	0.694	0.004
Renter	0.229	0.338	< 0.001	0.236	0.373	< 0.001	0.222	0.306	0.004

13

Household Arrangement									
Single person	0.161	0.129	0.02	0.174	0.123	0.0051	0.148	0.135	0.50
Couple with no child	0.321	0.257	0.006	0.305	0.291	0.6681	0.337	0.225	0.001
Couple with child(ren) younger than 25	0.313	0.337	0.45	0.308	0.244	0.0118	0.317	0.424	0.03
Separate with Child younger than 25	0.0508	0.0757	0.04	0.067	0.121	0.009	0.035	0.033	0.88
Other household compositions	0.154	0.202	0.02	0.146	0.222	< 0.001	0.16	0.182	0.47
Geographical Factors									
Urbanicity									
Urban	0.776	0.783	0.76	0.211	0.207	0.89	0.238	0.227	0.74
Rural	0.224	0.217	0.76	0.789	0.793	0.89	0.762	0.773	0.74
Geographic Region									
Atlantic	0.089	0.095	0.57	0.091	0.094	0.84	0.087	0.096	0.53
Quebec	0.269	0.095	< 0.001	0.274	0.100	< 0.001	0.264	0.090	< 0.001
Ontario	0.353	0.322	0.34	0.355	0.263	0.03	0.350	0.376	0.57
Prairie	0.175	0.337	< 0.001	0.169	0.375	< 0.001	0.182	0.300	< 0.001
British Columbia	0.115	0.152	0.07	0.112	0.168	0.06	0.117	0.136	0.482
Observations	17367	933		9,535	514		7,832	419	
Represented Population	17,818,298	754,982		9,037,405	365,300		8,780,893	389,682	

Note: Values are proportions or means; Standard deviation for means are reported in brackets; Atlantic Canada includes the provinces of Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick; Prairie Canada includes the provinces of Manitoba, Saskatchewan, and Alberta

† Annual household income equivalized by dividing it by the square root of household size as per the Organisation for Economic Cooperation and Development (OECD) publications [32] and logged to correct for skewness in analyses.

Table 2: The coefficients and marginal effect obtained from the OLS and logit models for psychological distress scale, lifetime suicide ideation and lifetime suicide plan

Determinants	Psychological distress scale			lifetime suicide ideation			lifetime suicide plan		
	Total	Women	Men	Total	Women	Men	Total	Women	Men
	Coefficients	Coefficients	Coefficients	Marginal Effects	Marginal Effects	Marginal Effects	Marginal Effects	Marginal Effects	Marginal Effects
*Indigenous Identity (*Ref: Non-Indigenous)									
Indigenous	0.38	0.555	0.178	0.04120***	0.0505***	0.0335**	0.0205***	0.0258***	0.0149***
	(-0.206 to 0.966)	(-0.3211 to 1.4311)	(-0.608 to 0.964)	(0.0206 to 0.0618)	(0.0201 to 0.0809)	(0.0057 to 0.0613)	(0.0113 to 0.0297)	(0.0101 to 0.0415)	(0.0049 to 0.0249)
Demographic Variables									
Gender (Ref: Female)									
Male	-0.4470***			-0.0105			-0.0058		
	(-0.6959 to -0.1981)			(-0.0238 to 0.0028)			(-0.0131 to 0.0015)		
Age	-0.0540***	-0.0665***	-0.0403***	-0.0011***	-0.0012***	-0.0009***	-0.0002	-0.00007	-0.00032**
	(-0.065 to -0.043)	(-0.083 to -0.05)	(-0.0544 to -0.0262)	(-0.0017 to -0.0005)	(-0.002 to -0.0004)	(-0.0017 to -0.0001)	(-0.0004 to 0.0001)	(-0.0005 to 0.0003)	(-0.0005 to -0.0001)
Marital Status (Ref: Married or de facto married)									
Divorced or widowed	0.0273	-0.23	0.413	-0.0035	-0.0104	0.0096	-0.004	-0.0119	0.0034
	(-0.5587 to 0.6133)	(-1.0865 to 0.6265)	(-0.4337 to 1.2597)	(-0.0323 to 0.0253)	(-0.049 to 0.0282)	(-0.0292 to 0.0484)	(-0.0169 to 0.0089)	(-0.0293 to 0.0055)	(-0.0123 to 0.0191)
Single	0.0345	-0.527	0.565	0.002	-0.0109	0.0141	0.0017	-0.0023	0.0036
	(-0.4927 to 0.5617)	(-1.3326 to 0.2786)	(-0.1132 to 1.2432)	(-0.0237 to 0.0277)	(-0.0427 to 0.0209)	(-0.0237 to 0.0519)	(-0.0091 to 0.0125)	(-0.0148 to 0.0102)	(-0.0117 to 0.0189)
Socioeconomic Variables									
Log Equivalized Household Income	-0.7400***	-0.8250***	-0.6530***	-0.0109***	-0.0125**	-0.0105**	-0.0039***	-0.0052**	-0.0031*
	(-0.9237 to -0.5563)	(-1.0759 to -0.5741)	(-0.9156 to -0.3904)	(-0.0183 to -0.0035)	(-0.0231 to -0.0019)	(-0.0207 to -0.0003)	(-0.0068 to -0.001)	(-0.0097 to -0.0007)	(-0.0062 to 0)
Education (Ref: Less than high school)									
High school	-0.5640**	-0.697	-0.439	-0.0271*	-0.0333	-0.0196	-0.0121*	-0.0136	-0.0102*

15

	(-1.1128 to -0.0152)	(-1.6339 to 0.2399)	(-1.0525 to 0.1745)	(-0.0545 to 0.0003)	(-0.075 to 0.0084)	(-0.0545 to 0.0153)	(-0.0248 to 0.0006)	(-0.0383 to 0.0111)	(-0.0204 to 0)
Some post-secondary	0.391	-0.428	1.1510***	-0.0292*	-0.0265	-0.0279	-0.0095	-0.014	-0.0046
	(-0.2852 to 1.0672)	(-1.5158 to 0.6598)	(0.369 to 1.933)	(-0.0637 to 0.0053)	(-0.0798 to 0.0268)	(-0.0702 to 0.0144)	(-0.0238 to 0.0048)	(-0.0422 to 0.0142)	(-0.0169 to 0.0077)
Bachelor's degree or higher	-0.371	-0.603	-0.138	-0.0201	-0.0127	-0.0254*	-0.0031	-0.00305	-0.0026
	(-0.8571 to 0.1151)	(-1.4928 to 0.2868)	(-0.6006 to 0.3246)	(-0.0452 to 0.005)	(-0.0521 to 0.0267)	(-0.0556 to 0.0048)	(-0.0156 to 0.0094)	(-0.0291 to 0.023)	(-0.0104 to 0.0052)
Employment Status (Ref: Employed)									
Unemployed	0.4520***	0.304	0.6220***	0.0002	-0.0009	-0.0014	0.0015	-0.0041	0.0060*
	(0.1443 to 0.7597)	(-0.1272 to 0.7352)	(0.2202 to 1.0238)	(-0.0153 to 0.0157)	(-0.0242 to 0.0224)	(-0.0222 to 0.0194)	(-0.0061 to 0.0091)	(-0.0178 to 0.0096)	(-0.0013 to 0.0133)
Other employment status	1.6880***	1.8060***	1.6610***	-0.0173	-0.0287	-0.0049	-0.0015	-0.0087	0.00543
	(1.1549 to 2.2211)	(1.0122 to 2.5998)	(0.9456 to 2.3764)	(-0.0469 to 0.0123)	(-0.0708 to 0.0134)	(-0.0451 to 0.0353)	(-0.015 to 0.012)	(-0.0344 to 0.017)	(-0.0055 to 0.0164)
Homeownership (Ref: Owner)									
Renter	0.6210***	0.6620***	0.5760**	0.0262***	0.0351***	0.0157	0.0046	0.0074	0.0017
	(0.2839 to 0.9581)	(0.2034 to 1.1206)	(0.088 to 1.064)	(0.0111 to 0.0413)	(0.0124 to 0.0578)	(-0.0045 to 0.0359)	(-0.0025 to 0.0117)	(-0.0036 to 0.0184)	(-0.0075 to 0.0109)
Household Arrangement (Ref: Single person)									
Couple with no child	-0.101	-0.0281	-0.166	-0.0287**	-0.0267	-0.0286	-0.0141**	-0.0174**	-0.0108
	(-0.6498 to 0.4478)	(-0.8591 to 0.8029)	(-0.8912 to 0.5592)	(-0.0556 to -0.0018)	(-0.062 to 0.0086)	(-0.0672 to 0.01)	(-0.0264 to -0.0018)	(-0.0339 to -0.0009)	(-0.0265 to 0.0049)
Couple with child(ren) younger than 25	-0.429	-0.707*	-0.104	-0.0385***	-0.0332*	-0.0414**	-0.0159**	-0.0158	-0.0150**
	(-0.9798 to 0.1218)	(-1.5145 to 0.1005)	(-0.8625 to 0.6545)	(-0.0657 to -0.0113)	(-0.0699 to 0.0035)	(-0.0798 to -0.003)	(-0.0282 to -0.0036)	(-0.0354 to 0.0038)	(-0.0293 to -0.0007)
Separate with a child(ren) younger	0.0031	-0.056	0.132	-0.0209	-0.0074	-0.0437**	-0.0071	-0.0008	-0.0167**
	(-0.6457 to 0.6519)	(-0.9047 to 0.7927)	(-0.8441 to 1.1081)	(-0.0505 to 0.0087)	(-0.048 to 0.0332)	(-0.0849 to -0.0025)	(-0.0177 to 0.0035)	(-0.0171 to 0.0155)	(-0.032 to -0.0014)
Other household compositions	0.7000***	0.5720*	0.9170**	-0.0220**	-0.0243	-0.019	-0.0096**	-0.0116	-0.0070*
	(0.2061 to 1.1939)	(-0.065 to 1.209)	(0.1506 to 1.6834)	(-0.0402 to -0.0038)	(-0.0533 to 0.0047)	(-0.0417 to 0.0037)	(-0.0178 to -0.0014)	(-0.0273 to 0.0041)	(-0.0148 to 0.0008)

Geographical Factors									
Urbanicity (Ref: Rural)									
Urban	0.0567	0.0288	0.105	0.0111	0.0001	0.0225**	0.0049	0.0047	0.0045
	(-0.2785 to 0.3919)	(-0.4612 to 0.5188)	(-0.334 to 0.544)	(-0.006 to 0.0282)	(-0.0252 to 0.0254)	(0.0009 to 0.0441)	(-0.0037 to 0.0135)	(-0.01 to 0.0194)	(-0.0033 to 0.0123)
Geographic Region (Ref: Ontario)									
Atlantic	-0.174	-0.0054	-0.338	-0.0059	-0.0205	0.0076	-0.0019	-0.0081	0.0034
	(-0.5268 to 0.1788)	(-0.5444 to 0.5336)	(-0.7849 to 0.1089)	(-0.0245 to 0.0127)	(-0.0489 to 0.0079)	(-0.0161 to 0.0313)	(-0.0099 to 0.0061)	(-0.0212 to 0.005)	(-0.0052 to 0.012)
Quebec	-0.09	0.375	-0.5750**	0.0112	-0.0026	0.0251*	0.0086	0.0075	0.0091**
	(-0.4506 to 0.2706)	(-0.1856 to 0.9356)	(-1.016 to -0.134)	(-0.0092 to 0.0316)	(-0.0334 to 0.0282)	(-0.0004 to 0.0506)	(-0.0016 to 0.0188)	(-0.0097 to 0.0247)	(0.0008 to 0.0174)
Prairie	0.126	0.171	0.0995	0.0176**	0.0027	0.0313***	0.0071*	-0.0009	0.0131**
	(-0.2229 to 0.4749)	(-0.3366 to 0.6786)	(-0.3748 to 0.5738)	(0.0007 to 0.0345)	(-0.0214 to 0.0268)	(0.008 to 0.0546)	(-0.0011 to 0.0153)	(-0.0119 to 0.0101)	(0.0021 to 0.0241)
British Columbia	-0.128	0.0243	-0.25	0.0191*	0.0152	0.0221	0.0046	0.0024	0.0063
	(-0.5063 to 0.2503)	(-0.5304 to 0.579)	(-0.7596 to 0.2596)	(-0.0005 to 0.0387)	(-0.0134 to 0.0438)	(-0.0053 to 0.0495)	(-0.0052 to 0.0144)	(-0.0121 to 0.0169)	(-0.0035 to 0.0161)
Constant	15.6000***	17.4700***	13.1800***						
	(13.1892 to 18.0108)	(13.944 to 20.996)	(10.0009 to 16.3591)						
Observations	18,300	10,049	8,251	18,300	10,049	8,251	18,300	10,049	8,251

Notes: Ref. = reference category in the OLS and logit model estimations.; Coefficients and marginal effects are calculated at the means of the independent variables; *** $p<0.01$, ** $p<0.05$, * $p<0.1$; 95% confidence intervals are presented in brackets.

17

Table 3: Decomposition of the differences in psychological distress scale and the prevalence of lifetime suicidal ideation and suicide plan between Indigenous peoples living off-reserve in Canada and the non-Indigenous population

	Psychological distress scale			Lifetime suicide ideation			Lifetime suicide plan		
	Total	Women	Men	Total	Women	Men	Total	Women	Men
Differences explained due to characteristics†									
Gender	0.0104			0.0002			0.0002		
Age	-0.3250	-0.4360	-0.2150	-0.0079	-0.0082	-0.0071	-0.0016	-0.0002	-0.0030
Marital Status	0.0002	0.0244	-0.0146	-0.0001	0.0005	-0.0003	-0.0002	-0.0001	-0.0001
Income	-0.1320	-0.1320	-0.1330	-0.0025	-0.0027	-0.0026	-0.0011	-0.0016	-0.0008
Education	-0.0230	-0.0247	-0.0053	-0.0023	-0.0003	-0.0034	-0.0007	0.0001	-0.0010
Employment Status	-0.0023	0.0687	-0.0745	-0.0001	-0.0016	0.0001	0.0000	-0.0003	-0.0011
Homeownership	-0.0676	-0.0816	-0.0542	-0.0036	-0.0056	-0.0022	-0.0008	-0.0018	-0.0004
Household Arrangement	-0.0304	-0.0820	-0.0331	0.0008	-0.0003	0.0011	0.0000	-0.0004	0.0001
Urbanicity	-0.0002	-0.0001	-0.0007	-0.0001	0.0000	-0.0003	-0.0001	0.0000	-0.0001
Geographic Region	-0.0251	0.0443	-0.1070	-0.0022	-0.0028	-0.0001	-0.0002	0.0014	-0.0004
Sum explained	-0.5950***	-0.6190***	-0.6370***	-0.0179***	-0.0209***	-0.0149***	-0.0042***	-0.0030	-0.0068**
Differences not explained by the characteristics (sum unexplained)	-0.3970	-0.5890	-0.1770	-0.0577***	-0.0730***	-0.0441**	-0.0404***	-0.0477***	-0.0329**
Differences: Non-Indigenous - Indigenous	-0.992***	-1.208***	-0.814**	-0.0757***	-0.0939***	-0.0590***	-0.0448***	-0.0507***	-0.0396***

Note: Detailed results of decomposition analyses can be found in Appendices D, E and F.

*** p<0.01, ** p<0.05, * p<0.1

† Negative (positive) value for each characteristic indicates the absolute value of the difference that could have been reduced (increased) if that characteristic for Indigenous peoples were made to be identical to the non-Indigenous population. For example, if the annual equivalized income for Indigenous adults increased to the level of non-Indigenous population, the difference in the psychological distress scale between the two groups could have been decreased by 0.1320 points.

18

Figure 1: Percentage point contribution of explained and unexplained component to the differences in psychological distress scale and the prevalence of lifetime suicidal ideation and suicide plan between Indigenous peoples living off-reserve in Canada and the non-Indigenous population
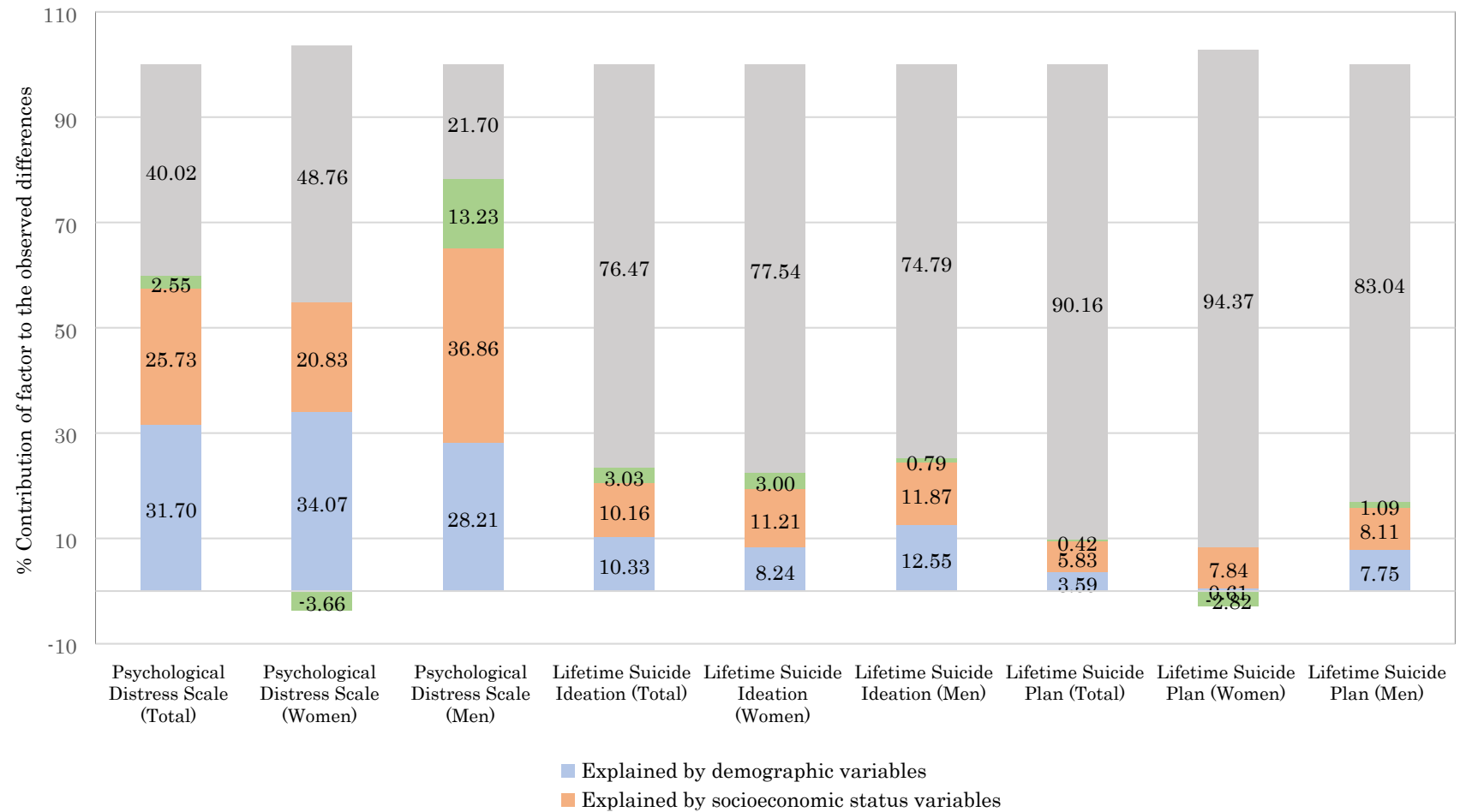
Note: Percentage point contributions of explained component were calculated by dividing the sum of the contribution of all variables in each category by the total difference in the corresponding mental health outcome.

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Supplementary File

Appendix A: Kessler Psychological Distress Scale (K10)

Please select the answer that is correct for you:	All of the time (score 5)	Most of the time (score 4)	Some of the time (score 3)	A little of the time (score 2)	None of the time (score 1)
1. In the past 4 weeks, about how often did you feel tired out for no good reason?					
2. In the past 4 weeks, about how often did you feel nervous?					
3. In the past 4 weeks, about how often did you feel so nervous that nothing could calm you down?					
4. In the past 4 weeks, about how often did you feel hopeless?					
5. In the past 4 weeks, about how often did you feel restless or fidgety?					
6. In the past 4 weeks, about how often did you feel so restless you could not sit still?					
7. In the past 4 weeks, about how often did you feel depressed?					
8. In the past 4 weeks, about how often did you feel that everything was an effort?					
9. In the past 4 weeks, about how often did you feel so sad that nothing could cheer you up?					
10. In the past 4 weeks, about how often did you feel worthless?					

Source: Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SLT et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med* 2002; **32**: 959–76.

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Appendix B: The definition variables used in the study

Variables	Description
Outcome Variables	
Psychological distress scale	The Kessler Psychological Distress Scale (K10) score: continuous variable ranging between 10 and 50
Lifetime suicide ideation	1 = if the individual ever considered suicide in the lifetime, 0 otherwise
Lifetime suicide plan	1 = if the individual ever planned suicide in the lifetime, 0 otherwise
Demographic Variables	
Indigenous Identity	
Indigenous	1 = if the individual is self-identified as an Indigenous person, 0 otherwise
Non-Indigenous	1 = if the individual is self-identified as a non-Indigenous person, 0 otherwise
Sex	
Male	1 = if the individual is male, 0 otherwise
Female	1 = if the individual is male, 0 otherwise
Age	Age of the individual in years
Marital Status	
Married or *de facto* married	1 = if the individual is married or de facto married, 0 otherwise
Divorced or widowed	1 = if the individual is divorced or widowed, 0 otherwise
Single	1 = if the individual is single, 0 otherwise
Socioeconomic Variables	
Equivalized Household Income	Household income divided by the square root of household size
Education	
Less than high school	1 = if the individual has less than secondary education, 0 otherwise
High school	1 = if the individual has secondary education, 0 otherwise
Some post-secondary	1 = if the individual has some post-secondary education, 0 otherwise
Bachelor's degree or higher	1 = if the individual has post-secondary degree/diploma, 0 otherwise
Employment Status	
Employed	1 = if the individual is employed, 0 otherwise
Unemployed	1 = if the individual is unemployed, 0 otherwise
Other employment status	1 = if the individual is not in labour force or unable to work, 0 otherwise
Homeownership	
Owner	1 = if the individual owns the dwelling, 0 otherwise

3

Renter	1 = if the individual rents the dwelling, 0 otherwise
Household Arrangement	
Single person	1 = if the household composition is single person, 0 otherwise
Couple with no child	1 = if the household composition is couple with no child, 0 otherwise
Couple with child(ren) younger than 25	1 = if the household composition is couple with a child(ren) less than 25, 0 otherwise
Separate with Child younger than 25	1 = if the household composition is separate with child(ren) less than 25, 0 otherwise
Other household compositions	1 = if the household composition is other, 0 otherwise

Geographical Factors

Urbanicity	
Urban	1 = if the individual resides in an urban area, 0 otherwise
Rural	1 = if the individual resides in a rural area, 0 otherwise
Geographic Region	
Atlantic (AT)	1 = if the individual resides in Newfoundland and Labrador (NL), Prince Edward Island (PEI), Nova Scotia (NS) and New Brunswick (NB), 0 otherwise
Quebec (QC)	1 = if the individual resides in QC, 0 otherwise
Ontario (ON)	1 = if the individual resides in ON, 0 otherwise
Prairie (PR)	1 = if the individual resides in Manitoba (MB), Saskatchewan (SK), and Alberta (AB), 0 otherwise
British Columbia (BC)	1 = if the individual resides in BC, 0 otherwise

Appendix C: Detailed Statistical Analysis

Regression Analysis

We first performed regression analyses to examine the determinants of the three main mental health outcomes, including psychological distress scale, lifetime suicidal ideation and lifetime suicide plan. We assessed the differences in psychological distress and suicidal behaviour between Indigenous populations living off-reserve and non-Indigenous population in Canada using the following equation:

$$Y_i = \alpha_0 + \alpha_1 Indigenous_i + \beta X_i + \mu_i. \tag{1}$$

In Equation 1, Y_i denotes the outcome variable for person i, α_0 is the intercept, α_1 is the coefficient on the dummy variable for Indigenous people, X_i is a vector of other control variables (demographic, socioeconomic and geographic factors) and μ_i is the error term. We performed the ordinary least squares (OLS) and non-linear logit models to investigate the effect of determinants on the continuous psychological distress, and two binary suicidal behaviours, respectively.

The Blinder–Oaxaca Decomposition

We employed the Blinder-Oaxaca (BO) decomposition method (1,2) to understand the contribution of each factor to the overall differences in the three mental health outcomes between non-Indigenous and Indigenous peoples. The BO technique enabled us to decompose the observed gaps between Indigenous and non-Indigenous peoples into explained and unexplained components. The explained (endowment) component captures the part of the difference in a given outcome explained by differences between groups in the level of observed characteristics (determinants) that were assessed (i.e., demographic, socioeconomic and geographic variables). The unexplained (response or return) component captures the portion attributable to differences in the effects of these characteristics and unobserved determinants on the outcome of interest in non-Indigenous and Indigenous population. The absolute value of the explained component for income factor, for example, can determine how much the gap in the mean of psychological distress levels between non-Indigenous and Indigenous population would reduce if the income of Indigenous peoples is set to be at the similar level of non-Indigenous Canadian, *ceteris paribus* (1–3).

We applied the two-fold BO decomposition and assume Indigenous peoples have comparative disadvantages than non-Indigenous peoples in relation to the three mental health outcomes being assessed.[1] We considered that the psychological issues among Indigenous peoples and non-Indigenous peoples are related to vectors of demographic, socioeconomic and geographic factors for Indigenous and non-Indigenous peoples, respectively) as follows:

$$Y_{Ii} = \alpha_I + X_{Ii}\beta_I + \mu_{Ii} \quad \text{and} \quad Y_{Ni} = \alpha_N + X_{Ni}\beta_N + \mu_{Ni}. \tag{2}$$

Where α_I and α_N are intercepts. β_I and β_N are the coefficients indicating the effect of the observable characteristics on mental health outcomes, and μ_{Ii} and μ_{Ni} are error terms with zero expected value. If we take the expectations of non-Indigenous and Indigenous peoples' mental health outcomes and subtract the expected values between the two groups, we can get Equation 3.[2]

$$Diff = \overline{Y}_N - \overline{Y}_I = \alpha_N + \overline{X}_N\beta_N - \alpha_I - \overline{X}_I\beta_I. \tag{3}$$

Adding and subtracting the term $\overline{X}_I\beta_N$ in Equation 3 leads to:

$$Diff = (\overline{X}_N - \overline{X}_I)\beta_N + \overline{X}_I(\beta_N - \beta_I) + (\alpha_N - \alpha_I). \tag{4}$$

The first component in Equation 4, $(\overline{X}_N - \overline{X}_I)\beta_N$, is the explained component and represents the difference in the given mental health outcome between two groups that is explained by variation in the mean level of observable characteristics. The second component, $\overline{X}_I(\beta_N - \beta_I) + (\alpha_N - \alpha_I)$, indicates the unexplained component and represents the difference in the outcome of interest that is due to differences in returns to observable and unobserved characteristics on the outcome of interest between two groups.

We used the BO decomposition for a linear model to assess the differences in the mean psychological distress. The extended version of the BO technique for a non-linear logit model (3) was used to examine the difference in the prevalence of suicidal ideation and suicide plans. Past studies have highlighted certain issues related to the choice of the reference group when dummy or categorical variables used in the decomposition analysis (4–6). Specifically, the

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[1] Two-fold OB decomposition assumes there is a potential disadvantage (negative discrimination) on Indigenous' psychological outcomes and there is no advantage (positive discrimination) for non-Indigenous peoples.

[2] We assume there is a comparative disadvantage against Indigenous peoples' psychological health, comparing to non-Indigenous peoples. Since the average levels of mental health outcome variables for Indigenous peoples are higher than their non-Indigenous counterparts, the difference in Equation 3 is negative.

6

estimated coefficients are sensitive to the choice of the base category when using a categorical variable in the model; thus, the decomposition results vary by altering the base group. To overcome this problem, we applied the deviation contrast transformation to each set of categorical variables and restricted the coefficients for the same set of categorical variables sum up to zero (normalize). The results are equal to the simple averages of the results we would get from a series of decompositions in which the categories are used one after another as the reference category. This approach overcomes the issue related to the choice of the reference category as the contribution of a categorical predictor to the unexplained part of the decomposition does not depend on the choice of the reference category.

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Appendix D: Detailed Blinder-Oaxaca decomposition results for psychological distress scale

	Total			Women			Men		
	Coefficients	Blinder-Oaxaca		Coefficients	Blinder-Oaxaca		Coefficients	Blinder-Oaxaca	
		Explained	Unexplained		Explained	Unexplained		Explained	Unexplained
Indigenous Identity									
Indigenous	0.3800 (0.2990)			0.5550 (0.4470)			0.1780 (0.4010)		
Non-Indigenous (Ref.)									
Demographic Variables									
Gender									
Male	-0.4470*** (0.1270)	0.0052*** (0.0015)	0.0126 (0.1380)						
Female		0.0052*** (0.0015)	-0.0118 (0.1290)						
Age	-0.0540*** (0.0056)	-0.3250*** (0.0345)	0.1430 (1.059)	-0.0665*** (0.0084)	-0.4360*** (0.0544)	-2.0920 (1.5940)	-0.0403*** (0.0072)	-0.2150*** (0.0417)	2.2810* (1.2030)
Marital Status									
Married or *de facto* married (Ref.)		0.0007 (0.0043)	0.7190** (0.3430)		0.0100 (0.0079)	1.1270** (0.5740)		-0.0065 (0.0048)	0.0121 (0.4180)
Divorced or widowed	0.0273 (0.2990)	-0.0006 (0.0031)	-0.1070 (0.0820)	-0.2300 (0.4370)	-0.0002 (0.0034)	-0.2050 (0.1720)	0.4130 (0.4320)	0.0017 (0.0047)	-0.0165 (0.0585)
Single	0.0345 (0.2690)	6.48e-05 (0.006)	-0.0777 (0.1770)	-0.5270 (0.4110)	0.0146 (0.0094)	-0.1790 (0.2240)	0.5650 (0.3460)	-0.0098 (0.0071)	0.0666 (0.2190)
Socioeconomic Variables									
Log Equivalized Household Income	-0.7400*** (0.0937)	-0.1320*** (0.0179)	9.6550** (4.7570)	-0.8250*** (0.1280)	-0.1320*** (0.0219)	9.8070 (6.7930)	-0.6530*** (0.1340)	-0.1330*** (0.0287)	7.3490 (5.7150)
Education									
Less than high school (Ref.)		-0.0086 (0.0137)	0.0384 (0.1270)		-0.0153 (0.0142)	-0.0110 (0.1500)		0.0116 (0.0184)	0.1800 (0.1930)
High school	-0.5640** (0.2800)	-0.0046*** (0.0017)	0.0264 (0.1110)	-0.6970 (0.4780)	0.0062 (0.0057)	0.0685 (0.1990)	-0.4390 (0.3130)	-0.0264*** (0.0096)	0.0058 (0.1030)
Some post-secondary	0.3910 (0.3450)	0.0026** (0.0010)	-0.0145 (0.0522)	-0.4280 (0.5550)	-0.0005 (0.0029)	0.0464 (0.0664)	1.1510*** (0.3990)	0.0175*** (0.0052)	-0.0952 (0.0681)
Bachelor's degree or higher	-0.3710 (0.2480)	-0.0124** (0.0062)	-0.0776 (0.2650)	-0.6030 (0.4540)	-0.0151 (0.0139)	-0.4450 (0.3320)	-0.1380 (0.2360)	-0.0080* (0.0046)	0.5090 (0.3920)
Employment Status									
Employed (Ref.)		-0.0314*** (0.0055)	-0.0511 (0.2990)		0.0015** (0.0007)	-0.1570 (0.4280)		-0.0705*** (0.0153)	-0.0890 (0.3730)
Unemployed	0.4520*** (0.1570)	0.0165*** (0.0064)	-0.2320 (0.1730)	0.3040 (0.2200)	0.0182*** (0.0066)	-0.5560* (0.3020)	0.6220*** (0.2050)	0.0107 (0.0113)	-0.0112 (0.1930)
Other employment status	1.6880*** (0.2720)	0.0126*** (0.0022)	0.0601 (0.0616)	1.8060*** (0.4050)	0.0490*** (0.0108)	0.1090 (0.0762)	1.6610*** (0.3650)	-0.0147*** (0.0038)	0.0177 (0.0908)
Homeownership									
Owner (Ref.)		-0.0338***	-0.1440		-0.0408**	0.2840		-0.0271**	-0.4890

8

		(0.0097)	(0.2480)		(0.0163)	(0.3220)		(0.0108)	(0.3420)
Renter	0.6210***	-0.0338***	0.0738	0.6620***	-0.0408**	-0.1680	0.5760**	-0.0271**	0.2160
	(0.1720)	(0.0097)	(0.1270)	(0.2340)	(0.0163)	(0.1910)	(0.2490)	(0.0108)	(0.1510)
Household Arrangement									
Single person (Ref.)		-0.00017	0.0395		0.0063	0.1570		-0.0027	-0.1470
		(0.0056)	(0.0989)		(0.0122)	(0.1360)		(0.0034)	(0.1260)
Couple with no child	-0.1010	-0.0105	-0.2220	-0.0281	-8.92e-05	-0.3310	-0.1660	-0.0403	-0.2650*
	(0.2800)	-0.0115	(0.1670)	(0.4240)	(0.0040)	(0.3040)	(0.3700)	(0.0255)	(0.1600)
Couple with child(ren)	-0.4290	0.0110***	0.0216	-0.707*	-0.0440***	-0.0633	-0.1040	0.0250	0.1080
younger than 25	(0.281)	(0.0041)	(0.2120)	(0.4120)	(0.0167)	(0.2360)	(0.387)	(0.0240)	(0.2940)
Separate with a	0.0031	0.0012	0.0133	-0.0560	0.00270	0.0059	0.1320	3.51e-05	0.0569*
child(ren) younger	(0.3310)	(0.0067)	(0.0771)	(0.4330)	(0.0190)	(0.1560)	(0.4980)	(0.0006)	(0.0320)
Other household	0.7000***	-0.0319***	0.0638	0.5720*	-0.0469**	0.01530	0.9170**	-0.0151***	0.0541
compositions	(0.2520)	(0.0088)	(0.1210)	(0.3250)	(0.0203)	(0.1940)	(0.3910)	(0.0052)	(0.1550)
Geographical Factors									
Urbanicity									
Urban	0.0567	-0.0001	-0.2810	0.0288	-4.65e-05	-0.0609	0.1050	-0.0004	-0.3700
	(0.1710)	(0.0006)	(0.2360)	(0.2500)	(0.0005)	(0.3500)	(0.2240)	(0.0013)	(0.2890)
Rural (Ref.)		-0.0001	0.0781		-4.65e-05	0.0159		-0.0003	0.109
		(0.0006)	(0.0655)		(0.0005)	(0.0913)		(0.0013)	(0.0848)
Geographic Region									
Atlantic	-0.1740	0.0007	0.0068	-0.0054	0.00015	0.124**	-0.3380	0.0016	-0.0892
	(0.1800)	(0.0007)	(0.0430)	(0.2750)	(0.0004)	(0.0556)	(0.228)	(0.0014)	(0.0622)
Quebec	-0.0900	-0.0036	0.0580	0.3750	0.0478*	0.0232	-0.5750**	-0.0600**	0.0710
	(0.1840)	(0.0191)	(0.0524)	(0.2860)	(0.0282)	(0.0911)	(0.2250)	(0.0247)	(0.0577)
Ontario, (Ref.)		0.0019	0.0288		-0.0111	-0.1300		-0.0063	0.2050
		(0.0038)	(0.1850)		(0.0172)	(0.2130)		(0.0040)	(0.2590)
Prairie	0.1260	-0.0282	0.0098	0.1710	0.0022	-0.3540	0.0995	-0.0443**	0.3230*
	(0.1780)	(0.0180)	(0.1430)	(0.2590)	(0.0309)	(0.2280)	(0.2420)	(0.0194)	(0.1700)
British Columbia	-0.1280	0.0041	-0.1210	0.0243	0.0052	-0.0194	-0.2500	0.00199	-0.2020
	(0.1930)	(0.0046)	(0.1040)	(0.2830)	(0.0102)	(0.1270)	(0.2600)	(0.0032)	(0.1390)
Constant	15.6000***		-10.1100**	17.4700***		-7.5980	13.1800***		-9.9670*
	(1.2300)		(4.6390)	(1.7990)		(6.6840)	(1.6220)		(5.8000)
Absolute Differences	-0.992***			-1.208***			-0.814**		
	(0.2840)			(0.3960)			(0.3660)		
Sum		-0.5950***	-0.3970		-0.6190***	-0.5890		-0.6370***	-0.1770
		(0.0555)	(0.2920)		(0.0826)	(0.4070)		(0.0667)	(0.3730)
n	18,300			10,049			8,251		
R-squared	0.0680			0.0630			0.0810		

Note: Ref. = reference category in the OLS estimation; *** p<0.01, ** p<0.05, * p<0.1

Appendix E: Detailed Blinder-Oaxaca decomposition results for lifetime suicide ideation

	Total			Women			Men		
	Marginal Effects	Blinder-Oaxaca		Marginal Effects	Blinder-Oaxaca		Marginal Effects	Blinder-Oaxaca	
		Explained	Unexplained		Explained	Unexplained		Explained	Unexplained
Indigenous Identity									
Indigenous	0.04120***			0.0505***			0.0335**		
	(0.0105)			(0.0155)			(0.0142)		
Non-Indigenous (Ref.)									
Demographic Variables									
Gender									
Male	-0.0105	0.0001	-0.0012						
	(0.0068)	(9.95e-05)	(0.0112)						
Female (Ref.)		0.0001	0.0011						
		(9.95e-05)	(0.0105)						
Age	-0.0011***	-0.0079***	-0.0012	-0.0012***	-0.0082**	0.0054	-0.0009***	-0.0071**	0.0601
	(0.0003)	(0.0022)	(0.0729)	(0.0004)	(0.0034)	(0.1120)	(0.0004)	(0.0029)	(0.2980)
Marital Status									
Married or *de facto* married (Ref.)		6.66e-05	0.0344		0.00036	0.0876		-0.0002	-0.0377
		(0.0003)	(0.0337)		(0.0004)	(0.0635)		(0.0003)	(0.1530)
Divorced or widowed	-0.0035	-9.73e-05	-0.0025	-0.0104	-0.0001	-0.0187	0.0096	9.59e-05	0.0231
	(0.0147)	(0.0002)	(0.0056)	(0.0197)	(0.0002)	(0.0139)	(0.0198)	(0.0003)	(0.0480)
Single	0.0020	-9.23e-05	-0.0103	-0.0109	0.0002	-0.0095	0.0141	-0.0002	-0.0828
	(0.0131)	(0.0004)	(0.0120)	(0.0162)	(0.0005)	(0.0164)	(0.0193)	(0.0005)	(0.1740)
Socioeconomic Variables									
Log Equivalized Household Income	-0.0109***	-0.0025***	0.0803	-0.0125**	-0.0027**	-0.3300	-0.0105**	-0.0026*	1.8970
	(0.0038)	(0.0009)	(0.2830)	(0.0054)	(0.0012)	(0.4260)	(0.0052)	(0.0015)	(4.2140)
Education									
Less than high school (Ref.)		-0.0019**	0.0216**		-0.0011	0.0246*		-0.0026	0.0568
		(0.0009)	(0.0102)		(0.0008)	(0.0128)		(0.0017)	(0.1280)
High school	-0.0271*	-0.0001	-0.0103	-0.0333	0.0005	-0.0122	-0.0196	-0.0002	-0.0183
	(0.0140)	(9.98e-05)	(0.0074)	(0.0213)	(0.0003)	(0.0130)	(0.0178)	(0.0006)	(0.0435)
Some post-secondary	-0.0292*	-5.64e-05	0.00351	-0.0265	9.11e-05	0.0021	-0.0279	-0.0002	0.0134
	(0.0176)	(6.42e-05)	(0.0040)	(0.0272)	(0.0002)	(0.0069)	(0.0216)	(0.0003)	(0.0304)
Bachelor's degree or higher	-0.0201	-0.0002	-0.0509**	-0.0127	0.0002	-0.0576	-0.0254*	-0.0004	-0.1890
	(0.0128)	(0.0003)	(0.0221)	(0.0201)	(0.0009)	(0.0358)	(0.0154)	(0.0003)	(0.3990)
Employment Status									
Employed (Ref.)		0.0004	0.0381		-3.91e-05	0.0815**		5.50e-05	-0.0705
		(0.0004)	(0.0242)		(2.61e-05)	(0.0411)		(0.0012)	(0.1660)
Unemployed	0.0002	-0.0003	-0.0156	-0.0009	-0.00038	-0.0126	-0.0014	7.26e-05	-0.0650
	(0.0079)	(0.0004)	(0.0116)	(0.0119)	(0.0004)	(0.0189)	(0.0106)	(0.0007)	(0.1370)
Other employment status	-0.0173	-0.0002	-0.0017	-0.0287	-0.0012*	-0.0069	-0.0049	-5.83e-06	0.0309

10

	(0.0151)	(0.0001)	(0.0040)	(0.0215)	(0.0006)	(0.0051)	(0.0205)	(0.0003)	(0.0651)
Homeownership									
Owner (Ref.)		-0.0018***	-0.0248		-0.0028***	0.0058		-0.0011*	-0.1630
		(0.0005)	(0.0156)		(0.0010)	(0.0208)		(0.0006)	(0.3460)
Renter	0.0262***	-0.0018***	0.0127	0.0351***	-0.0028***	-0.0034	0.0157	-0.0011*	0.0717
	(0.0077)	(0.0005)	(0.0080)	(0.0116)	(0.0010)	(0.0123)	(0.0103)	(0.0006)	(0.1530)
Household Arrangement									
Single person (Ref.)		0.0009***	-0.0021		0.0012*	0.0093		0.0004**	-0.0460
		(0.0003)	(0.0066)		(0.0007)	(0.0108)		(0.0002)	(0.1030)
Couple with no child	-0.0287**	-0.0006	-0.0146	-0.0267	-0.0002	-0.0307	-0.0286	-0.0006	-0.0347
	(0.0137)	(0.0007)	(0.0172)	(0.0180)	(0.0002)	(0.0310)	(0.0197)	(0.0020)	(0.0968)
Couple with child(ren) younger than 25	-0.0385***	0.0004	0.0381	-0.0332*	-0.0011	-0.0050	-0.0414**	0.0014	0.2240
	(0.0139)	(0.0003)	(0.0239)	(0.0187)	(0.0001)	(0.0222)	(0.0196)	(0.0019)	(0.5110)
Separate with a child(ren) younger	-0.0209	-3.08e-05	0.0008	-0.0074	-0.0007	0.0051	-0.0437**	-2.73e-05	0.0092
	(0.0151)	(0.0004)	(0.0050)	(0.0207)	(0.0011)	(0.0102)	(0.0210)	(3.28e-05)	(0.0204)
Other household compositions	-0.0220**	9.25e-05	-0.0102	-0.0243	0.0005	0.0017	-0.0190	-0.0001	-0.0569
	(0.0093)	(0.0004)	(0.0088)	(0.0148)	(0.0010)	(0.0150)	(0.0116)	(0.0003)	(0.1240)
Geographical Factors									
Urbanicity									
Urban	0.0111	-4.54e-05	-0.0164	0.0001	6.19e-06	-0.0374	0.0225**	-0.0002**	0.0272
	(0.0087)	(3.84e-05)	(0.0250)	(0.0129)	(3.25e-05)	(0.0389)	(0.0110)	(8.68e-05)	(0.0996)
Rural (Ref.)		-4.54e-05	0.0045		6.19e-06	0.0098		-0.00012**	-0.0080
		(3.84e-05)	(0.0070)		(3.25e-05)	(0.0102)		(8.68e-05)	(0.0292)
Geographic Region									
Atlantic	-0.0059	0.0001**	0.00354	-0.0205	6.46e-05*	0.00311	0.0076	0.0001	0.0121
	(0.0095)	(4.94e-05)	(0.0045)	(0.0145)	(3.35e-05)	(0.0059)	(0.0121)	(0.0001)	(0.0316)
Quebec	0.0112	0.0003	-0.0055	-0.0026	-0.0008	-0.0077	0.0251*	0.0017	-0.0157
	(0.0104)	(0.0015)	(0.0057)	(0.0157)	(0.0022)	(0.0081)	(0.0130)	(0.0020)	(0.0386)
Ontario, (Ref.)		-0.0003	-0.0018		-9.54e-05	-0.0097		0.0006*	0.0450
		(0.0002)	(0.0129)		(0.0009)	(0.0157)		(0.0003)	(0.1160)
Prairie	0.0176**	-0.0018	0.0016	0.0027	-0.0006	-0.0140	0.0313***	-0.0025*	0.0509
	(0.0086)	(0.0012)	(0.0115)	(0.0123)	(0.0020)	(0.0177)	(0.0119)	(0.0014)	(0.1110)
British Columbia	0.0191*	-0.0005	0.0032	0.0152	-0.0014**	0.0197	0.0221	-4.50e-05	-0.0329
	(0.0100)	(0.0003)	(0.0068)	(0.0146)	(0.0007)	(0.0125)	(0.0140)	(0.0003)	(0.0767)
Constant			-0.1320			0.2270			-1.745
			(0.2730)			(0.4060)			(3.8610)
Absolute Differences	-0.0757***				-0.0939***		-0.0590***		
	(0.0158)				(0.0223)		(0.0185)		
Sum		-0.0179***	-0.0577***		-0.0209***	-0.0730***		-0.0149***	-0.0441**
		(0.0037)	(0.0162)		(0.0064)	(0.0238)		(0.0048)	(0.0195)
Observations	18,300				10049		8,251		

Note: Ref. = reference category in the logit model estimation; Marginal effects are calculated at the means of the independent variables; *** p<0.01, ** p<0.05, * p<0.1

11

Appendix F: Detailed Blinder-Oaxaca decomposition results for lifetime suicide plan

	Total			Women			Men		
	Marginal Effects	Blinder-Oaxaca		Marginal Effects	Blinder-Oaxaca		Marginal Effects	Blinder-Oaxaca	
		Explained	Unexplained		Explained	Unexplained		Explained	Unexplained
Indigenous Identity									
Indigenous	0.0205***			0.0258***			0.0149***		
	(0.0047)			(0.0080)			(0.0051)		
Non-Indigenous (Ref.)									
Demographic Variables									
Gender									
Male	-0.0058	0.0001*	-0.0041						
	(0.0037)	(6.04e-05)	(0.0069)						
Female (Ref.)		0.0001*	0.0038						
		(6.04e-05)	(0.0065)						
Age	-0.0002	-0.0016	0.0280	-7.36e-05	-0.0002	0.0667	-0.00032**	-0.0030*	0.0125
	(0.0001)	(0.0013)	(0.0400)	(0.0002)	(0.0024)	(0.1060)	(0.0001)	(0.0017)	(0.0676)
Marital Status									
Married or *de facto* married (Ref.)		8.99e-05	0.0438		0.00029	0.1330		-1.56e-05	0.0727
		(0.0001)	(0.0270)		(0.0002)	(0.1130)		(0.0002)	(0.0859)
Divorced or widowed	-0.0040	-0.0001	-0.0075*	-0.0119	-0.0002	-0.0316	0.0034	-7.90e-06	-0.0057
	(0.0066)	(9.72e-05)	(0.0042)	(0.0089)	(0.0002)	(0.0262)	(0.0080)	(0.00014)	(0.0068)
Single	0.0017	-0.0002	-0.0023	-0.0023	-0.0002	-0.00927	0.00360	-4.71e-05	-0.0116
	(0.0055)	(0.0002)	(0.0069)	(0.0064)	(0.0003)	(0.0164)	(0.0078)	(0.0003)	(0.0185)
Socioeconomic Variables									
Log Equivalized Household Income	-0.0039***	-0.0011**	0.0162	-0.0052**	-0.0016**	-0.8410	-0.0031*	-0.00077	0.5620
	(0.0015)	(0.0005)	(0.1760)	(0.0023)	(0.0008)	(0.7810)	(0.0016)	(0.0007)	(0.5350)
Education									
Less than high school (Ref.)		-0.0007	0.0022		-0.00057	0.0031		-0.0007	0.0002
		(0.0005)	(0.0048)		(0.0007)	(0.0121)		(0.0006)	(0.0081)
High school	-0.0121*	-9.39e-05**	-0.0032	-0.0136	0.0003	-0.0074	-0.0102*	-0.0004	-0.0006
	(0.0065)	(4.76e-05)	(0.0039)	(0.0126)	(0.0002)	(0.0133)	(0.0052)	(0.0003)	(0.0054)
Some post-secondary	-0.0095	-1.55e-05	0.0043*	-0.0140	7.74e-05	0.0126	-0.0046	1.84e-05	0.0031
	(0.0073)	(2.73e-05)	(0.0026)	(0.0144)	(0.0001)	(0.0125)	(0.0063)	(0.0001)	(0.0037)
Bachelor's degree or higher	-0.0031	0.0001	-0.0290**	-0.00305	0.00028	-0.0704	-0.0026	4.68e-05	-0.0288
	(0.0064)	(0.0002)	(0.0129)	(0.0133)	(0.0006)	(0.0572)	(0.0040)	(0.0001)	(0.0265)
Employment Status									
Employed (Ref.)		6.93e-05	0.0161		-2.26e-05	0.0610		-0.0007	-0.0161
		(0.0002)	(0.0133)		(2.35e-05)	(0.0523)		(0.0005)	(0.0282)
Unemployed	0.0015	-3.28e-05	-0.0095	-0.0041	9.74e-05	-0.0327	0.0060*	-0.0003	-0.0007
	(0.0039)	(0.000191)	(0.0066)	(0.0070)	(0.0002)	(0.0332)	(0.0037)	(0.0004)	(0.0095)
Other employment status	-0.0015	-2.70e-05	-3.75e-05	-0.0087	-0.00034	-0.0013	0.00543	-6.19e-05	0.0028
	(0.0069)	(7.43e-05)	(0.0022)	(0.0131)	(0.0005)	(0.0045)	(0.0056)	(0.0001)	(0.0052)
Homeownership									

12

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Owner (Ref.)		-0.0004	-0.0121		-0.0009	0.0026		-0.00024	-0.0268
		(0.0003)	(0.0089)		(0.0006)	(0.0185)		(0.0003)	(0.0284)
Renter	0.0046	-0.0004	0.00616	0.0074	-0.00086	-0.0016	0.0017	-0.0002	0.0118
	(0.0036)	(0.0003)	(0.0045)	(0.0056)	(0.0006)	(0.0110)	(0.0047)	(0.0003)	(0.0125)
Household Arrangement									
Single person (Ref.)		0.0005***	0.0050		0.0008**	0.0148		0.0002***	0.0050
		(0.0001)	(0.0046)		(0.0003)	(0.0148)		(8.82e-05)	(0.0010)
Couple with no child	-0.0141**	-0.0006	-0.0204	-0.0174**	-0.0002	-0.0531	-0.0108	-0.0008	-0.0418
	(0.0063)	(0.0004)	(0.0125)	(0.0084)	(0.0002)	(0.0467)	(0.0080)	(0.0010)	(0.0412)
Couple with child(ren) younger than 25	-0.0159**	0.0002	0.0027	-0.0158	-0.0006	-0.0280	-0.0150**	0.0008	0.0030
	(0.0063)	(0.0002)	(0.0109)	(0.0100)	(0.007)	(0.0280)	(0.0073)	(0.0010)	(0.0226)
Separate with a child(ren) younger	-0.0071	-2.43e-05	-0.0003	-0.0008	-0.00038	0.00053	-0.0167**	-1.00e-05	0.0047
	(0.0054)	(0.0002)	(0.0025)	(0.0083)	(0.0005)	(0.0073)	(0.0078)	(1.50e-05)	(0.0044)
Other household compositions	-0.0096**	-8.58e-05	0.0076	-0.0116	-5.69e-05	0.0383	-0.0070*	-9.66e-05	0.0002
	(0.0042)	(0.0002)	(0.0055)	(0.0080)	(0.0006)	(0.0349)	(0.0040)	(0.0002)	(0.0080)
Geographical Factors									
Urbanicity									
Urban	0.0049	-3.09e-05	0.0115	0.0047	-1.74e-05	0.0135	0.0045	-5.88e-05	0.0203
	(0.0044)	(2.23e-05)	(0.0129)	(0.0075)	(2.65e-05)	(0.0346)	(0.0040)	(4.23e-05)	(0.0315)
Rural (Ref.)		-3.09e-05	-0.0032		-1.74e-05	-0.0035		-5.88e-05	-0.0060
		(2.23e-05)	(0.0036)		(2.65e-05)	(0.0090)		(4.23e-05)	(0.0093)
Geographic Region									
Atlantic	-0.0019	3.88e-05	0.0047*	-0.0081	3.09e-05	0.0089	0.0034	2.87e-05	0.0067
	(0.0041)	(2.71e-05)	(0.0027)	(0.0067)	(2.44e-05)	(0.0082)	(0.0044)	(5.16e-05)	(0.0072)
Quebec	0.0086	0.0010	-0.0025	0.0075	0.0016	-0.0084	0.0091**	0.0007	-0.0025
	(0.0052)	(0.0008)	(0.0030)	(0.0088)	(0.0019)	(0.0099)	(0.00421)	(0.0008)	(0.0067)
Ontario, (Ref.)		-0.0002*	-0.0070		-0.0002	-0.0079		0.0003**	-0.0090
		(0.0001)	(0.0072)		(0.0006)	(0.0144)		(0.0001)	(0.0148)
Prairie	0.0071*	-0.0010	0.0025	-0.0009	0.0002	-0.0016	0.0131**	-0.0015*	0.0119
	(0.0042)	(0.0008)	(0.0071)	(0.0056)	(0.0013)	(0.0175)	(0.0056)	(0.0008)	(0.0138)
British Columbia	0.0046	-2.88e-05	-0.0013	0.0024	-0.0002	0.0040	0.0063	3.87e-05	-0.0079
	(0.005)	(0.0002)	(0.0037)	(0.0074)	(0.0005)	(0.0116)	(0.0050)	(0.0001)	(0.0102)
Constant			-0.0925			0.6910			-0.5920
			(0.1790)			(0.7230)			(0.5360)
Absolute Differences	-0.0448***			-0.0507***			-0.0396***		
	(0.0108)			(0.0152)			(0.0129)		
Sum		-0.0042***	-0.0404***		-0.0030	-0.0477***		-0.0068**	-0.0329**
		(0.0110)	(0.0108)		(0.0154)	(0.0152)		(0.0031)	(0.0134)
Observations	18,300			10,049			8,251		

Note: Ref. = reference category in the logit model estimation.; Marginal effects are calculated at the means of the independent variables; *** p<0.01, ** p<0.05, * p<0.1