How we identify and count Aboriginal people—does it make a difference in estimating their disease burden?

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Abstract

Introduction: We examined the concordance between the Canadian Community Health Survey (CCHS) ''identity'' and ''ancestry'' questions used to estimate the size of the Aboriginal population in Canada and whether the different definitions affect the prevalence of selected chronic diseases.

Methods: Based on responses to the ''identity'' and ''ancestry'' questions in the CCHS combined 2009–2010 microdata file, Aboriginal participants were divided into 4 groups: (A) identity only; (B) ancestry only; (C) either ancestry or identity; and (D) both ancestry and identity. Prevalence of diabetes, arthritis and hypertension was estimated based on participants reporting that a health professional had told them that they have the condition(s).

Results: Of participants who identified themselves as Aboriginal, only 63% reported having an Aboriginal ancestor; of those who claimed Aboriginal ancestry, only 57% identified themselves as Aboriginal. The lack of concordance also differs according to whether the individual was First Nation, Métis or Inuit. The different method of estimating the Aboriginal population, however, does not significantly affect the prevalence of the three selected chronic diseases.

Conclusion: The lack of concordance requires further investigation by combining more cycles of CCHS to compare discrepancy across regions, genders and socio-economic status. Its impact on a broader list of health conditions should be examined.

Introduction

The great disparities in health outcomes between Aboriginal people in Canada and other Canadians are well documented in research studies and in governmental agency and Aboriginal organization reports.[1-3] A major problem in assessing the health of Aboriginal people in Canada is identifying the population denominator, a fundamental requirement in any epidemiological study.

The Constitution of Canada recognizes Aboriginal people as First Nations, Inuit and Métis. Among First Nations, the Indian Act further defines whether the person is ''status'' or ''non-status,'' and residing ''on-reserve'' or ''off-reserve.'' Over the decades, Statistics Canada has changed the approach it uses in the Census and in various other surveys.[4] In brief, it has used two concepts, that of ''identity'' (i.e. does the individual consider himself or herself to be an Aboriginal person) and ''ancestry'' or ''origin'' (i.e. does the individual have an ancestor who was an Aboriginal person). This dual approach has been a source of some confusion in estimating the size and composition of the Aboriginal population.

The objective of our study was to determine if the dual definition of who is an Aboriginal person affects the estimates of disease burden. We analyzed the Canadian Community Health Survey (CCHS), an important source of information on the health of Canadians and of Canadian communities and regions that is regularly conducted by Statistics Canada.[5,6] The CCHS excludes reserves in its sampling but does include the northern territories; as a result, for the First Nations population the CCHS is generalizable only to the off-reserve population.

Methods

We used the CCHS 2009–2010 combined file available at the Research Data Centre of Statistics Canada at the University of Toronto. CCHS identifies Aboriginal people using two questions:

- SDC_Q4: ''To which ethnic or cultural groups did your ancestors belong? (For example: French, Scottish, Chinese, East Indian).'' Interviewers were instructed to mark all the answers that apply. Among the choices available were ''North American Indian,'' ''Métis'' and ''Inuit,'' but no single ''Aboriginal'' category. In this paper, we refer to this as the ''ancestry question.''
- SDC_Q4_1: ''Are you an Aboriginal person, that is, North American Indian, Métis or Inuit?'' This is fol-

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lowed by SDC_Q4_2: ''Are you North American Indian?'', ''Are you Métis?'' and ''Are you Inuit?'' In this paper, we refer to this as the ''identity question.''

In this study, we defined various groups based on the responses to these two questions as follows:

- Group A: Those who answered only the identity question in the affirmative (ancestry = no and identity = yes)
- Group B: Those who answered only the ancestry question in the affirmative (ancestry = yes and identity = no)
- Group C: Those who answered either the ancestry question or the identity question in the affirmative (ancestry = yes or identity = yes)
- Group D: Those who answered to both questions in the affirmative (ancestry = yes and identity = yes).

Those who answered ''don't know,'' ''refused'' and ''not stated'' were considered as not having either Aboriginal ancestry or identity.

We compared the prevalence of chronic diseases among the different Aboriginal groups defined by the ''ancestry'' question versus those defined by the ''identity'' question. We selected diabetes, arthritis and hypertension for analysis. Individuals were classified as having a chronic disease if they answered ''yes'' to the CCHS questions on diagnoses made by a health professional.

All analyses were carried out using SAS version 9.3 (SAS Institute Inc., Cary, NC, US). Because the CCHS has a complex sampling design, estimates and standard errors were obtained using the weighted bootstrap method as per Statistics Canada guidelines.[7] To obtain counts and prevalences of chronic diseases for each Aboriginal ancestry and/or identity group, the sample weights and the 500 bootstrap weights supplied by Statistics Canada were used in the SAS procedure PROC SURVEYFREQ.

Results

Cross-tabulations of the counts of Aboriginal people in Canada based on the identity question and the ancestry question show that the two populations do not completely overlap (see Table 1).

TABLE 1
Size of Aboriginal population in Canada based on the ancestry[a] and identity[b] questions in CCHS 2009–2010

		Ancestry[a]		
		Yes	No	Total
Identity[b]	Yes	**582 789**	336 377	919 166
	No	433 891	27 384 067	
	Total	1 016 680		28 737 123

Abbreviation: CCHS, Canadian Community Health Survey.

Note: Shaded cells refer to individuals who reported EITHER Aboriginal ancestry OR Aboriginal identity.

[a] Those CCHS participants who responded ''North American Indian,'' ''Métis'' or ''Inuit'' to the ancestry question, ''To which ethnic or cultural groups did your ancestors belong? (For example: French, Scottish, Chinese, East Indian).''

[b] Those CCHS participants who responded in the affirmative to the identity question, ''Are you an Aboriginal person, that is, North American Indian, Métis or Inuit?'' followed by one of the following: ''Are you North American Indian?'', ''Are you Métis?'' or ''Are you Inuit?''

Based on responses to the ancestry question, there were 1 016 679 Aboriginal people in Canada (3.5% of the Canadian population), whereas using the identity question there were 919 166 Aboriginal people (3.2% of the Canadian population). Of the 919 166 individuals who identified themselves as Aboriginal, only 582 789 (63.4%) reported an Aboriginal ancestor. Of the 1 016 680 individuals who claimed Aboriginal ancestry, only 582 789 (57.3%) actually identified themselves as Aboriginal. Individuals who claimed Aboriginal ancestry AND identified themselves as Aboriginal (n = 582 789) made up 43.1% of those who EITHER claimed Aboriginal ancestry OR identified themselves as Aboriginal (1 353 056, the sum of the shaded cells in Table 1).

TABLE 2
Size of First Nations, Métis and Inuit populations in Canada based on the ancestry and identity questions in CCHS 2009–2010

	First Nations	Métis	Inuit
Population, n			
(A) Identity only[a]	446 701	414 697	35 288
(B) Ancestry only[b]	727 627	264 510	38 825
(C) Either[c]	870 934	483 185	48 124
(D) Both[d]	303 394	196 022	25 989
Proportion, %			
(A)/(C)	51.3	85.8	73.3
(B)/(C)	83.5	54.7	80.7
(D)/(C)	34.8	40.6	54.0
(D)/(A)	67.9	47.3	73.6
(D)/(B)	41.7	74.1	66.9

Abbreviation: CCHS, Canadian Community Health Survey.

[a] Those CCHS participants who responded in the affirmative only to the identity question, ''Are you an Aboriginal person, that is, North American Indian, Métis or Inuit?'' followed by one of the following: ''Are you North American Indian?'', ''Are you Métis?'' or ''Are you Inuit?'' (ancestry = no and identity = yes).

[b] Those CCHS participants who responded ''North American Indian,'' ''Métis'' or ''Inuit'' only to the ancestry question, ''To which ethnic or cultural groups did your ancestors belong? (For example: French, Scottish, Chinese, East Indian)''(ancestry = yes and identity = no).

[c] Those CCHS participants who answered to either the ancestry question or the identity question in the affirmative (ancestry = yes or identity = yes).

[d] Those CCHS participants who answered to both in the affirmative (ancestry = yes and identity = yes).

The lack of concordance between the two methods of counting Aboriginal people also differed according to whether the individual was First Nation, Métis or Inuit (see Table 2).

Table 3 shows the crude prevalence estimates (and 95% confidence interval) for diabetes, arthritis and hypertension between the non-Aboriginal and Aboriginal population as variously defined. The major differences are between the Aboriginal population, however defined, and the non-Aboriginal population. The different methods of defining the Aboriginal population have little impact on the magnitude of the chronic disease estimates.

Discussion

Redressing health disparities between Aboriginal and non-Aboriginal people in Canada is an important policy objective of governmental agencies, Aboriginal organizations and health care providers. Accurate assessment of both the population denominator and disease burden is a prerequisite in defining the scope of the problem. However, there is a lack of concordance in responses to the identity question and the ancestry question in the Census (personal communication, Paul Peters, Statistics Canada, 31 October, 2011), the reasons for which are poorly understood. In that aspect, we demonstrated differences between the First Nations, Métis and Inuit populations. There could well also be differences between regions, genders and socio-economic status. We wish to alert users of Statistics Canada health surveys to the discrepancy. Further investigation is warranted, which will require merging even more cycles of CCHS than we had done, or using Census data.

Conclusion

It is reassuring that the prevalence estimates of three chronic diseases (self-reported diabetes, arthritis and hypertension) do not differ significantly between those based on the identity question and those based on the ancestry

TABLE 3
Crude prevalence of selected chronic diseases based on self-report in CCHS 2009–2010

	Population, n	Cases, n	Prevalence, %	95% CI
Diabetes				
Non-Aboriginal	27 371 441	1 679 098	6.1	5.9–6.4
Aboriginal				
Identity only[a]	918 849	67 799	7.4	6.3–8.4
Ancestry only[b]	1 015 718	71 371	7.0	6.1–8.0
Either identity or ancestry[c]	1 352 095	94 321	7.0	6.1–7.9
Both identity and ancestry[d]	582 472	44 848	7.7	6.5–8.9
Arthritis				
Non-Aboriginal	26 618 055	4 103 368	15.4	15.2–15.8
Aboriginal				
Identity only[a]	873 695	161 251	18.5	16.7–20.2
Ancestry only[b]	978 118	165 383	16.9	15.3–18.5
Either identity or ancestry[c]	1 296 515	228 474	17.6	16.2–19.1
Both identity and ancestry[d]	555 299	98 161	17.7	15.6–19.8
Hypertension				
Non-Aboriginal	27 320 981	4 703 035	17.2	16.9–17.5
Aboriginal				
Identity only[a]	911 895	114 689	12.6	11.3–13.9
Ancestry only[b]	1 009 344	130 005	12.9	11.6–14.2
Either identity or ancestry[c]	1 344 813	169 462	12.6	11.5–13.7
Both identity and ancestry[d]	576 426	75 232	13.1	11.5–14.6

Abbreviations: CCHS, Canadian Community Health Survey; CI, confidence interval.

[a] Those CCHS participants who responded in the affirmative to only the identity question, ''Are you an Aboriginal person, that is, North American Indian, Métis or Inuit?'' (ancestry = no and identity = yes).

[b] Those CCHS participants who responded in the affirmative to the ancestry question, ''To which ethnic or cultural groups did your ancestors belong? (For example: French, Scottish, Chinese, East Indian)'' (ancestry = yes and identity = no).

[c] Those CCHS participants who answered either the ancestry question or the identity question in the affirmative (ancestry = yes or identity = yes).

[d] Those CCHS participants who responded in the affirmative to both the identity question and the ancestry question (ancestry = yes and identity = yes).

question. All show the same relationship relative to non-Aboriginal people, confirming studies done using the CCHS[5,6] and other surveys such as the Aboriginal Peoples Survey.[8] Whether other chronic diseases vary according to the method of ascertaining the Aboriginal population denominator remains to be investigated.

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