

Technical Appendix

Health Status Reporting Series Six

Health Behaviours and Risk Conditions

Saskatoon Health Region

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The Canadian Community Health Survey

All health behavior indicators come from the Canadian Community Health Survey (CCHS).

Definitions

The CCHS is a cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population. The target population is all Canadians aged 12 and over, (approximately 130,000 people per year). Starting in 2007, cycles were completed annually instead of every two years in case provinces or regions wanted more timely data. In Saskatoon Health Region, because of a relatively small sample size, we report findings from two year blocks to keep the SHR sample at approximately 1,200 per year.

Source

Statistics Canada. <http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3226>

Table 1 below shows the SHR sample characteristics for the 2013/14 cycle, though multiple cycles were used in the analysis (see section "Combining CCHS cycles" below).

Table 1: Characteristics of Saskatoon Health Region Sample of Canadian Community Health Survey Public Use Microdata File, 2013/14

	Total N	%*
Total SHR	1,342	100
Sex		
Male	606	45.2
Female	736	54.8
Age group in years		
<18	91	6.8
18-44	477	35.5
45-64	391	29.1
65+	383	28.5
Self reported income quintiles		
Lowest income quintile	312	23.3
Second lowest income quintile	288	21.5
Middle income quintile	248	18.5
Second highest income quintile	251	18.7
Highest income quintile	242	18.0
Ethnic minority		
White	1156	86.1
Visible Minority	167	12.6
Missing	19	1.4
Immigration		
Recent immigrant	59	4.4
Long term immigrant	83	6.2
Non-immigrant	1191	88.7

Missing	9	0.7
Educational attainment		
Less than high school	266	20.0
High school graduate	262	19.7
Some post-secondary	73	5.5
Post-secondary graduate	726	54.7
Missing	15	1.1

*Totals may not add to 100 because of rounding.

There were 10 different subgroups used in the analysis based on multiple CCHS years from 2000-2012.

Sex: Respondents were asked if they were male or female. No other choices were allowed.

Age group: Respondents were asked their age in years. From this single year of age, two different age groupings were used. For most of the indicators, four broad age categories were used (12-19, 20-44, 45-64 and 65+). For smoking and second hand smoke, six age categories were used to better understand smoking exposure among younger age groups.

Income: Respondents were asked their total household income from all sources before taxes and deductions in the past 12 months. This value was then divided by the low income cut off corresponding to the number of people in the household and the size of the community (i.e. urban or rural) which resulted in a household income ratio. This ratio was then divided by the highest ratio for all respondents which then placed all household ratios within a range from 0 to 1. Within the health region, these adjusted ratios were placed in deciles. The deciles (10 groups) were then converted into quintiles (five groups).

Deprivation Index: This index is based on six census questions from the 2006 census. See [here](#) for more information on how the deprivation index was derived for Saskatoon.

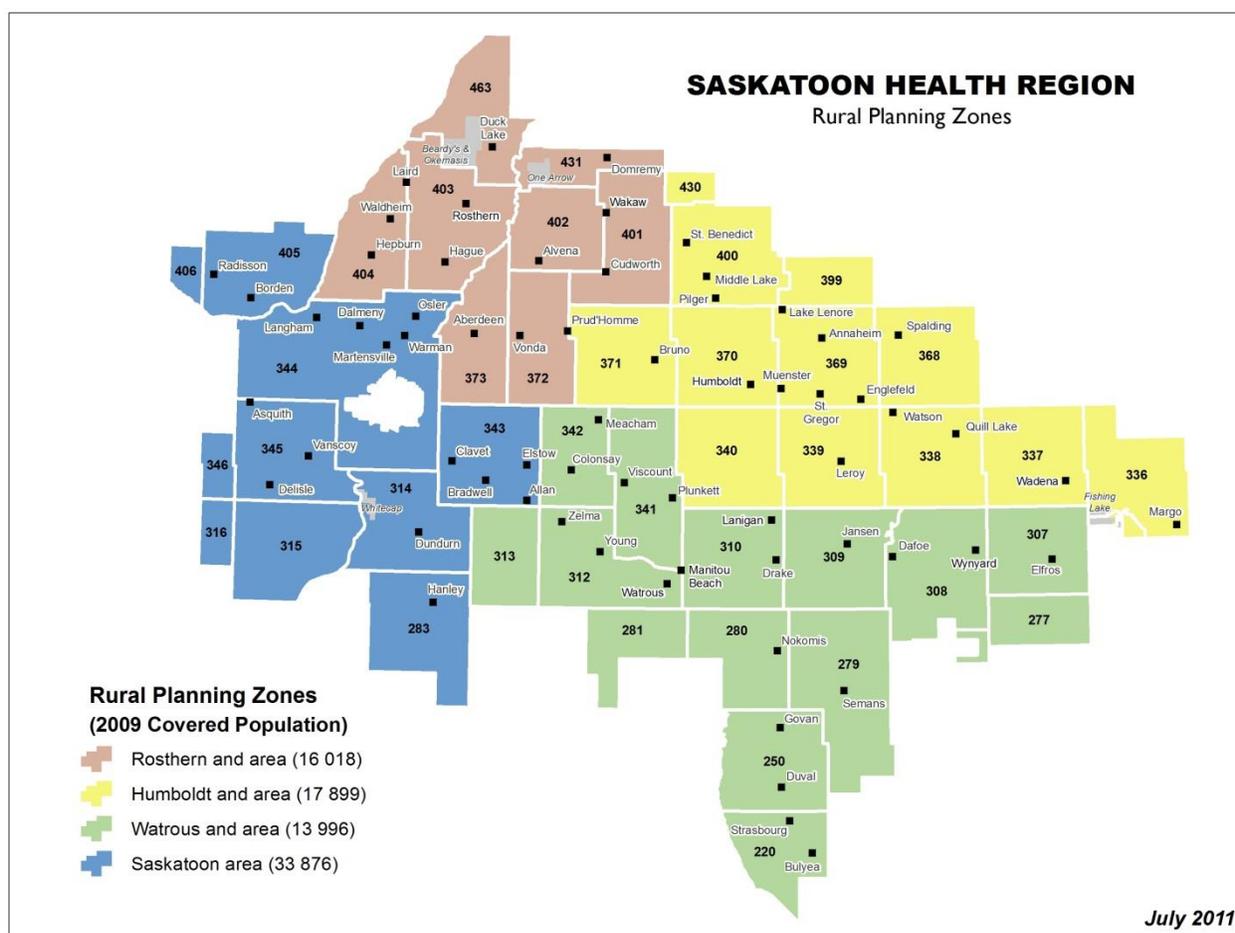
Education Level: Respondents were asked their highest level of education completed.

Ethnicity: Respondents were asked what racial or cultural group they belonged to on a multiple choice list. Given the small number of respondents who selected a group other than White (e.g. South Asian, Black, Arab etc.), all non-white racial groups, were combined together and considered a visible minority.

Immigrant Status: Respondents were asked the length of time they have been in Canada, excluding non-immigrants. Anyone who responded less than 10 years was considered a recent immigrant and anyone 10 years or more was considered a long term immigrant.

Rural/Urban: Respondents were considered from urban if they lived within the boundary of the City of Saskatoon. Anyone living outside this boundary but within the Saskatoon Health Region boundary was considered a rural SHR resident.

Rural Planning Zones: The Saskatoon Health Region is broken up into four rural planning zones, each with a population of approximately 15,000. See below for a map of these zones.



Produced by the Public Health Observatory, Public Health Services

04-003-2011

Inclusions/exclusions: Excluded from the sampling frame are individuals living on Indian Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Forces, and residents of certain remote regions. The CCHS coverage is in the range of 98% in the provinces.

Types of CCHS data files: The CCHS comes with two types of files. The first is the Public Use Microdata File (PUMF) which protects individual respondent anonymity by grouping sensitive variables and suppressing socio-demographic variables. All trend analysis comparing Saskatoon Health Region with either the Province of Saskatchewan or Canada estimates comes from the PUMF.

The second type of file is called the Share file and only includes values from respondents who stated that their information could be shared with other agencies. Grouping of sensitive variables and suppressing socio-demographic variables is limited in the Share file. All analysis that compares different sub-groups within Saskatoon Health Region comes from the Share files.

Combining CCHS cycles: For this report, 10 stratifiers were used within Saskatoon Health Region. Because each cycle had a small sample, multiple cycles of the CCHS were combined to provide a larger total sample for stratification. Cycle 1.1 from 2000/01 did not include enough of

the indicators and was dropped from the analysis. The cycles from 2003 to 2007 were combined in “Wave 1” analysis and 2008 to 2012 were combined in “Wave 2” analysis. The method for combining cycles was the pooled approach as outlined in Thomas and Wannell (2009). Note that in this report, only results from wave 2 are shown, as this is the most recent time period.

To conduct the pooled approach for combining cycles we first examined the variable names associated with each indicator and made sure that these were represented in each of the cycles. Variables were consistently named throughout all cycles. Cycles were appended and wave variables were created. Eight of the 12 indicators examined were represented in each cycle for both wave periods. For sedentary behaviour and illicit drug use, the 2011 and 2012 cycles were used; for vegetable and fruit consumption and food security, the 2010, 2011 and 2012 cycles were used (see Table 2).

Table 2. CCHS Cycles for Wave Analysis Time Periods

CCHS Cycle	2000/1	2002/3	2004/5	2007	2008	2009	2010	2011	2012
		Wave 1			Wave 2				
Chronic Stress	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Binge Drinking	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Current Smoking	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Second hand smoking home	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Physical activity	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Self-rated mental health	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Self-rated health	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Overweight or obese	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Food security	Missing	Missing	Missing	Wave 1		Wave 2			
Vegetable and fruit consumption	Missing	Dropped	Missing	Wave 1		Wave 2			
Sedentary behaviour	Dropped	Missing	Dropped	Wave 1		Missing	Missing	Wave 2	
Illicit Drug Use	Dropped	Wave 1			Missing	Dropped	Dropped	Wave 2	
Education	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Income adequacy*	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Ethnicity	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Immigration	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
Deprivation Index	Dropped	OK	OK	OK	OK	OK	OK	OK	OK
RPZ (Rural Planning Zones)	Dropped	OK	OK	OK	OK	OK	OK	OK	OK

* Income adequacy has a caveat that in Cycle2 the quintiles are not derived in the same way as cycle 3.1 to 9.1

After pooling the data we created derived variables for the indicators of interest (e.g. we regrouped single year of age values into age groups; we took individual census sub-divisions and regrouped in rural planning zones etc.). Once the derived variables were created, unweighted and weighted bivariate analysis was performed.

Weighting: Each respondent in the survey represents several other persons not in the survey sample. This is called weighting and all analysis shown is weighted based on Statistics Canada methods. For the combined cycle analysis, all weights were multiplied by the inverse of the number of cycles in that time period. So for Wave 2 analysis, each weight among the eight indicators that were represented in all 5 cycles, was multiplied by $1/5=0.2$. For sedentary behaviour and illicit drug use, the weights were multiplied by $1/2=0.5$ because they were included in 2 cycles. For vegetable and fruit consumption and food insecurity, the weights were multiplied by $1/3=0.33$ because they were included in 3 cycles. After recoding the weights to account for combining cycles into waves, we compared the summed weights to the census population for the Saskatoon Health Region. Summed weights were close the population estimates and suggest the weight recoding was done correctly.

Variance estimation: All estimates have degrees of variability and given the complex sampling nature of the CCHS, Statistics Canada recommends that confidence intervals and coefficients of variation be calculated by the bootstrap method. In addition to the weights described above, each record in the CCHS includes bootstrap weights. The bootstrap weights are used to calculate coefficient of variation and confidence intervals. The method used for bootstrap analysis was based on Gagne, Roberts and Keown (2014) using SAS 9.2.

References

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Alcohol Use

Definitions

Heavy drinking has been shown to be detrimental to a person's health. A definition change was implemented in 2013 to conform to the World Health Organization (WHO) and Health Canada guidelines for heavy drinking. Heavy drinking refers to males who reported having 5 or more drinks, or women who reported having 4 or more drinks, on one occasion, at least once a

month in the past year. While this indicator remains comparable for males to the 5 or more drinks indicator published in previous years, it is no longer comparable for females.

Calculation

Percent heavy drinkers = individuals 12 years of age and older who report drinking five or more drinks on one occasion at least once a month in the past year divided by the total population 12 years of age and over. Note that starting in 2013, for females the heavy drinking cut off is four or more drinks on one occasion at least once a month in the past year.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

No rates for children less than 12 years of age available. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Food Insecurity

Definitions

A household's experience of food insecurity or the inadequate or insecure access to adequate food due to financial constraints. Food insecurity is assessed based on an 18 question food security module. A household is deemed moderately food insecure if there are 2 to 5 positive responses on the 10 question adult food security scale and 2 to 4 positive responses on the 8 question child food security scale. A household is deemed severely food insecure if there are 6 or more positive responses on the adult food security scale and 5 or more positive responses on the child food security scale.

Calculation

Percent of households indicating some level of food insecurity (moderate or severe) divided by the total households with individuals 12 years of age and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

Statistics Canada does not include marginal levels of food insecurity which have been reported by others (Tarasuk et al. 2014). The omission of marginal food insecurity (no more than 1 positive response on either the adult or child food security scale) likely underestimates the total food insecure population. In Saskatchewan in 2012, roughly 4.4% of the population was considered marginally food insecure compared to 8.1% who answered moderate to severe food insecurity. Food security is only comparable since 2005 when the food security module questions were standardized. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Illicit Drug Use

Definitions

Percentage of individuals reporting illicit drug use at least once in the past 12 months, excluding one-time use of cannabis. Illicit drugs in this case mean illegal and include the following eight listed: cannabis, cocaine or crack, speed (amphetamines), ecstasy (MDMA), hallucinogens (PCP, LSD), sniffed glue, gasoline or other solvents, heroin, or steroids.

Calculation

Percent of individuals who report using illicit drugs at least once in the past 12 months excluding one-time use of cannabis = Number of persons 12 years of age and older reporting having used an illicit drug in the past 12 months excluding one-time use of cannabis divided by the total number of individuals 12 and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

Illicit drug use is subject to the possibility of under-reporting, as some respondents may be reluctant to share information about their drug use. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Injection Drug Use

Population and Public Health's Street Health Needle Exchange Program does not include needles issued and collected through Saskatoon Tribal Council (STC). The decrease in the numbers of needles distributed may be offset by STC needle exchange to Saskatoon clients.

The Enhanced Street Youth Study (ESYS) is part of a national surveillance project which began in 1997. It is supported by the Public Health Agency of Canada. Saskatoon joined the study in 1999.

The purpose of the ESYS is to better understand risk behaviors in street involved youth, especially risks associated with sexually transmitted infections and blood borne infections. The study contains much information about education, income, interaction with the justice system and social services and homelessness.

References

Diwaker G. Inspiring change through community voices; a survey of clients using the Street Health Needle Exchange Program. Population & Public Health practicum. Saskatoon Health Region (unpublished).

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Wright J. Drug Use Fact Sheet: preliminary results from the Enhanced Street Youth Study (ESYS) 2009. Public Health Observatory. Saskatoon Health Region 2011. Available from: URL: <http://www.communityview.ca/Catalogue/ResourceList/Search?phrase=esys>

Overweight or Obesity

Definitions

Overweight individuals are adults aged 18 and over (excluding pregnant women) who have a body mass index (BMI) between 25 to 29.9. Obese individuals are adults aged 18 and over (excluding pregnant women) who have a BMI over 30. Body Mass Index is calculated by taking a person's weight in kilograms and dividing it by their height in metres squared.

Calculation

Percent overweight or obese = individuals 18 years of age and older with BMI of 25 and above divided by the total population 18 years of age and older.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

BMI represents an estimate of fatty tissue based on weight and height. In the CCHS, there is no direct measure of body fat. Using self-report BMI can lead to misclassification of health risk. For example, a person with greater muscle or bone mass might be categorized as overweight based on their BMI, but the actual health risk for that person would be lower than someone with the same BMI who has more fat mass. BMI also has limitations in accurately accounting for different musculature or bone mass among or across ethnocultural groups. Other measures of obesity such as waist to hip ratio, waist circumference and skinfold measurements could be used. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Statistics Canada. Body composition of adults, 2012 to 2013. 2014. Available from: URL: <http://www.statcan.gc.ca/pub/82-625-x/2014001/article/14104-eng.htm>

Weight Status for Four Year Olds

Definitions

Children were measured and weighed at their four year old appointment when they came in to population and public health. Their height and weight were used to calculate Body Mass Index which is weight in kilograms divided by their height in metres squared. Weight status refers to the grouping of BMI relative to a growth reference or standard and is used to identify individuals or groups at risk. For children up to five years of age, the World Health Organization Child Growth Standards were used. The Dietitians of Canada adopted the WHO standards and recommended a set of BMI-for-age cut-off points to classify over- or under-nutrition of children.

Calculation

Dietitians of Canada recommended BMI for age cut-off points in percentiles.

Classification Percentiles	2–5 years
Wasting	<3rd
Risk of Overweight	>85th
Overweight	>97th
Obesity	>99.9th

Source

Saskatoon Health Region, Population and Public Health.

Limitations

The Ministry of Health in their weight status report used a Z score approach to classify weight status. This is the most commonly used approach and uses standard deviations to classify BMI into categories. For our report, percentiles are used. While not as accurate as using the z-scores, percentiles are increasingly being used to classify weight status and are generally more easily understood by clinicians (Preedy, 2012).

References

Wang Y, Chen HJ. Chapter 2 in Handbook of Anthropometry: physical measures of human form in health and disease. Preedy V.F (ed). 2012:34.

Physical Activity

Definitions

Individuals are classified as physically active, moderately active and inactive based on an index (the Leisure Time Physical Activity Index) of average daily physical activity over the past 3 months. For each leisure time activity engaged in by the individual, an average daily energy expenditure is calculated. This multiplies the number of times the activity was performed by the average duration of the activity by the energy cost of the activity. The index is calculated as the sum of the average daily energy expenditures of all activities. If the daily energy expenditure value is 1.5 -2.9 kcal/kg/day = moderately active. If the daily energy expenditure is 3.0 or higher = physically active. The combination of moderately and physically active together is what is reported.

Calculation

Percent moderately or physically active = individuals 12 years of age and older classified as moderately active or active according to the Leisure Time Physical Activity Index divided by the total population 12 years of age and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

No rates for children less than 12 years of age available at this time. The index does not include physical activity outside of leisure time (e.g. activity used to get to and from work), but is considered a proxy of total physical activity. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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URL: <http://www.phac-aspc.gc.ca/cd-mc/atlas/index-eng.php>

Second Hand Smoke (Home)

Definitions

Percentage of households with at least one person smoking inside their home regularly (every day or almost every day).

Calculation

Percent of households regularly exposed to environmental tobacco smoke = Number of households with at least one person smoking inside their home regularly divided by the total number of households.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

No adjustment for households with children less than 12 years of age. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

Note that exposure to second hand smoke in public places and in vehicles are also asked in the CCHS. In these cases, the calculation is the percent of people in the past month, exposed to second hand smoke every day or almost every day a) in a car or other private vehicle or b) in public places such as bars, restaurants, shopping malls, arenas, bingo halls and bowling alleys.

References

Canadian Cancer Society. Second hand smoke is dangerous. 2014 [cited 2014 Dec 31]; Available from: URL: <https://www.cancer.ca/en/prevention-and-screening/live-well/smoking-and-tobacco/second-hand-smoke-is-dangerous/?region=sk>

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Tager IB. The effects of second-hand and direct exposure to tobacco smoke on asthma and lung function in adolescence. *Pediatric Respiratory Reviews* 2008;9(1):29-37.

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Vozoris N, Lougheed MD. Second-hand smoke exposure in Canada: prevalence, risk factors, and association with respiratory and cardiovascular diseases. *Canadian Respiratory Journal* 2008;15(5):263-269.

Sedentary Behaviour

Definitions

The Canadian Sedentary Behaviour Guidelines establish that children age 5 to 17 be restricted to no more than 2 hours per day of recreational screen time. While adult guidelines have not been established in Canada, the 2 hour per day threshold is seen as appropriate for determining chronic disease risk. Therefore the proportion of people 12 years of age and older who report spending more than 14 hours per week watching television and/or using computers during leisure time is reported.

Calculation

Percent sedentary = individuals 12 years of age and older who report spending more than 14 hours per week watching television and/or using computers during leisure time divided by the total population 12 years of age and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

No estimates for children less than 12 years of age available at this time. No rates are available for those living in Saskatchewan in 2009/10 which limits the ability to produce trend information. Therefore only the last year (2011/12) is shown. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Self-Rated Mental Health

Definitions

Percentage of individuals reporting their mental health as “very good” or “excellent”.

Calculation

Percent of individuals who report their mental health as very good or excellent = Number of persons 12 years of age and older reporting their mental health as very good or excellent divided by the total number of individuals 12 and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Self-Rated Health

Definitions

Percentage of individuals reporting their health as “very good” or “excellent”.

Calculation

Percent of individuals who report their health as very good or excellent = Number of persons 12 years of age and older reporting their health as very good or excellent divided by the total number of individuals 12 and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

No estimates for children less than 12 years of age available. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Smoking

Definitions

Percentage of population who report being current smokers (daily or occasional) among those 15 years of age and older.

Calculation

Percent of individuals who are current smokers = individuals 15 years of age and older who report that at the present time they smoke cigarettes daily and occasionally divided by the total population 15 years of age and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

No rates for children less than 15 years of age available. Does not include the amount of tobacco smoked. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

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Chronic Stress

Definitions

Chronic stress has been shown to be detrimental to a person's health. Those having reported that most days last year were "quite a bit" stressful or "extremely" stressful are considered to have chronic stress.

Calculation

Percent of individuals with chronic stress = individuals 12 years of age and older who reported in the last year most days were quite a bit stressful or extremely stressful divided by the total population 12 years of age and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

No rates for children less than 12 years of age available. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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Vegetable and Fruit Consumption

Definitions

Individuals are asked how many vegetables and fruit they eat each day. Those that answered at least five or more are reported.

Calculation

Percent individuals eating at least five vegetables and fruit per day = individuals eating at least five vegetables and fruit per day divided by the total population 12 years of age and over.

Source

Statistics Canada, Canadian Community Health Survey.

Limitations

Serving size is not reflected in the answers, so individuals eating at least five vegetables and fruits per day does not necessarily mean that they are eating five or more servings per day. The Canada Food Guide also recommends that adults eat a minimum of seven servings of vegetables and fruit per day. Any estimates of healthy eating reported here will overestimate the proportion of healthy eaters if the Canada Food Guide is taken as the standard. Individuals living on First Nations Reserves and Crown lands; residents of institutions; full-time members of the Canadian Armed Forces; and residents of certain remote areas were excluded from the survey.

References

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