MIND THE GAP

DISPARITIES IN CIGARETTE SMOKING IN CANADA.

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Tobacco use has been a longstanding cause of preventable death in Canada, spurring public health efforts to encourage smokers to quit, to prevent young people from starting to smoke and to curb marketing practices of tobacco companies. Progress towards the public health goal of reducing tobacco use is often evaluated by the change in the percentage of Canadians who smoke cigarettes on a daily or occasional basis: i.e. "In 2014, 18.1% of Canadians aged 12 and older—about 5.4 million people—reported smoking either daily or occasionally. This was down from 19.3% in 2013 and a significant drop from 2001, when 28.2% of males and 23.8% of females reported smoking daily or occasionally."[1]

Focusing on changes in the overall smoking prevalence of Canadians can mask the differing rates of progress among sub-populations and deflect attention away from disparities in tobacco use that could exacerbate health inequalities. Smoking, a major risk factor for disease, is a more prevalent behaviour, for example, among those who are poor, are less well educated, are indigenous or who suffer from mental illness.[2] Smoking itself is a major contributor to overall health inequalities with international studies suggesting, that among men, differences in smoking rates account for about half of the differences in health between higher and lower income groups.[3]

Concerns about such disparities have prompted calls for government to focus attention on those who are vulnerable, or disadvantaged by economic, social or other factors,[4] and to replace the current population approach with a "vulnerable population approach".[5] These recommendations come at the same time as proposals by others that an "endgame" for tobacco use be achieved by through new or more intensive interventions aimed at the general population.[6] An endgame target of less than 5% by 2035 requires millions of people currently smoking in Canada to quit, requiring substantial reductions in smoking among all groups. The potential conflict between the endgame and health equity goals has been identified as one which may exacerbate health inequalities. [7]

This study aims to quantify inequities in tobacco use in Canada and by doing so to assess the contribution that closing them would make to supporting an endgame goal by reducing tobacco use in Canada. The methods of this study are described at the end of this paper.

In this study, smoking disparities are conceptualized in two ways: the **intensity of the disparity** (the degree of inequality between smoking rates), and the **magnitude of the disparity** (the number of people affected). The intensity of the disparity is calculated as the relative risk of smoking between the reference and comparison groups, e.g. the ratio of the smoking prevalence by those in lower income households to the smoking prevalence of those in higher income households. The magnitude of the disparity, which we term the Prevalence Gap, is a calculation of the number of people who are affected by the disparity, and reflects the population impact of differences in smoking rates.

Smoking prevalence

Smoking prevalence was measured for the reference and comparison groups, with the comparison group set as the one with the higher smoking rates. For example, if the comparison group was household rents, the reference group was household owns home. In all cases, smoking prevalence in the comparison group was higher than in the reference group, and the difference was significant at 95% CI.

The lowest smoking prevalence was found among women who had immigrated to Canada (6%) – a rate less than half of any other identified group.
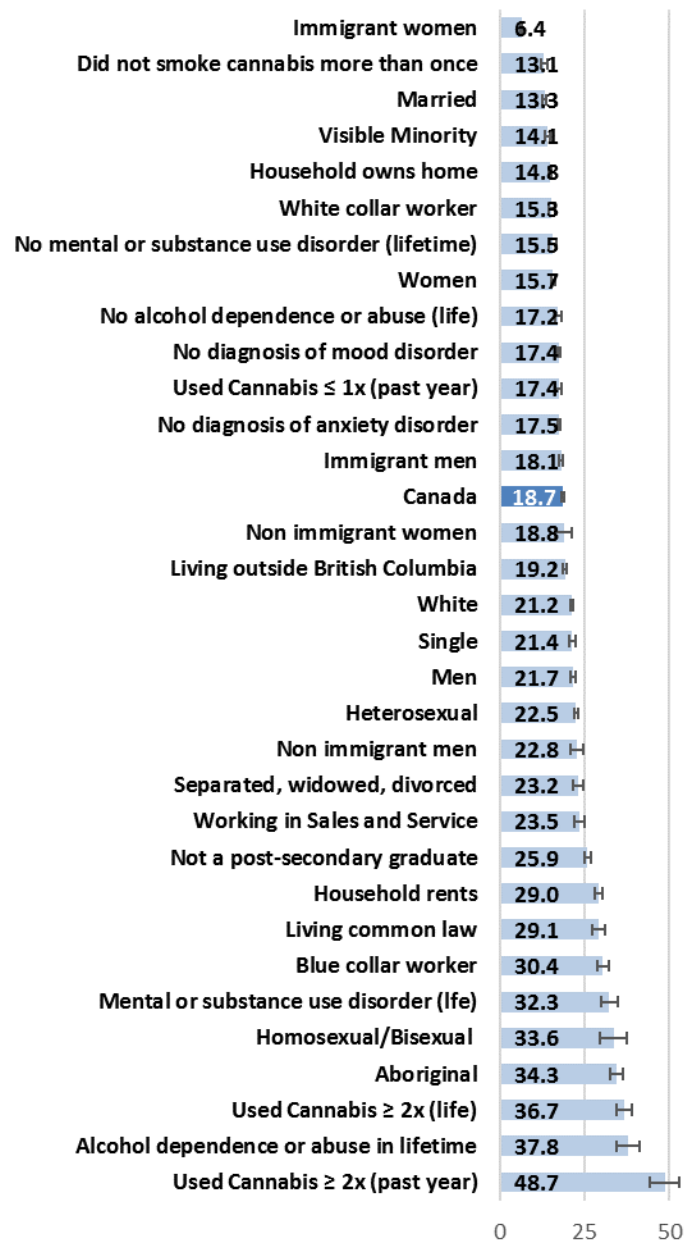
Other groups with smoking prevalence at least 3 percentage points below the national average of 19% were those who were married (13%), had not used cannabis (13%), were visible minorities (14%), were homeowners, white collar workers, residents of British Columbia, had no experience with mental health or substance use disorders (15%), were women, or lived in a household with higher than average income, or were a post-secondary graduate or lived in a household with one, or who considered themselves in very good or excellent mental health (16%).

Those with smoking prevalence within 3 percentage points of the national average were non-indigenous Canadians, those without alcohol dependence, mood disorder or who did not use cannabis in the past year (17%), without anxiety disorder or men who immigrated to Canada (18%), who lived outside British Columbia or who lived in the lowest 80% of households (19%), lived in a home with lower than average income, were white, single (21%), were men (22%).

Figure 1: Current Smoking Prevalence)

Group	Value
Immigrant women	6.4
Did not smoke cannabis more than once	13.1
Married	13.3
Visible Minority	14.1
Household owns home	14.8
White collar worker	15.8
No mental or substance use disorder (lifetime)	15.5
Women	15.7
No alcohol dependence or abuse (life)	17.2
No diagnosis of mood disorder	17.4
Used Cannabis ≤ 1x (past year)	17.4
No diagnosis of anxiety disorder	17.5
Immigrant men	18.1
Canada	18.7
Non immigrant women	18.8
Living outside British Columbia	19.2
White	21.2
Single	21.4
Men	21.7
Heterosexual	22.5
Non immigrant men	22.8
Separated, widowed, divorced	23.2
Working in Sales and Service	23.5
Not a post-secondary graduate	25.9
Household rents	29.0
Living common law	29.1
Blue collar worker	30.4
Mental or substance use disorder (lfe)	32.3
Homosexual/Bisexual	33.6
Aboriginal	34.3
Used Cannabis ≥ 2x (life)	36.7
Alcohol dependence or abuse in lifetime	37.8
Used Cannabis ≥ 2x (past year)	48.7

Those with smoking prevalence at least 3 percentage points above the national average were non-immigrant men, people who had once been married but who no longer were, people who worked in sales and service (23%), those without post-secondary graduation (26%), lived in a rented home or lived common law (29%)

Those with mental health issues identified by diagnosis or by meeting WHO-CIDI criteria had smoking rates over 30%. So too did Aboriginal Canadians and 'blue collar' workers, and those who had ever smoked cannabis more than twice or had in their lifetime experienced alcohol dependence or abuse. The highest smoking prevalence was

found among those who in the past year had used cannabis more than once or who met the criteria for alcohol abuse or dependency (49%).

In comparing prevalence, it should be kept in mind that different age groups and selection criteria were used: results related to sexual identity and occupation in particular will be higher than if the survey questions applied to a wider age range.
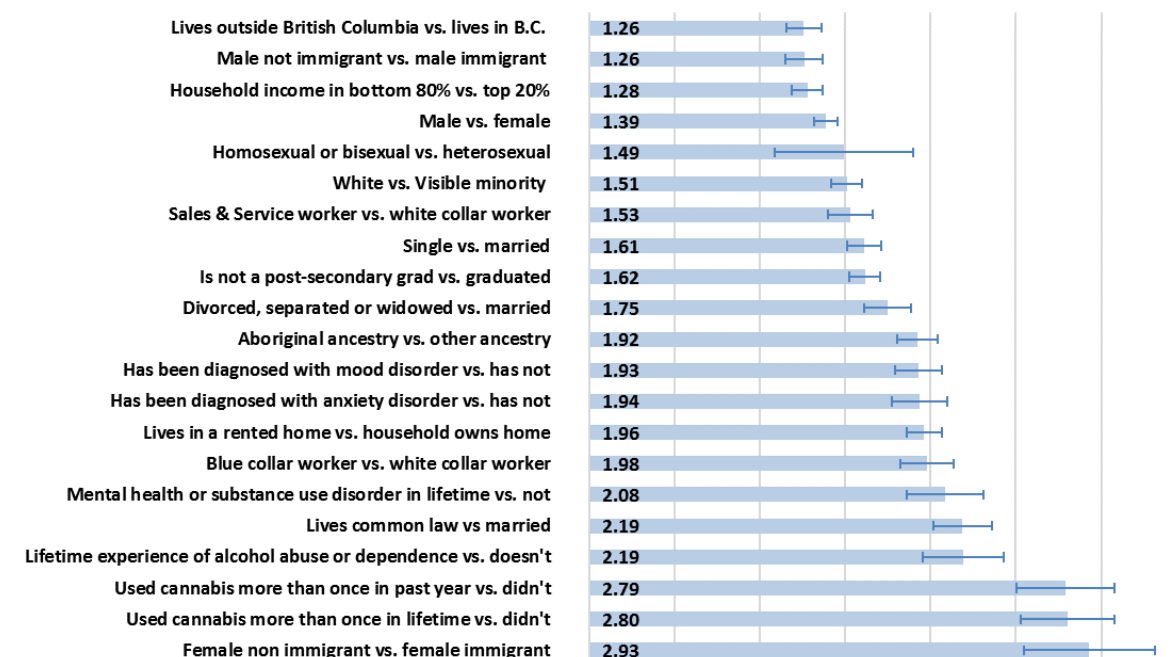
The results are shown in Table 2 and Figure 1.

Intensity of smoking disparities

For each of the factors identified, there were differences in smoking prevalence, significant at 95% CI. The lowest smoking prevalence was found among women who had immigrated to Canada (6%) – a rate less than half of any other identified group. The highest smoking prevalence was found among those who reported having used cannabis on more than one occasion in the past 12 months (49%).

The intensity of disparity for each variable varied from a 25% increased risk of being a current smoker (associated with living in a province other than British Columbia), to an increased risk of 193% (associated with being a woman who did not immigrate to Canada). Factors associated with increased risk less than 50% household income, being a man, being homosexual or bisexual, being a non-immigrant man. Factors associated with a 50% to 100% increased risk were being in poor mental health, being white (and not a visible minority), being aboriginal (and not white or another visible minority), working in a sales and service or blue collar occupation instead of a white collar job, not having graduated from college or university and living in a rental home. Factors associated with at least a two-fold increased risk of smoking included having experienced a substance use or mental health disorder in one's lifetime, being formerly married (divorced, separated or widowed), having experienced alcohol dependence, having used cannabis more than once, and being a non-immigrant woman. Results are shown in Table 2; Figure 2 also indicates the 95% confidence intervals.

Figure 2: Intensity of smoking disparities (relative risk of being a current smoker)

| Category	Value
Lives outside British Columbia vs. lives in B.C.	1.26
Male not immigrant vs. male immigrant	1.26
Household income in bottom 80% vs. top 20%	1.28
Male vs. female	1.39
Homosexual or bisexual vs. heterosexual	1.49
White vs. Visible minority	1.51
Sales & Service worker vs. white collar worker	1.53
Single vs. married	1.61
Is not a post-secondary grad vs. graduated	1.62
Divorced, separated or widowed vs. married	1.75
Aboriginal ancestry vs. other ancestry	1.92
Has been diagnosed with mood disorder vs. has not	1.93
Has been diagnosed with anxiety disorder vs. has not	1.94
Lives in a rented home vs. household owns home	1.96
Blue collar worker vs. white collar worker	1.98
Mental health or substance use disorder in lifetime vs. not	2.08
Lives common law vs married	2.19
Lifetime experience of alcohol abuse or dependence vs. doesn't	2.19
Used cannabis more than once in past year vs. didn't	2.79
Used cannabis more than once in lifetime vs. didn't	2.80
Female non immigrant vs. female immigrant	2.93

Magnitude of smoking disparities

The largest Prevalence Gaps were found, in descending order, among those who used cannabis, were not immigrants, were not married, were white, had experienced mental health or substance use disorders in their lifetime, lived in a household whose income was in the bottom 80%, were renters, had experienced alcohol dependence or abuse or lived outside British Columbia.

For all these groups, the impact of smoking disparities was greater than 1 million people, representing one to two-fifths of the total number of smokers in Canada. Closing the prevalence gaps for these sub-populations would therefore make a sizeable contribution to reducing the number of Canadian smokers. If, for example, those Canadians who had ever experienced a mental health or substance use disorder were not also more likely to be smokers, there would be more than one-quarter (28%) fewer smokers in Canada, and the overall prevalence rate would be 13.5%. For smaller sub-populations the benefits of reducing disparities would have a lesser effect on the overall prevalence, despite the important benefit to the individuals and their communities.

The Prevalence Gaps for factors for which a narrower age range was used (i.e. occupation, mental health, substance use, sexual identity) are understated in comparison with those for which the entire population of Canadians over 12 years of age was considered. In addition to the 1.16 million people over 12 years of age who identify as First Nations, Inuit or Métis on the CCHS, there are an estimated 314,370 'status Indians' who live on reserves.[8]

The Prevalence Gaps for the factors examined are shown in Table 3 and Figure 3

Figure 3: Magnitude of disparities, 2013-2014
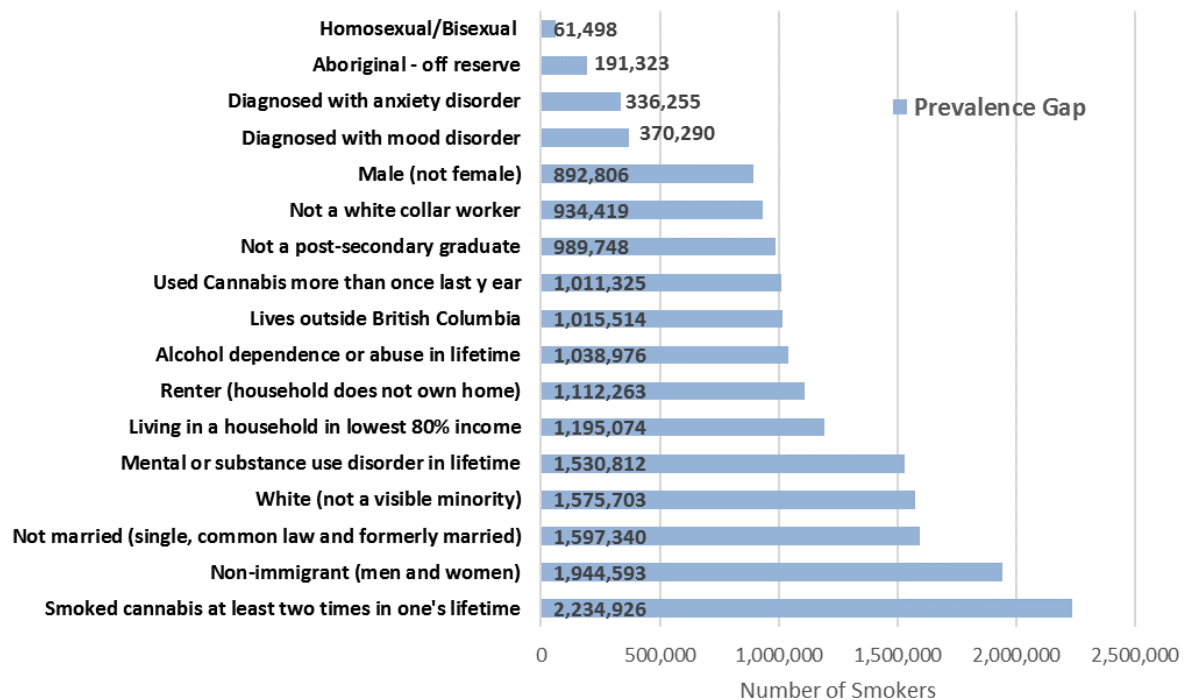
Changes in smoking disparities over time

For each of the factors where comparable data was available, the intensity of disparities in 2013-2014 was assessed against with that in 2003 or 2005, depending on availability of data.

Factors associated with wider intensity of disparities in smoking in 2013-14 compared with 2003 were being male, being a non-immigrant woman, being white, working in a non-white collar job, living common law, being a renter, or having been diagnosed with a mood or anxiety disorder. Disparities in smoking prevalence between the lowest income 80% of the households and the highest 20% between 2005 and 2013-2014 were not different. Other factors associated with no change or no statistically significant change were being a non-immigrant man, being aboriginal, being single, being gay or bisexual and living outside of British Columbia. There were no groups for whom disparities were found to have been reduced. The change in intensity of disparities is shown in Table 4.

The change in magnitude of the disparity over this period does not necessarily correspond to the change in intensity, as there were significant changes in the populations involved, including an overall growth in the Canadian population of more than 4 million people. The number of Canadians of aboriginal ancestry (off reserve), for example, grew from 421,400 in 2003 1,162,400 in 2013-2014. As a result, even though the intensity of smoking disparity did not change in the period, the number of Canadians of aboriginal ancestry affected grew by over 90,000. Factors for which the magnitude of disparity grew by more than 250,000 people over the decade were being a man, being white, living in the poorest 80% of households and renting a home. The change in magnitude of disparities is shown in Table 4.

Even among populations where the intensity or magnitude of disparities grew, however, current smoking prevalence declined over the decade for all groups except those suffering from a mood disorder (significant at 95%). That is to say, the population health of all but one of the groups reviewed had improved with respect to smoking. Figure 4 shows the change in smoking prevalence over the period, and presents the smoking prevalence of the comparison group as the sum of the prevalence of the reference group plus the disparity between them.

Disparities related to starting smoking or quitting

Populations with higher smoking rates may be in that position for two distinct reasons: they may include a larger number of people who became smokers and/or a smaller number of smokers who succeeded in quitting.

We can isolate the impact of the Onset Gap (the additional smokers which results from the greater likelihood of becoming a smoker in the comparison group) and a Cessation Gap (the additional number of smokes which result from the lesser likelihood of a smoker becoming a former smoker among smokers in the comparison group).

For most factors reviewed, disparities in smoking prevalence result from disparities both in the likelihood of starting to smoke and the probability of quitting. Those groups for whom both measures are most intense are with respect to substance use. People who used cannabis or who met the criteria for alcohol abuse or dependence are the least likely to have remained a non-smoker or, having started, to quit.

There are groups for whom the higher prevalence of smoking in comparison to the reference group does not result from a greater likelihood of starting to smoke, but from a reduced likelihood of quitting. These include single people and those who were formerly married, those who work in sales and service, those who are lower income smoking onset is lower than the comparison group. On the other hand, those who are not a visible minority more likely to start smoking but, if they did, they were more likely to have quit. Single people are more likely to be never-smokers than are married people, but less likely to have quit. This may reflect both the greater likelihood that they are younger and therefore belong to birth cohorts for whom smoking prevalence was lower, and that the smokers among them have not yet reached the mid-years at which smoking cessation is more frequently observed.

The Onset Gap and Cessation Gap are shown in Table 5 (magnitude) and Table 6 (intensity) and in Figure 5a and 5b.

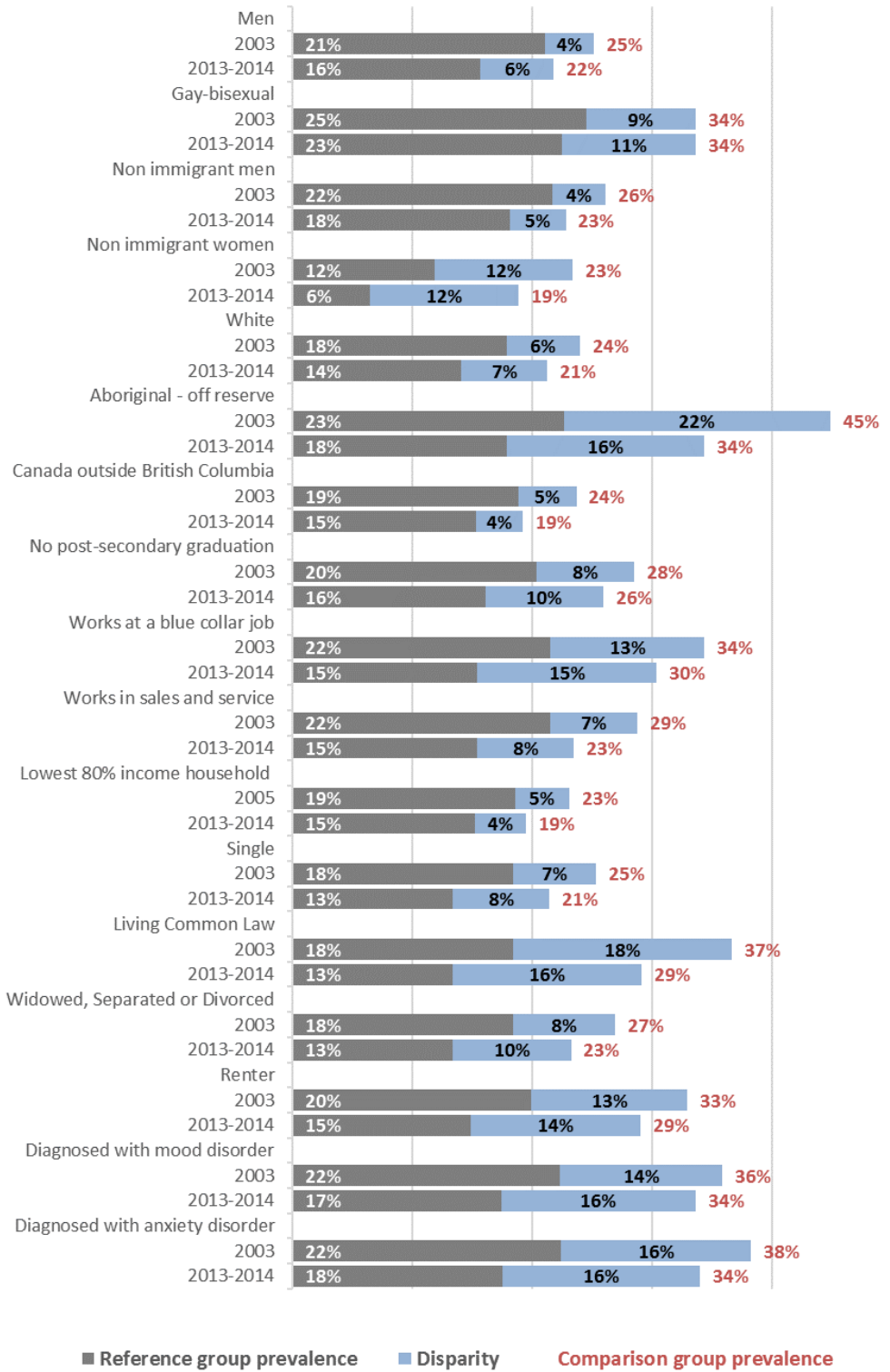## Figure 4: Change in Intensity of Disparities, 2003-2005 to 2013-2014

Category	Year	Reference group prevalence	Disparity	Comparison group prevalence
Men	2003	21%	4%	25%
	2013-2014	16%	6%	22%
Gay-bisexual	2003	25%	9%	34%
	2013-2014	23%	11%	34%
Non immigrant men	2003	22%	4%	26%
	2013-2014	18%	5%	23%
Non immigrant women	2003	12%	12%	23%
	2013-2014	6%	12%	19%
White	2003	18%	6%	24%
	2013-2014	14%	7%	21%
Aboriginal - off reserve	2003	23%	22%	45%
	2013-2014	18%	16%	34%
Canada outside British Columbia	2003	19%	5%	24%
	2013-2014	15%	4%	19%
No post-secondary graduation	2003	20%	8%	28%
	2013-2014	16%	10%	26%
Works at a blue collar job	2003	22%	13%	34%
	2013-2014	15%	15%	30%
Works in sales and service	2003	22%	7%	29%
	2013-2014	15%	8%	23%
Lowest 80% income household	2005	19%	5%	23%
	2013-2014	15%	4%	19%
Single	2003	18%	7%	25%
	2013-2014	13%	8%	21%
Living Common Law	2003	18%	18%	37%
	2013-2014	13%	16%	29%
Widowed, Separated or Divorced	2003	18%	8%	27%
	2013-2014	13%	10%	23%
Renter	2003	20%	13%	33%
	2013-2014	15%	14%	29%
Diagnosed with mood disorder	2003	22%	14%	36%
	2013-2014	17%	16%	34%
Diagnosed with anxiety disorder	2003	22%	16%	38%
	2013-2014	18%	16%	34%

■ Reference group prevalence ■ Disparity Comparison group prevalence

Figure 5a: Cessation Gap, 2013-2014

Category	Cessation Gap
Gay-bisexual vs. Heterosexual	39,113
Aboriginal ancestry vs. Not	145,396
Alcohol dependence or abuse past year vs. none	188,396
Diagnosis of anxiety disorder vs. none	252,625
Occupation (sales and service vs. white collar)	347,236
Marital status (widowed, separated or divorced vs. married)	299,665
Diagnosis of mood disorder vs. none	253,722
Marital status (common law vs. married)	418,603
Immigration (non-immigrant vs. immigrant men)	249,119
Occupation (blue collar vs. white collar workers)	442,617
Marital status (single vs. married)	1,059,399
Sex (Males vs. females)	321,138
Education - (not graduate vs. post-secondary graduate)	793,281
Past year cannabis use vs. none	762,887
Geography (Not in British Columbia vs B.C. resident)	849,195
Alcohol dependence or abuse in lifetime vs. none	545,956
Homeownership vs. renting	1,024,883
Household income (lowest 80% vs. highest 20%)	1,248,089
Mood or substance use disorder in lifetime vs. not	868,360
Race (White-Visible minority)	-672,108
Cannabis use in lifetime vs. none	1,314,934

Figure 5b: Onset Gap, 2013-2014

Category	Onset Gap
Gay-bisexual vs. Heterosexual	28,326
Aboriginal ancestry vs. Not	72,268
Alcohol dependence or abuse past year vs. none	123,410
Diagnosis of anxiety disorder vs. none	131,360
Occupation (sales and service vs. white collar)	-9,685
Marital status (widowed, separated or divorced vs. married)	95,563
Diagnosis of mood disorder vs. none	174,013
Marital status (common law vs. married)	162,538
Immigration (non-immigrant vs. immigrant men)	289,726
Occupation (blue collar vs. white collar workers)	239,043
Marital status (single vs. married)	742,555
Sex (Males vs. females)	635,461
Education - (not graduate vs. post-secondary graduate)	282,858
Past year cannabis use vs. none	481,738
Geography (Not in British Columbia vs B.C. resident)	200,682
Alcohol dependence or abuse in lifetime vs. none	690,263
Homeownership vs. renting	159,376
Household income (lowest 80% vs. highest 20%)	-72,648
Mood or substance use disorder in lifetime vs. not	939,876
Race (White-Visible minority)	1,965,071
Cannabis use in lifetime vs. none	1,480,431

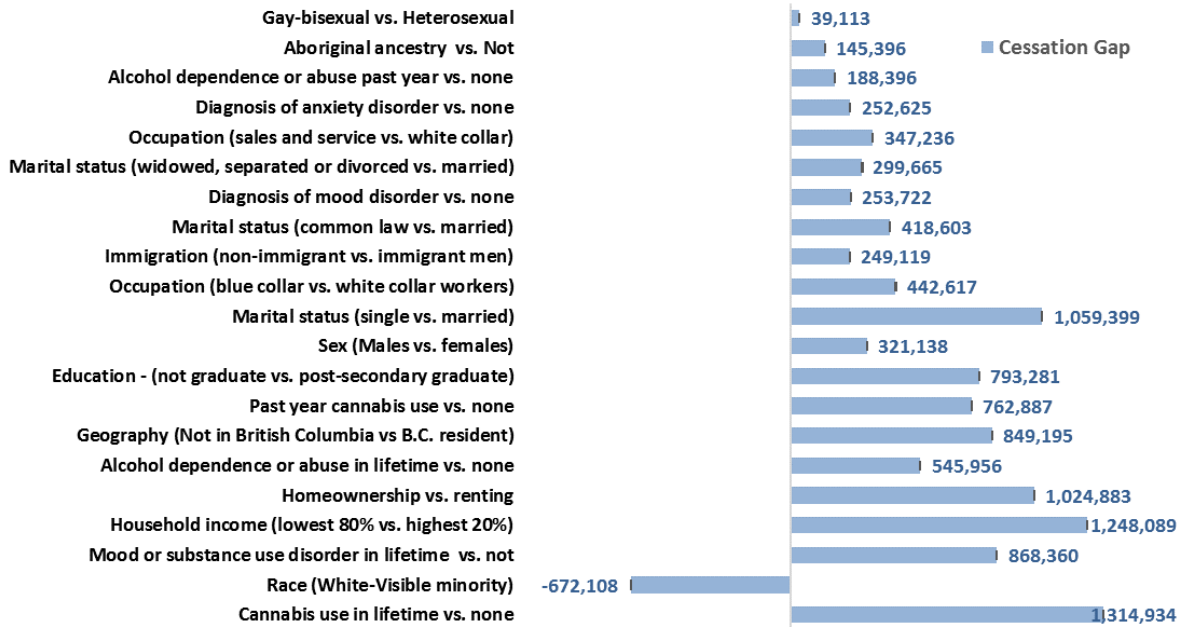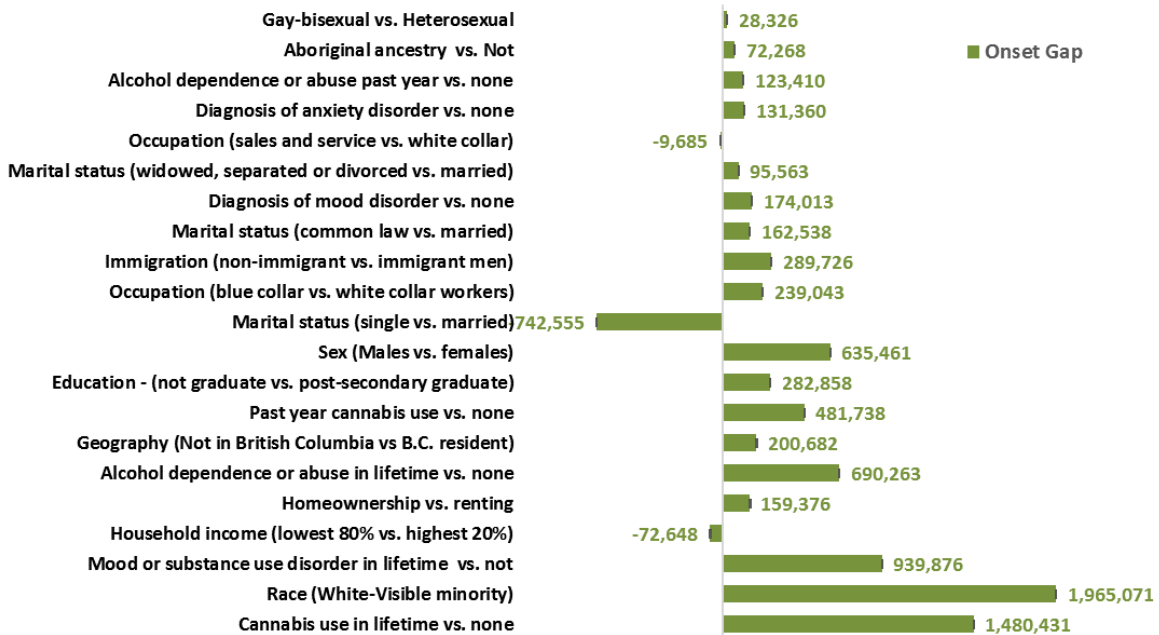## Discussion

Disparities in smoking rate represent a major concern for tobacco control. In populations where the intensity of disparity is high, a high percentage of the sub-population may be harmed by the consequences of tobacco use, and this may contribute to health inequalities already present in those populations. In cases where the magnitude of disparity is high, even if the intensity is low, the impact may be felt on the overall health status of Canadians.

There are current disparities which are intense and large and there are some which are both. Frequently these disparities are associated with other social determinant of poor health: lower income, lower education. In other cases, they are associated with factors that are not traditionally viewed as disadvantageous: some groups which are often thought to be relatively disadvantaged (women, immigrants, visible minorities) have smoking rates that are lower than their counterparts (men, non-immigrants, "white" Canadians). In these cases, lower smoking rates may narrow overall health disparities

Very intense and very large disparities are associated with psychological issues including other drug use. One-third of Canadian smokers are included in the disparity of smoking rates between those who have experienced mental health or substance use disorders in their lifetime.

The magnitude of smoking disparities, ranked in order of intensity is shown in Figure 6.

Figure 6: Magnitude (size of bubbles) and intensity of smoking disparities, 2013-2014
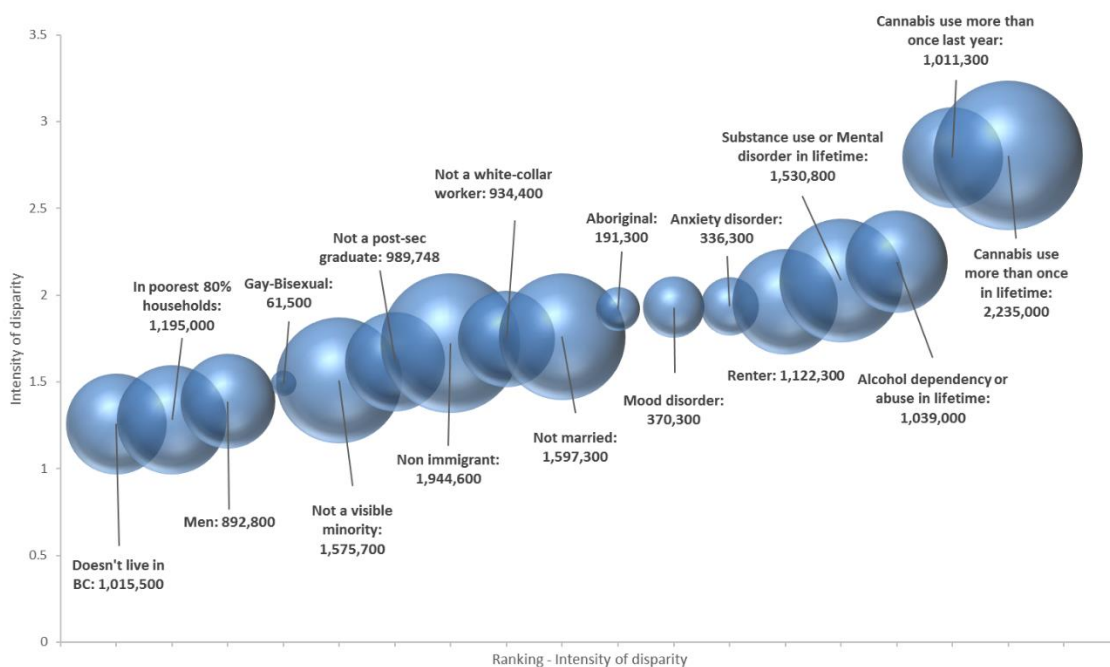
Methods

Defined populations: Four types of factors that might be associated with disparities in smoking rates were selected for analysis.

- ***Demographic factors:*** *sex, sexual identity, ethnicity, immigrant status, province of residence*
- ***Socio-economic factors:*** *household income, personal education, occupation*
- ***Family environment factors****: marital status, homeownership*
- ***Mental health*** **and substance use:** cannabis use, alcohol abuse, mental health disorders

For each variable, the group with the lowest smoking prevalence was identified as a reference group, and the group with the highest smoking prevalence was identified as the comparison group. The groups are Table 1, with the age range and survey variables used.

Definitions:

Smoking behaviour: The same set of questions about cigarette smoking were included on all surveys, and the following definitions are used in this analysis:

- ***Current smokers*** are those who identify themselves as smoking cigarettes daily or on an occasional basis.
- ***Former smokers*** are those who have smoked at least 1 cigarette in their lifetime, but no longer do**.**
- ***Ever smokers*** are those who have ever smoked more than 1 whole cigarette, i.e. both current smokers and former smokers.
- ***Never smokers*** are those who have never smoked one whole cigarette.
- ***Smoking prevalence*** is the percentage of the sub-population who are Current Smokers.
- ***Quit Ratio*** is the percentage of ever smokers who are former smokers.
- ***Onset ratio*** is the percentage of the population who are ever smokers.
- ***Intensity of the disparity*** was calculated as the relative risk of being a current smoking between the comparison group and the reference group
- ***Prevalence Gap*** was calculated as the number fewer smokers there would be in the comparison group if Smoking prevalence were the same as in the reference group. For example, the number fewer men who would smoke if the same percentage of men smoked as do women.
- ***Cessation Gap*** was calculated as the number fewer smokers there would be in the comparison group if the Quit Rate were the same as in the reference group, but the onset rate was held constant. For example, the number fewer men who would smoke if male smokers were as likely to quit as female smokers.
- ***Onset Gap*** was calculated as the number fewer smokers there would be in the comparison group if the Onset Rate were the same as in the reference group, but the Quit rate was held constant. For example, the number fewer men who would smoke if men were as likely to remain non smokers as women are.

Data Sources: The source of all data used was the Canadian Community Health Survey (CCHS), a cross-sectional population based survey which excludes those living on reserves, full time members of the Canadian Forces, and those living in institutions. All variables are self reported. All cycles of the survey use similar methodologies, and full information on their design can be found elsewhere.[9] Estimates of the most recent demographic and smoking status information were taken from the 2003, 2005 and 2013-2014 CCHS Public Use Microdata (PUMF). Information related to aboriginal ancestry and sexual identity was provided by Statistics Canada. Information related to mental health conditions and substance use was obtained from the 2012 CCHS mental health survey. Confidence intervals, and coefficients of variations were calculated using the methods and look-up tables provided by Statistics Canada.

The 2013-2014 CCHS involved 128,310 respondents aged 12 years and over, with a 66.2% response rate). The 2012 CCHS Mental Health 2012 involved 25,113 respondents aged 15 and over with a 68.9% response rate, the 2005 CCHS (Cycle 3) involved 132,947 respondent aged 12 years and over, with a 78.9% response rate, and the 2003 CCHS (Cycle 2.1) involved 134,072 respondents age 12 years and over with an 80.7% response rate.

Limitations: As shown on Table 1, not all of the variables used the same age range. The Aboriginal population surveyed did not include those living on reserve. The sub-populations are not mutually exclusive, and the potential overlap among them is obvious. There are, for example, many immigrant women (a group with the lowest smoking prevalence) who will also be included in groups with relatively high smoking rates: they may, for example, live in low income households, rent their home instead of owning it, have not graduated from a post-secondary institution, or be experiencing depression. Conversely, there are some recent cannabis users (a group with the highest smoking prevalence) who can be defined by factors associated with lower smoking rates: they may be high income white collar workers who are married, for example. For this reason, no conclusions can be reached without further analysis about the inter-relationships of these factors or their influence on the number of Canadians who smoke.

Table 1: Factors associated with smoking behaviour and CCHS variables selected, 2012, 2013-2014

Factor	CCHS Variable	Comparison Group	Population	Reference Group	Population	Age
Demographic						
Sex	DHH_SEX ‡	Men	14,714,500	Women	15,086,500	12+
Sexual identity	Master File	Homosexual or bisexual	555,400	Heterosexual	18,748,000	18-59
Immigration – men	SDCFIMM ‡	Non-immigrant men	10,834,300	Immigrant men	3,417,700	12+
Immigration – women	SDCFIMM ‡	Non-immigrant women	10,984,400	Immigrant women	3,628,200	12+
Race	SDCGCGT ‡	White	21,984,700	Visible Minority	6,927,000	12+
Aboriginal Status	Master File	Aboriginal	1,162,000	Non-Aboriginal	27,263,000	12+
Province	GEOGPRV ‡	Lives outside B.C.	25,842,800	Lives in British Columbia	3,958,300	12+
Socio Economic						
Household income	INCDRCA ‡	Household income – lowest 80%	23,750,700	Household income – highest 20%	5,940,500	12+
Education	EDUDR04 ‡	Not a post-secondary grad	10,018,200	Post-secondary graduate	16,175,500	20+
Occupation -blue collar	LBSGSOC ‡	Blue collar worker	3,948,800	White collar worker	9,604,900	15-75
Occupation Sales-service	LBSGSOC ‡	Sales and service worker	4,202,500	White collar worker	9,604,900	15-75
Family Environment						
Marital status – Single	DHHGMS ‡	Single	8,936,700	Married	13,929,500	20+
Marital status – CL	DHHGMS ‡	Living Common law	3,221,500	Married	13,929,500	20+
Marital Status – Former	DHHGMS ‡	Divorced, widowed, separated	3,639,700	Married	13,929,500	20+
Home ownership	DHHOWN‡	Household rents	7,811,900	Household owned by family member	21,240,300	12+
Mental Health and Substance use						
Cannabis use – lifetime	SUDFLCM †	Used cannabis more than once in lifetime	9,466,000	Did not use cannabis more than once in lifetime	18,733,500	15+
Cannabis use – past year	SUDFYCM †	Used cannabis more than once in past year	3,236,800	Did not use cannabis more than once in past year	24,959,600	15+
Alcohol dependence/abuse – lifetime	AUDDL †	Met WHO CIDI criteria for alcohol dependence or abuse in lifetime	5,054,700	Did not meet WHO CIDI criteria for alcohol dependence or abuse in lifetime	22,888,300	15+
Mental health or substance use disorder	MHPFL †	Met the WHO-CIDI criteria for mental health or substance use disorder in their lifetime	9,117,400	Did not meet the WHO-CIDI criteria for mental health or substance use disorder in their lifetime	18,451,600	15+
Mood disorder diagnosis	CCC_280 ‡	Has been diagnosed with a mood disorder	2,286,400	Has not been diagnosed with a mood disorder	27,473,400	12+
Anxiety disorder diagnosis	CCC_290 ‡	Has been diagnosed with an anxiety disorder	2,047,100	Has not been diagnosed with an anxiety disorder	27,697,300	12+

† CCHS 2012 Mental Health Survey PUMF
‡ CCHS 2013-2014 PUMF

Table 2: Number of Smokers, Smoking Prevalence and Relative Risk of Smoking, 2013-2014

	Number of Smokers		Smoking Prevalence		Relative Risk/ Prevalence Ratio (95% CI)
	Comparison Group	*Reference Group*	*Comparison Group*	*Reference Group*	
Demographic					
Sex	3,199,000	2,364,4500	21.7	15.7	1.39 (± 0.07)
Sexual identity	186,000	4,219,700	33.6	22.5	1.49 (± 0.4)
Immigration – men	2,468,700	618,000	22.8	18.1	1.26 (± 0.11)
Immigration – women	2,066,200	233,000	18.8	6.4	2.93 (±0.38)
Race (White-Visible Minority)	4,671,200	975,300	21.2	14.1	1.51 (±0.09)
Aboriginal	389,000	4,870,200	34.3	17.9	1.92 (± 0.12)
Province	4,959,400	604,100	19.2	15.3	1.26 (± 0.10)
Socio Economic					
Household income – 80/20	4,618,600	902,500	19.4	15.2	1.28 (±0.09)
Education - individual	2,597,300	2,595,600	25.9	16.0	1.62 (±0.09)
Occupation -blue collar	1,199,600	1,474,300	30.4	15.3	1.98 (±0.15)
Occupation -sales & service	986,000	1,852,200	23.5	15.3	1.53(±0.13)
Family Environment					
Marital Status - single	1,915,800	1,852,200	21.4	13.3	1.61 (±0.10)
Marital Status – common law	936,900	1,852,200	29.1	13.3	2.19 (±0.17)
Marital Status – former	845,300	1,852,200	23.2	13.3	1.75 (±0.14)
Home ownership	2,268,800	3,144,500	29.0	14.8	1.96 (±0.10)
Mental health and substance use					
Cannabis use – lifetime	3,473,500	2,451,100	36.7	13.1	2.80 (±0.27)
Cannabis use – past year	1,575,300	4,348,700	48.7	17.4	2.79 (± 0.29)
Alcohol dependence/abuse – lifetime	1,910,600	3,946,800	37.8	17.2	2.19 (±0.23)
Mental health or substance use disorder	2,941,900	2,855,700	32.3	15.5	2.08 (±0.23)
Mood disorder diagnosis	768,600	4,785,700	33.6	17.4	1.93 (±0.14)
Anxiety disorder diagnosis	695,300	4,857,400	34.0	17.5	1.94 (± 0.17)

Table 3: Prevalence Gap and its impact on affected population and overall prevalence, 2013-14

Group affected (comparison)	Number of smokers	Prevalence Gap	Gap as % of sub-population	Gap as % of Total Smokers
Men	3,199,000	892,800	6%	16%
Homosexual or bisexual	186,000	61,500	11%	1%
Non-immigrant men	2,468,700	509,600	5%	9%
Non-immigrant women	2,066,200	1,360,800	12%	24%
White	4,671,200	1,575,700	7%	28%
Aboriginal	389,000	191,300	16%	3%
Lives outside B.C.	4,959,400	1,015,500	4%	18%
Household income – lowest 80%	4,618,600	1,195,100	5%	21%
Not a post-secondary graduate	2,597,300	989,800	10%	18%
Blue collar worker	1,199,600	593,500	15%	11%
Sales and service worker	986,000	341,000	8%	6%
Single	1,915,800	727,472	8%	13%
Living Common law	936,900	-508,517	-16%	-9%
Divorced, widowed, separated	845,300	-361,350	-10%	-6%
Household rents	2,268,800	1,112,300	14%	20%
Used cannabis more than once in lifetime	3,473,500	2,235,000	24%	40%
Used cannabis more than once in past year	1,575,300	1,011,400	31%	18%
Alcohol dependence or abuse in lifetime	1,910,600	1,039,000	21%	19%
Mental health/substance use disorder -lifetime	2,941,900	1,530,800	17%	28%
Diagnosed with a mood disorder	768,600	370,300	16%	7%
Diagnosed with an anxiety disorder	695,300	336,300	16%	6%

Table 4: Changes in intensity and magnitude of smoking disparities

	Relative Risk/ Ratio of Smoking Prevalence				Prevalence Gap		
	2003-2005	2013-14	Difference	Significant at 95%	2003-2005	2013-14	Difference
Demographic							
Sex	1.19	1.39	0.19	yes	532,336	892,806	360,470
Sexual identity	1.48	1.49	0.01	no	40,517	61,498	20,981
Immigration – men	1.20	1.26	0.06	no	439,517	509,609	70,092
Immigration – women	1.98	2.93	0.95	yes	1,196,707	1,360,810	164,103
Race (White-Visible Minority)	1.34	1.51	0.17	yes	1,323,856	1,575,703	251,847
Aboriginal	1.92	1.98	(0.06)	no	93,735	191,323	97,588
Province	1.26	1.26	0	no	1,117,716	1,015,514	-102,202
Socio Economic							
Household income – 80/20	1.21	1.32	0.03	no	833,380	1,195,075	361,695
Education - individual	1.40	1.62	0.21	yes	846,466	989,748	143,282
Occupation -blue collar	1.60	1.98	0.38	yes	558,495	593,458	34,963
Occupation -sales & service	1.34	1.53	0.19	yes	331,946	340,961	9,015
Family Environment							
Marital Status - single	1.99	2.19	0.20	no	546,578	727,472	180,894
Marital Status – common law	1.46	1.75	0.29	yes	404,033	508,517	104,484
Marital Status – former	1.38	1.61	0.24	yes	259,302	361,350	102,048
Home ownership	1.65	1.96	0.31	yes	813,635	1,112,263	298,628
Mental Health and substance use							
Mood disorder diagnosis	1.61	1.93	0.32	yes	186,769	370,290	183,521
Anxiety disorder diagnosis	1.71	1.94	0.23	yes	167,341	336,255	168,914

‡ Because income quintiles were not available for Cycle 2, the earlier reference point for these variables is Cycle 3, which was conducted in 2005.

Table 5: Prevalence Gap, Cessation Gap, and Onset Gap, 2013-2014

Factor	Cessation Gap	Onset Gap	Prevalence Gap	Cessation Gap	Onset Gap	Prevalence Gap
	Number of people			% of comparison group affected		
Demographic						
Sex	321,100	635,500	892,800	2.2%	4.3%	6.1%
Sexual identity	39,100	28,300	61,500	7.0%	5.1%	11.1%
Immigration – men	249,100	289,800	509,600	2.3%	2.7%	4.7%
Immigration – women	602,600	1,070,400	1,360,800	5.5%	9.7%	12.4%
Race (White-Visible Minority)	(672,100)	1,965,100	1,575,700	(3.1%)	8.9%	7.2%
Aboriginal	145,400	72,300	191,300	12.5%	6.2%	16.5%
Province	849,200	200,700	1,015,500	3.3%	0.8%	3.9%
Socio Economic						
Household income – 80/20	1,248,100	(72,600)	1,195,100	5%	(0.3%)	4%
Education - individual	793,300	282,900	989,800	7.9%	2.8%	9.9%
Occupation -blue collar	442,600	239,000	593,500	11.2%	6.1%	15.0%
Occupation -sales & service	347,300	(9,700)	341,000	8.3%	(0.2%)	8.1%
Family Environment						
Marital Status - single	1,059,400	(742,555)	727,472	11.9%	(8.3%)	8.1%
Marital Status – common law	418,600	162,538	-508,517	13.0%	5.0%	15.8%
Marital Status – former	299,700	-95,563	-361,350	8.2%	2.6%	9.9%
Home ownership	1,024,900	159,400	1,112,300	13.1%	2.0%	14.2%
Substance use and mental health						
Cannabis use – lifetime	1,315,000	1,480,500	2,235,000	13.9%	15.6%	23.6%
Cannabis use – past year	762,900	481,800	1,011,400	23.6%	14.9%	31.2%
Alcohol dependence/abuse – lifetime	546,000	690,300	1,039,000	11%	13.7%	21%
Mental health or substance use disorder	868,400	939,900	1,530,800	9.5%	10.3%	16.8%
Mood disorder diagnosis	253,700	174,000	370,300	11.1%	7.6%	16.2%
Anxiety disorder diagnosis	252,600	131,400	336,300	12.3%	6.4%	16.4%

Table 6: Relative Risk of being a Never Smoker and Quitting

	Year	Relative Risk/ Ratio of Being a Never-Smoker	Relative Risk/ Ratio of Quitting (smokers only)
Demographic			
Sex	2013-2014	0.75(± 0.02)	0.95 (± 0.03)
Sexual identity	2013-2014	0.76 (±0.09)	0.83 (± 0.10)
Immigration – men	2013-2014	0.83 (± 0.05)	0.95 (± 0.06)
Immigration – women	2013-2014	0.59 (± 0.03)	0.88 (± 0.06)
Race	2013-2014	0.58 (± 0.02)	1.08 (± 0.05)
Aboriginal	2013-2014	0.72 (± 0.05)	0.73 (± 0.05)
Province	2013-2014	0.95 (± 0.04)	0.92 (± 0.03)
Socio Economic			
Household income – 80/20	2013-2014	0.81 (± 0.04)	0.87 (± 0.06)
Education - Individual	2013-2014	0.83 (± 0.03)	0.83 (± 0.03)
Occupation -blue collar	2013-2014	0.68 (± 0.04)	0.78 (± 0.04)
Occupation -Sales & Service	2013-2014	1.18 (± 0.06)	0.79 (± 0.06)
Family Environment			
Marital Status - single	2013-2014	1.40 (± 0.04)	0.64 (± 0.03)
Marital Status – common law	2013-2014	0.70 (± 0.06)	0.76 (± 0.04)
Marital Status – former	2013-2014	0.82 (± 0.05)	0.84 (± 0.05)
Home ownership	2013-2014	0.91 (± 0.03)	0.70 (± 0.03)
Mental Health and substance use			
Cannabis use – lifetime	2012	0.32 (± 0.02)	0.77 (± 0.03)
Cannabis use – past year	2012	0.41 (± 0.03)	0.59 (± 0.04)
Alcohol dependence/abuse – past year	2012	0.43 (± 0.13)	0.61 (± 0.09)
Mental health or substance use disorder	2012	0.50 (± 0.04)	0.82 (± 0.04)
Mood disorder diagnosis	2013-2014	0.64 (± 0.05)	0.77 (± 0.05)
Anxiety disorder diagnosis	2013-2014	0.71 (± 0.06)	0.73 (± 0.05)

‡ Because income quintiles were not available for Cycle 2, the reference point for these variables is Cycle 3, which was conducted in 2005.

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