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Black–White Health Inequalities in Canada

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Abstract Little is known about Black–White health inequalities in Canada or the applicability of competing explanations for them. To address this gap, we used nine cycles of the Canadian Community Health Survey to analyze multiple health outcomes in a sample of 3,127 Black women, 309,720 White women, 2,529 Black men and 250,511 White men. Adjusting for age, marital status, urban/rural residence and immigrant status, Black women and men were more likely than their White counterparts to report diabetes and hypertension, Black women were less likely than White women to report cancer and fair/poor mental health and Black men were less likely than White men to report heart disease. These health inequalities persisted after controlling for education, household income, smoking, physical activity and body-mass index. We conclude that high rates of diabetes and hypertension among Black Canadians may stem from experiences of racism in everyday life, low rates of heart disease and cancer among Black Canadians may reflect survival bias and low rates of fair/poor mental health among Black Canadian women represent a mental health paradox similar to the one that exists for African Americans in the United States.

Keywords Canada · Black–White · Racial health disparities · Socioeconomic status · Health behaviors · Body-mass index

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Introduction

A substantial body of research has examined Black–White health inequalities in the United States, overwhelmingly indicating that African Americans typically suffer poorer health than White Americans. Surprisingly little is known, however, about Black–White health inequalities in neighboring Canada. A lack of attention to racial health inequalities in Canada may reflect a national rhetoric of multiculturalism and tolerance that precludes an explicit focus on 'race' in favor of issues associated with acculturation and immigration; the comparably vast literature on the health consequences of immigration to Canada [1, 2] is testament to this possibility. In addition, Canada's comparatively small population (approximately 35 million) and small proportion of residents who identity as Black (2.9 % in the 2011 Canadian Census) have made it difficult for health researchers to assemble reasonably large, nationally representative samples of Black Canadians. We address this gap in the health inequalities literature by investigating Black–White health inequalities in Canada, and potential explanations for them, using nationally representative data. Combining data from all nine cycles of the Canadian Community Health Survey (CCHS) enables us to investigate Black–White disparities in a wide range of health outcomes. We examine disparities in the occurrence of prominent illnesses that can affect quality of life and longevity, namely, low self-rated health, low self-rated mental health, diabetes, hypertension, heart disease, cancer and asthma.

Many lines of explanation have been applied to Black–White health inequalities in the United States. These include the residential segregation of African Americans, differences in socioeconomic status, differential access to quality health care, the internalization by African

Americans of the overall society's negative characterizations of them, sedentary lifestyles and obesity, and the psychosocial stress resulting from experiences of interpersonal racism and discrimination [3–5]. Although Canada does not possess the same legacy of racial segregation and has universally funded health care, anti-Black racism does exist in Canadian society [6]. Explanations for Black–White health inequalities pertaining to socioeconomic status, internalization of stereotypes, lifestyles and racial discrimination are all eminently plausible in this context. The CCHS allows us to examine the utility of socioeconomic status (education and household income), health behaviors (smoking and physical activity) and body-mass index in particular for explicating Canadian Black–White health inequalities.

Methods

The CCHS is a cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population. Statistics Canada conducted the CCHS in 2001, 2003 and 2005 and annually from 2007. The target populations for these cross-sectional surveys were all persons 12 years of age and older residing in Canada, excluding individuals living on Indian Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Armed Forces and residents of some remote regions. One person was chosen randomly from each household to complete the survey. Response rates for the surveys range from a high of 84.7 % in 2001 to a low of 67.0 % in 2012.

Race was assessed by asking whether respondents regard themselves as White, Black, some other identity or some combination of identities. We confined our analyses to those survey participants who reported White or Black only. *Immigration status* distinguishes respondents born in Canada from recent immigrants (immigrated to Canada less than 10 years ago), midterm immigrants (10–19 years ago) and long-term immigrants (20 or more years ago). *Marital status* distinguishes between married or common-law, divorced or separated, widowed and never married. *Educational attainment* distinguishes between less than a high school diploma, high school diploma or G.E.D., community college or trade school, and bachelor's degree or higher. *Household income*, expressed in population deciles, depicts each respondent's household income relative to a low-income cut-off that accounts for household size and the population size of the respondent's community of residence. *Smoking status* distinguishes between never smoked, formerly smoked, smokes occasionally and smokes daily. A *physical activity index* characterizes overall activity levels as active, moderately active or inactive based on a set of questions asking about different leisure activities. *Body-mass index* (*BMI*) is calculated from self-reported height and weight. *Self-rated health* and *self-rated mental health* are both dichotomized to distinguish 'fair' or 'poor' from 'excellent', 'very good' or 'good'. Other indicators assess the presence of *diabetes, hypertension, asthma, heart disease* and *cancer*. For the latter, responses confirming either current or previous experience with cancer are included in the affirmative.

We combined data from all cycles of the CCHS that occurred between 2001 and 2012. Excluding cases without valid information for race or immigrant status produced a sample of 3,127 Black women, 309,720 White women, 2,529 Black men and 250,511 White men aged 25 and older. Socio-demographic and health-related characteristics of the un-weighted sample are described in Tables 1 and 2, respectively. Table 1 indicates that the White women and men were almost ten years older, on average, than the Black women and men. Proportionately more Black respondents than White respondents were unmarried and lived in urban settings. Almost nine in ten White respondents but fewer than two in ten Black respondents were born in Canada. These differences speak to the importance of controlling for linear and nonlinear effects of age as well as immigrant status and other socio-demographic factors in models predicting ill health.

Tables 1 and 2 identify missing data for the independent and dependent variables. BMI was not calculated for pregnant women and the self-rated mental health question was not asked in 2001. To accommodate missing values in our regression models, we adopted the imputed data for household income provided by Statistics Canada for the 2005–2012 cycles, utilized missing-data categories for household income in 2001 and 2003 and for the other independent variables, and applied list-wise deletion to the dependent variables. To account for the complex sampling design, we applied the master weight and 500 bootstrap replicate weights provided by Statistics Canada to our models, a strategy recommended by Statistics Canada to produce more accurate estimates of effect size and statistical significance, respectively. All statistical analyses were conducted in Stata 12. The study was approved by the Behavioural Research Board at the University of British Columbia.

Results

For each dependent variable, separately for women and for men, we produced three binary logistic regression models. The first model in each series controlled for survey year, age in years, square of age, marital status, rural versus urban residence and immigrant status. The second model additionally controlled for education and household

Table 1 Socio-demographic characteristics of the sample

	Black women		White women		Black men		White men	
	n	%	n	%	n	%	n	%
Age								
25–34	915	29	47,594	15	668	26	39,570	16
35–44	850	27	51,186	17	796	31	48,104	19
45–54	471	15	55,389	18	454	18	48,406	19
55–64	440	14	60,462	20	336	13	49,854	20
65+	451	14	95,089	31	275	11	64,577	26
Immigration status								
Canadian by birth	621	20	276,658	89	485	19	223,666	89
Immigrated 0–9 years ago	630	20	2,734	1	592	23	2,362	1
Immigrated 10–19 years ago	638	20	2,790	1	508	20	2,286	1
Immigrated 20+ years ago	1,238	40	27,538	9	944	37	22,197	9
Marital status								
Married/common-law	1,280	41	174,960	56	1,420	56	164,021	65
Single/never married	1,043	33	39,247	13	727	29	45,961	18
Divorced/separated	570	18	38,896	13	343	14	27,900	11
Widowed	234	7	56,617	18	39	2	12,629	5
Living in a rural area?								
No	2,978	95	225,820	73	2,389	94	175,914	70
Yes	149	5	83,900	27	140	6	74,597	30
Highest level of education attained								
Less than H.S.	455	15	71,075	23	336	13	57,314	23
H.S. diploma	423	14	54,647	18	396	16	39,198	16
Some college	1,570	50	130,049	42	1,085	43	108,015	43
Bachelor and above	648	21	51,200	17	679	27	43,313	17
Not stated	31	1	2,749	1	33	1	2,671	1
Household income decile								
1	745	24	28,778	9	383	15	14,795	6
2	506	16	38,724	13	315	12	19,531	8
3	357	11	32,668	11	321	13	21,870	9
4	306	10	30,038	10	279	11	22,485	9
5	264	8	28,814	9	248	10	23,413	9
6	235	8	28,580	9	221	9	24,778	10
7	190	6	26,257	8	202	8	24,461	10
8	169	5	26,334	9	185	7	26,521	11
9	145	5	27,176	9	159	6	29,232	12
10	89	3	26,235	8	133	5	32,446	13
Not applicable	30	1	3,698	1	34	1	3,713	1
Not stated	91	3	12,418	4	49	2	7,266	3
	Black women		White women		Black men		White men	
	n	%	n	%	n	%	n	%
Physical activity index								
Active	509	16	63,419	20	622	25	61,012	24
Moderate	639	20	77,529	25	531	21	60,450	24
Inactive	1,924	62	164,606	53	1,332	53	119,168	48
Not stated	55	2	4,166	1	44	2	9,881	4
Smoking status								

Table 1 continued

	Black women		White women		Black men		White men	
	n	%	n	%	n	%	n	%
Daily	207	7	54,685	18	350	14	54,420	22
Occasional	93	3	10,994	4	163	6	10,059	4
Former	519	17	134,789	44	762	30	130,037	52
Never	2,303	74	108,687	35	1,249	49	55,404	22
Not stated	5	0	565	0	5	0	591	0
BMI								
Underweight	67	2	8,427	3	37	1	1,708	1
Healthy	1,205	39	137,409	44	1,010	40	85,016	34
Overweight	963	31	89,877	29	1,046	41	106,632	43
Obese	610	20	56,335	18	372	15	51,654	21
Not applicable	89	3	4,288	1				
Not stated	193	6	13,384	4	64	3	5,501	2
Total	3,127	100	309,720	100	2,529	100	250,511	100

income. The third model additionally controlled for smoking, physical activity and BMI. These models are summarized in Table 3.

Women

Controlling for demographic characteristics in the first model shown in Table 3, Black women were more likely than White women to report diabetes (OR 2.74, 95 % CI 2.06–3.64) and hypertension (OR 2.52, 95 % CI 2.07–3.06) and less likely to report cancer (OR 0.42, 95 % CI 0.28–0.61). We found no statistically significant differences between Black and White women in the likelihoods of fair/poor health, fair/poor mental health, heart disease and asthma. Controlling for socioeconomic status, health behaviors and BMI did little to alter these associations except that Black women became significantly less likely than White women to report fair/poor mental health (OR 0.63, 95 % CI 0.46–0.86) in the full model.

Men

Controlling for demographic characteristics, Black men were more likely than White men to report diabetes (OR 1.95, 95 % CI 1.53–2.48) and hypertension (OR 1.41, 95 % CI 1.17–1.71) and less likely to report heart disease (OR 0.60, 95 % CI 0.40–0.89). We found no statistically significant differences between Black and White men in the likelihoods of fair/poor self-rated health, fair/poor mental health, asthma and cancer. Controlling for socioeconomic status, health behaviors and BMI did little to alter these associations.

Discussion

Our study contributes to a small but growing literature on Black–White health inequalities in Canada. Consistent with previous research [7] we found no significant differences between Black and White Canadians in regards to asthma or self-rated health. We also found that Black Canadians were less likely than White Canadians to report heart disease (among men) and cancer (among women). Black women were less likely than White women to report fair/poor mental health, a result that stands in contrast with another study [8] that reported no such difference. Also consistent with previous research [8–11] we found that Black Canadians were significantly more likely than White Canadians to report diabetes (with odds ratios of 2.74 among women and 1.95 among men) and hypertension (with odds ratios of 2.52 among women and 1.41 among men). Our proposed mediators—household income, educational attainment, smoking, frequency of physical activity and BMI—failed to explain the abovementioned health inequalities.

Comparison with Black–White health inequalities in the United States is instructive. First, American Black–White disparities in asthma reflect a legacy of systemic discrimination that has concentrated African Americans in poor neighborhoods rife with pollution, waste disposal, poor housing and other sources of airborne toxins [3, 5, 12, 13]. The fact that residential segregation is much less pronounced in Canada than in the United States [14], which means that Black Canadians are comparably less likely than Black Americans to live in poor neighborhoods, may explain why we do not identify Black–White inequalities in asthma prevalence in Canada.

Table 2 Health profile of the sample

	Black women		White women		Black men		White men	
	n	%	n	%	n	%	n	%
F/P self-rated health?								
No	2,666	85	261,038	84	2,267	90	211,264	84
Yes	454	15	48,340	16	259	10	38,951	16
Not stated	7	0	342	0	3	0	296	0
F/P self-rated mental health?								
No	2,512	80	239,619	77	2,101	83	188,980	75
Yes	148	5	14,450	5	110	4	11,289	5
Not applicable	425	14	52,382	17	291	12	43,934	18
Not stated	42	1	3,269	1	27	1	6,308	3
Diabetes?								
No	2,863	92	286,957	93	2,312	91	228,372	91
Yes	263	8	22,510	7	217	9	21,936	9
Not stated	1	0	253	0	0	0	203	0
Hypertension?								
No	2,392	77	229,407	74	2,057	81	194,081	77
Yes	731	23	79,832	26	469	19	55,634	22
Not stated	4	0	481	0	3	0	796	0
Heart disease?								
No	3,043	97	285,950	92	2,456	97	226,639	90
Yes	84	3	23,099	7	72	3	23,329	9
Not stated	0	0	671	0	1	0	543	0
Asthma?								
No	2,899	93	280,206	90	2,401	95	234,294	94
Yes	227	7	29,282	9	127	5	16,038	6
Not stated	1	0	232	0	1	0	179	0
Cancer?								
No	3,041	97	283,606	92	2,458	97	233,282	93
Yes	86	3	25,805	8	70	3	16,996	7
Not stated	0	0	309	0	1	0	233	0
Total	3,127	100	309,720	100	2,529	100	250,511	100

Second, the American Heart Association reports that among African Americans, the rate of heart disease is relatively low but the rate of hypertension is relatively high [15]. This paradox manifests itself in our study. However, according to the American Heart Association, mortality rates from cardiovascular disease are also higher for African Americans than for White Americans. This suggests that hypertension is not only more prevalent among African Americans but also more lethal and that fewer African Americans survive to report heart disease in surveys. Similarly, self-reported cancer incidence is lower among African Americans than White Americans [16] but mortality from cancer is higher [17] which implies that cancer too is more lethal for African Americans and/or tends to be diagnosed later. It seems reasonable to think that survival bias similarly explains at least some of the relatively low rates of self-reported heart disease and cancer among Black Canadians.

Third, as is the case in our study, the American literature documents a race paradox in mental health wherein African Americans typically report better mental health than White Americans [18], a difference that social factors such as family cohesion cannot fully explain [19]. Research shows that some African Americans develop positive coping strategies for dealing with everyday racism and accordingly enjoy a level of physical health that is on par with White Americans [4, 20]. Other African Americans either accept or internalize negative attitudes towards Black people and correspondingly suffer poorer cardiovascular health. Factors such as these may explain the comparably high levels of self-rated mental health reported by the Black Canadian women of our study. We do not know why

Table 3 Odds ratios from weighted logistic regression models estimating risk of self-reported ill health for Black (vs White) Canadians (with 95 % CI based on bootstrapped variance estimation)

	Women			Men		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Fair/poor SR health	1.17 (0.96–1.43)	0.90 (0.74–1.11)	0.93 (0.75–1.15)	1.20 (0.92–1.57)	0.91 (0.69–1.19)	1.02 (0.77–1.35)
Fair/poor mental health	0.77 (0.57–1.04)	0.60 (0.44–0.81)	0.63 (0.46–0.86)	1.16 (0.76–1.76)	0.88 (0.58–1.33)	0.95 (0.63–1.44)
Diabetes	2.74 (2.06–3.64)	2.40 (1.80–3.19)	2.27 (1.64–3.13)	1.95 (1.53–2.48)	1.76 (1.38–2.25)	1.93 (1.51–2.46)
Hypertension	2.52 (2.07–3.06)	2.29 (1.88–2.78)	2.12 (1.72–2.61)	1.41 (1.17–1.71)	1.36 (1.13–1.64)	1.47 (1.22–1.76)
Heart disease	0.68 (0.46–1.02)	0.61 (0.41–0.92)	0.61 (0.40–0.91)	0.60 (0.40–0.89)	0.55 (0.37–0.82)	0.59 (0.40–0.88)
Asthma	0.99 (0.75–1.31)	0.92 (0.70–1.22)	0.93 (0.70–1.23)	0.87 (0.65–1.18)	0.81 (0.60–1.09)	0.81 (0.60–1.09)
Cancer	0.42 (0.28–0.61)	0.41 (0.28–0.60)	0.46 (0.31–0.67)	1.01 (0.68–1.50)	1.01 (0.68–1.50)	1.03 (0.69–1.53)

Model 1 controls for survey year, age, age squared, marital status, rural versus urban residence and immigrant status. Model 2 additionally controls for educational attainment and household income. Model 3 additionally controls for physical activity, smoking status and body-mass index. Sample sizes are $n = 565{,}239$ in models for fair/poor self-rated health, $n = 459{,}209$ for fair/poor mental health, $n = 565{,}430$ for diabetes, $n = 564{,}603$ for hypertension, $n = 564{,}672$ for heart disease, $n = 565{,}474$ for asthma and $n = 565{,}344$ for cancer

the race paradox in mental health does not extend to Black Canadian men.

Finally, some research indicates that race-based discrimination, a lifelong stressor, contributes to the development of hypertension among African Americans [21, 22]. Other studies link chronic stress [23, 24] and internalized racism towards African Americans [25, 26] to insulin resistance and other precursors to Type 2 diabetes. Our finding that Black Canadians experience substantially higher risks of both hypertension and diabetes than White Canadians potentially implicates everyday experiences of racism and discrimination in Black–White health inequalities.

Several important limitations of our study should be noted. First, the absence of other relevant variables precludes us from conducting a more thorough analysis. For example, a proper test of discrimination as a linking mechanism between racial identity and poor health would utilize measures of perceived discrimination, objective discrimination, acceptance of discriminatory attitudes and internalized discrimination, none of which are available in the CCHS. We are also unable to investigate mechanisms pertaining to stress and quality of health care. Second, the CCHS does not include prospective mortality data which makes it difficult for us to say definitively why, compared to their White counterparts, Black women report lower rates of cancer and Black men report lower rates of heart disease. Third, although our data include sufficient numbers of Black Canadians to examine their levels of morbidity, the failure of any mediators to emerge in our analysis may be an artifact of a sample size that was still not large enough for this purpose. In future surveys, we encourage Statistics Canada to oversample racial minorities so as to provide a larger number of respondents, include components relating to racial discrimination in their surveys more often, and prioritize the study of racial health inequalities for all minority groups, including but not limited to First Nations, Métis and Inuit peoples.

Future research in this area should consider linking CCHS data to mortality data if possible. The CCHS includes postal code information which would facilitate linkage to census data and characteristics of respondents' neighbourhoods of residence, such as the racial and ethnic composition of neighbourhoods. Socioeconomic status could be better and more fully measured by including indicators of occupation for employed people, measures of education that account for the source of the credentials and measures of wealth instead of annual income. Finally, the fact that Black women appear to be at inordinately high risk of poor health suggests that an analysis informed by intersectionality theory [27–29] an emerging theoretical paradigm that represents a symbiosis of feminist and critical race theories, may contribute to understanding the nature of Black–White health inequalities in Canada.

In conclusion, our findings regarding Black–White health inequalities in Canada are remarkably consistent with research on Black–White health inequalities in the United States. This is an important result for a country that publicly acknowledges the health effects of racism directed towards its indigenous peoples but few others.

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