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Generating knowledge for public health

Smoke-Free Ontario Strategy Monitoring Report:
Appendix

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Appendix: Technical Information about Population Surveys

Data Sources

Centre for Addiction and Mental Health Monitor (CAMH Monitor)

The Centre for Addiction and Mental Health's CAMH Monitor (CAMH Monitor) is an Ontario-wide, random telephone survey, focusing on addiction and mental health issues. Administered by the Institute for Social Research at York University, this ongoing monthly survey has a two-stage probability selection design. The survey represents Ontario residents aged 18 and older, excluding people in prisons, hospitals, military establishments, and transient populations such as the homeless. The CAMH Monitor replaced earlier surveys at the Centre including the Ontario Alcohol and Other Drug Opinion Survey (1992-1995) and the Ontario Drug Monitor (1996-1999). Reported trend data are based on all of these surveys, which used similar questions and sampling methods. In 2016, estimates were based on telephone interviews with 3,042 adults (38% of eligible respondents) representing 10,157,960 Ontarians aged 18 or older, conducted between January and December. All survey estimates were weighted, and variance estimates and statistical tests were corrected for the sampling design.

Ontario Student Drug Use and Health Survey (OSDUHS)

The Centre for Addiction and Mental Health's Ontario Student Drug Use and Health Survey (OSDUHS) is a province-wide survey, first implemented in 1977 and conducted every two years (in the spring) by the Institute for Social Research at York University. The survey uses a two-stage (school, class) cluster sample design and samples classes in elementary and secondary school grades (i.e., grades 7 to 12). Students enrolled in private schools, special education classes, those institutionalized for correctional or health reasons, those on Indian reserves and Canadian Forces bases, and those in the far northern regions of Ontario were not included in the target population. These exclusions comprise approximately 8% of Ontario students. In 2017, 11,435 students participated in the survey, with a student participation rate of 61% (the participation rate was influenced by 12% of students who were absent and 27% of nonparticipating students

who either did not return consent forms or their parents refused participation). All survey estimates were weighted, and variance estimates and statistical tests were corrected for the complex sampling design.

Canadian Community Health Survey (CCHS)

The Canadian Community Health Survey (CCHS) is an ongoing cross-sectional population survey that collects information related to health status, healthcare utilization and health determinants. Initiated in 2000, it operated on a two-year collection cycle but changed to annual data collection in 2007. The CCHS is a large-sample general population health survey, designed to provide reliable estimates at the health region level. The CCHS samples respondents living in private dwellings in the ten provinces and the three territories, covering approximately 98% of the Canadian population aged 12 or older. People living on Indian reserves or Crown lands, residents of institutions, full-time members of the Canadian Forces and residents of certain remote regions are excluded from the survey.

In 2015, the CCHS underwent changes in survey design – both in sampling and content. The samples for the youth population (aged 12 to 17) and the adult population (aged 18+) are now treated differently. Youth participants were selected directly from the Canadian Child Tax Benefit files. Whereas adult participants were selected using the same sampling frame as the Canadian Labour Force Survey, which is a multistage stratified cluster design where the dwelling is the final sampling unit. Approximately 70% of the survey content was modified in 2015, ranging from minor tweaks or major changes to concepts, vocabulary or response categories. For this reason, caution should be taken when interpreting trends. In total, 52,699 Canadians aged 12 or older participated in the 2015 survey (including 15,834 Ontarians). All survey estimates were weighted, and variance estimates were calculated using bootstrap weights.

Data Analysis

Characteristics Associated with Smoking Status

Youth
A segmentation analysis of students in grades 9 to 12 was conducted, with a focus on current smoker and nonsmoker sub-populations defined by risky behaviours (e.g., drinking, drug use) and social determinants of health (e.g., social cohesion, work for pay, housing), as defined in

Table A-1). The analysis was conducted using the 2015 Ontario Student Drug Use and Health Survey (OSDUHS). Data were weighted to represent students in Ontario. All analyses took into account the complex sampling design of the survey.

Table A-1: Indicators of Chronic Disease Risk Factors and Social Determinants of Health Among Current Smokers[a] and Nonsmokers, OSDUHS

Indicator	Definition
Drug Use Problem	Reporting experiencing at least 2 of the 5 items (used drugs to relax or fit in, used drug alone, forgotten things while using drugs, gotten into trouble while on drugs, had family say cut down on drugs) on the CRAFFT screener, which measures a drug use problem that may require treatment (in the past 12 months)
Hazardous or harmful drinking	Scoring at least 8 out of 40 (Likert scoring) on the World Health Organization's Alcohol Use Disorders Identification Test (AUDIT) screen, which measures heavy drinking and alcohol-related problems during the past 12 months
Work for Pay	Students reported working for pay outside the home during the school year
Gambling Activity	Reporting gambling money on 1 or more of 9 gambling activities during the past 12 months: cards, bingo, sports pools, sports lottery, other lottery (i.e. scratch cards, Lotto 6-49), video gambling/slot machines, casino, internet game, dice, any other activities. This is not a measure of problem gambling
Health Professional Visit for Mental Health Problems	Reported at least one visit to a doctor, nurse, or counsellor for emotional or mental health reason in the last 12 months
Delinquent Behaviour	Reporting at least 3 of the following 9 delinquent behaviours in the 12 months before the survey: vandalized property, theft of goods worth less than $50, theft of goods worth $50 or more, stole a car/joyriding, break and entering, sold cannabis, ran away from home, assaulted someone (not a sibling), carried a weapon
No Social Cohesion at School	Students who did not "feel close to people at school" or did not feel like they are "part of the school"
Self-Rated Poor Health	Rating one's physical health as either "fair" or "poor"
Live in >1 Home	Reported dividing time between two or more homes
Parents with ≤high school education	Parents (both for two parents families and one for single families) have high school education or less

[a] Current smoker is someone who has smoked at least 100 cigarettes in his or her life and smoked within the last 30 days

Adults

A segmentation analysis of young adult (aged 18 to 29 years) and adult (18+ years) current smoker and nonsmoker subpopulations was conducted using health indicators such as chronic disease risk factors (e.g., physical inactivity, overweight) and social determinants of health (e.g., food security, education), as defined in Table A-2. The analysis was conducted using the 2015 Canadian Community Health Survey (CCHS) Master file. All survey estimates were weighted, and variance estimates were calculated using bootstrap weights.

Table A-2: Indicators of Chronic Disease Risk Factors and Social Determinants of Health Among Current Smokers[a] and Nonsmokers, CCHS

Indicator	Definition
Identifies as being White	Respondent reported that his/her cultural / racial background is White
Born in Canada	Respondent is not an immigrant
Unhealthy eating habits	Respondent eats less than 5 servings of fruits and vegetables per day
Male	Respondent is male
Inactive	Respondent is "inactive" in their leisure time if they did not reported any physical activity minutes during the interview
Overweight	Respondents whose self-reported body mass index (BMI) exceeds a value of 25.
Excess of low risk drinking[b]	Women who had more than 10 drinks in the previous week, had more than 2 drinks on a single day in the previous week, consumed alcohol on 6-7 days in the previous week, and/or had 5+ drinks in one occasion at least once per month for the past 12 months. Excludes women who were pregnant or breastfeeding. Men who had more than 15 drinks in the previous week, had more than 3 drinks on a single day in the previous week, consumed alcohol on 6-7 days in the previous week, and/or had 5+ drinks in one occasion at least once per month for the past 12 months
Renting current dwelling	Respondent's dwelling is rented.
Working in sales & services occupations	Respondents work in sales and service occupations (e.g., retail, hospitality, and child care)
Working in trades, transportation & equipment operation occupation	Respondents work in trades, transportation and equipment operation occupation (e.g., construction and taxi drivers)
Low education	Respondent's household's highest level of education is less than high school completion
Not having a family doctor	Respondent does not have a regular health care provider
Mood disorder	Respondent reported having a mood disorder, such as depression, bipolar disorder, mania or dysthymia.
Illicit drug use	Respondent reported using an illicit drug in the past 12 months.

[a] Current smoker is someone who has smoked at least 100 cigarettes in his or her life and smoked within the last 30 days

[b] Calculated using the Canadian Centre on Substance Abuse's 'Canada's Low-Risk Alcohol Drinking Guidelines.[1]

Strengths and Weaknesses of Surveys

Each of the surveys described has its own particular strengths, and we draw on these throughout the report. For instance, because of the lengthy period over which the CAMH surveys have been conducted—since 1977 for OSDUHS and since 1991 for the CAMH Monitor—trend data on provincial smoking behaviour are unsurpassed. The CCHS includes information on type of smoker, amount smoked, cessation, age of initiation, use of other tobacco products, workplace restrictions and secondhand smoke exposure. The strength of CCHS is its large sample size and geographic coverage (down to health region).

Direct comparison of results from different surveys might not always be appropriate because the surveys use different methodologies (e.g., school-based vs. telephone surveys) and can have different question wording and response categories. Moreover, the target population (e.g., people aged 12 or over vs. people aged 15 or over), as well as purpose and response rates of surveys, can vary. To aid the reader, figures and tables depicting survey data are accompanied by a detailed title, which typically provides information on the survey question, population of interest, age, and survey year. Figures and tables also have data sources listed in figure and table notes.

Estimating Population Parameters

One should be cautious in interpreting trend data (e.g., differences in yearly estimates) and comparisons between two or more estimates (e.g., men and women). Statements of significance, including any directional statement (e.g., increase, decrease, higher, lower, etc.) are based on non-overlapping confidence intervals or z-test for two population proportions. Trend tests are based on linear regression, treating prevalence as the outcome and years as an independent variable.

Sample surveys are designed to provide an estimate of the true value of a particular characteristic in the population such as the population's average tobacco-related knowledge, attitudes, or behaviours (e.g., the percentage of Ontario adults who report smoking cigarettes in the past month). Because not everyone in a province is surveyed, the true population value is unknown and is therefore estimated from the sample. Sampling error will be associated with this estimate. A confidence interval provides an interval around survey estimates and contains the true population values with a specified probability. In this report, 95% confidence intervals are used, which means that if equivalent size samples are drawn repeatedly from a population and a confidence interval is calculated from each sample, 95% of these intervals will contain the true value of the quantity being estimated in the population. For instance, if the prevalence of current smoking among Ontario adults on Survey A is 25% and the 95% confidence interval is 22% to 28%, we are 95% confident that this interval (22% and 28%) will cover the true value in the population.

It is equally true that an estimate of 20% (±3) from population A is not statistically different from a 25% (±4) estimate from population B (e.g., female vs. male). This occurs because the upper

limit on population A's estimate (20 + 3 = 23%) overlaps with the lower limit on population B's estimate (25 − 4 = 21%), albeit a formal test of significance might prove otherwise. This argument holds for comparisons of estimates from different survey years, and between other groupings within the same survey. To aid the reader in making comparisons, 95% confidence intervals are provided where possible.

References

[1] Butt P, Beirness D, Gliksman L, Paradis C, Stockwell, T. *Alcohol and health in Canada: A summary of evidence and guidelines for low risk drinking*. Ottawa, ON: Canadian Centre on Substance Abuse, 2011.