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National Origins, Social Context, Timing of Migration and the Physical and Mental Health of Caribbeans Living In and Outside of Canada

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Abstract

Objectives—Differences in health outcomes among migrant groups have been related to the length of stay in host countries. This study examined the health of people reporting Caribbean ethnic origins within and outside of Canada and the possible associations between timing of migration and poor physical and mental health outcomes.

Method—Analyses were conducted on population data collected in Canada (2000/2001, 2003, 2005), Jamaica (2005) and Guyana (2005). Physician-diagnosed and self-rated health measures were used to assess physical and mental health statuses.

Results—Rates of chronic conditions were generally higher among people reporting Caribbean ethnic origins in Canada compared to those living in the Caribbean region. Self-rated fair or poor general health rates, however, were higher among participants in the Caribbean region. Higher rates of *any* mood disorders were also found among Caribbean region participants in comparison to those in Canada. Logistic regression analyses revealed that new Caribbean immigrants (less than 10 years since immigration) in Canada had better physical health than those who were more established. Those who immigrated more than 20 years ago showed consistently better health conditions than those who had immigrated between 11 to 20 years ago. This healthy immigration effect, however, was not present for all chronic conditions among all Caribbean origin migrant groups. Moreover, mood disorders were highest among new immigrants compared to older immigrants.

Conclusions—This study suggests that when and where ethnic Caribbeans migrate to, and emigrate from, matters in health statuses. These results have implications for policies related to health and well-being in support of ethnic Caribbean origin individuals who relocate to Canada. The paper concludes with suggestions for future studies regarding the health of ethnic origin

Caribbeans living within and outside their region of birth; further highlighting the need for better understanding the role of racial and ethnic group origins in the transition and health outcomes of migrating groups to Canada.

Keywords

Length of time; Caribbean immigrants; Canada; Physical and Mental Health

Introduction

Immigration to Canada is changing national demographic trends and increasing diversity within the population. An estimated 18 to 20 percent of the Canadian population are immigrants and increases are projected in the coming years (Statistics Canada 2017; Ng 2011). Individuals of Caribbean origins have historically been visible within Canada, including a greater proportion hailing from Jamaica (42%), Haiti (16%), and Guyana (10%) (Allahar 2010; Lindsay 2007). Searching for new opportunities and a better quality of life, some immigrants may later discover that the decision to migrate came at a cost to their health and well-being with time passed in host countries (Lacey et al. 2015; Nestle 2010; Ng 2011; Krieger 2011; Ali 2002). Even with consistent studies showing this pattern among immigrant groups from various nations (e.g. Islam 2013; Vang et al. 2015), there is a gap in the literature on the health status of Caribbean migrants to Canada. Although there is a copious literature related to Hispanic migration and health (e.g., Hamilton 2015; Kennedy et al. 2015), less is known about the influence of social and economic contextual factors like education, marital status and length of time in the host country on the health of Caribbean immigrants to Canada (Vang et al. 2015). Research on the patterns of illness or disease within the growing migrant populations in Canada is important for the development of appropriate policies that support successful transitions and long-term positive health and well-being outcomes for these groups.

There is a lack of research on how post-migration social and structural challenges, perhaps related to factors like marital status, employment status, and education, influence the health of immigrants from the Caribbean to Canada. Although there are some exceptions (e.g., Vang et al. 2015), there are limited published studies on these factors within ethnic origin Caribbean populations, especially those that focus on the health patterns of migrants both within their homeland and in Canada (Lacey et al. 2015). These types of comparative studies would help to clarify whether foreign-born migrants of certain groups have more advantageous health outcomes than non-foreign-born members of these same groups (Hamilton 2015); while providing insights into whether the advantages in health statuses are due to the factors and processes by which immigrants are selected for entrance to Canada. This study examined the influence of national origins, social and economic statuses, and place and length of residence in the host country on the physical and mental health statuses of first-generation people of Caribbean origins within and outside of Canada.

Background

Research continues to reveal that the length of time in host countries can profoundly influence the health and well-being of immigrant groups (Torres et al. 2018; Lacey et al. 2015; Griffith et al. 2011; Gushulak et al. 2011; Lassetter et al. 2009; Park et al. 2008; Nazroo et al. 2007; Bresslau and Chang 2006; Ng 2011; Dey and Lucas 2006). Studies have found that immigrants' exposure to host countries norms and behaviors are associated with deteriorating health. This has been largely supported in studies on immigrant groups to the United States (Lacey et al. 2015; Commodore-Mensah et al. 2016; Alang, McCreedy, and McAlpine 2015; Breslau and Chang 2006; Lassetter and Callister 2009; Williams et al. 2007; Dey and Lucas 2006; Griffith et al. 2011). Paralleling these findings, a small body of literature has found that length of stay in Canada is associated with declining physical and mental health among migrants to Canada (Islam 2013; Wang and Hu 2013; Ali 2002). The adoption of risky behaviors and poor health behavior are among the explanations for migrants deteriorating health (Vang et al. 2015). Post-migration challenges encountered by members of immigrant groups after arrival are thought to provide additional explanations for this deteriorating health pattern with length of stay (Hamilton 2015). Along with post-migration challenges, such as changes in job markets, lack of full acculturation, and discrimination, studies have found that immigration is a highly selective process that might account for the health difference between new and more established immigrants (Hamilton 2015).

Historically, Canada has operated under a 'merit point system' (Newbold 2005), providing currency for entrance to migrant individuals with strong social and economic backgrounds and skill-sets. Under this system, preference for selection is generally given to younger and better-educated applicants with desirable employment skills that may have the potential to contribute to the Canadian labor market (Vang et al. 2015; Islam 2013). After entrance, however, these criteria by which individuals are selected may not be as clearly associated with successful transitions, as some immigrants begin to encounter obstacles in host countries related to real and perceived deficiencies in their educational and professional credentials and employability (e.g., Lacey et al. 2016; Lacey et al. 2015). Since many Caribbean immigrants to Western countries hail from more privileged backgrounds in their home countries, the experience can be frustrating (Lacey et al. 2015). For example, in general, Caribbean migrants to Canada possess relatively high levels of education (Thomas-Hope 2002). Even with appropriate credentials, however, their qualifications may not be viewed as comparable to non-migrant individuals within the host country (Lacey et al. 2015). Failure in the host country to fully acknowledge the qualifications and the unique attributes that immigrants bring may result in the denial of opportunities. Denial of opportunities, especially given the high expectations for some immigrants, can lead to stress and frustration, often associated with physical and mental health conditions (James et al. 2014; Seeman 2011).

For some immigrants, post-migration disappointments resulting from denial of opportunities can additionally influence health outcomes, perhaps due to the expectations placed on migrants from friends, family members and social network groups in their homeland. There is often an unspoken expectation among Caribbean immigrants to host countries to achieve

financial success and provide assistance to those left behind in their homeland, particularly in countries with poorer economic conditions. Due to poor economies and high poverty rates, Caribbean countries, such as Jamaica and Guyana, have depended on remittances from abroad in order to meet their living needs and expenses, and for sustaining national economic development (e.g., Hintzen 2017; Orozco 2009; Thomas-Hope 2002). Falling short of these expectations could result in stress and pressures that over time could affect physical and mental health (Lacey et al. 2016; Lacey et al. 2015; Islam 2013; De Maio 2010).

Migration is further associated with loss of social networks, family support systems and personal relationships that can be sources of stress that affect health (Robert and Gilkinson 2012). While migrating to a new, culturally different place can be an exciting time for some migrants, for others it can be a frightening experience as a solitary journey without family and friends, especially if there is not adequate institutional support after arrival. This lack of support can leave some immigrants feeling isolated (Nolin 2017; Thobani 2007; Benhabib 2004; Brah 1996; Said 1978) and suffering from lowered well-being (Islam 2013; James et al. 2014).

The added effects of institutional and personal racial and cultural discrimination, which may not have been encountered in their homeland, may add to poor health outcomes (Soto, Dawson-Andoh, and Belue 2011; Williams and Mohammed 2009; Kobayashi, Prus, and Lin 2008; LaVeist 2005). These sources of acculturative stress have been linked to psychiatric disorders such as depression (e.g. Jackson et al. 2004). Regardless of some differences in the literature on migration and health (e.g., Foo et al. 2018; Islam 2013), research conducted in Canada has largely found lower rates of major depression among immigrants in comparison to the Canadian-born population (Ali 2002). Similarly, the prevalence rates for recent immigrants (10 years or less since migration) have been found to be lower than those who had migrated more than 20 years ago (Ali 2002).

In spite of the obstacles and challenges faced by migrants in host countries, there is difficulty in clearly determining whether foreign-born individuals have health advantages in comparison to the non-foreign-born population. There is a body of literature that suggests that immigrants have better physical health statuses than non-foreign-born ethnic groups from the same country or native-born individuals (e.g., Hamilton 2015). While the reasons for this “healthy migrant effect” are not fully understood, some researchers have speculated that lifestyle and diet may account at least in part for the advantaged health standing of new immigrants (Campbell et al. 2014; Lee et al. 2013). One complicating factor is that developing countries, such as Jamaica and Guyana, have limited resources as well as poor social and economic conditions. Poor social conditions are associated with unmet health needs and low quality of health care (e.g., Lee et al. 2013). In fact, many individuals in these countries rely on native traditional and home remedies to address and treat illnesses (Lacey et al. 2015; Seeman 2011).

The health patterns of immigrants and non-immigrants are further complicated by the criteria by which potential immigrants are selected for legal migration. Immigrants applying for entrance to host countries generally are selected for good health, reinforced by rigorous

medical and health screening that all potential permanent residents, refugee claimants, and some temporary residents must undergo (Kennedy et al. 2015; Vang et al. 2015; Islam 2013; Gushulak et al. 2011). As a mandatory aspect of the immigration process, the medical examination is valid for 12 months after the medical screening (Gushulak et al. 2011). Along with the medical screening process, the reliance on only post-migration data further adds challenges to understanding the interrelationship among migration and health status. Thus, some have questioned whether immigrants, in fact, have advantageous health standings; and, if the migratory process and transition play an important role in shaping the health of immigrants in host countries (e.g., Hamilton 2015). Research conducted on Caribbean migrants to other destinations (e.g., United States) has provided some support that foreign-born ethnic origin individuals largely have more advantaged health than non-foreign born ethnic group members (Lacey et al. 2016; Lacey et al. 2015; Bresslau and Chang 2006). It is still unclear, however, whether this same pattern is found for Caribbeans that move to other diasporic destinations, such as Canada. The experiences of immigrants and health outcomes may differ from one host country destination to the next.

Research Objectives

This study examined the physical and mental health of first generation Canadian Caribbean immigrants compared to those residing in the Caribbean region (i.e., Jamaica, Guyana). We further explored the influence of length of time in Canada, and the effects of social, economic and demographic predictors on chronic and self-rated health and mood disorders of first-generation people of Caribbean origin. Similar to other studies, we expected that immigrant health deteriorates with longer time spent in Canada and that social, economic and demographic factors, perhaps as sources of stress and mobility barriers, will play a significant role in shaping the health of migrating Caribbean immigrants to Canada (Kennedy et al. 2015).

Theoretical Frameworks—Several integrated frameworks regarding health challenges and outcomes associated with migration were used to inform this research. First, the “healthy immigrant effect”, argues that the health of immigrants is generally better than non-immigrants, but tends to deteriorate with length of time in host countries (Kennedy et al. 2015; Islam 2013; Ng 2001). The deterioration in health is explained through various mechanisms, such as the adoption of mainstream Canadian lifestyle, beliefs, dietary changes, and riskier behaviors such as increased alcohol consumption. The weakest effects of this hypothesized mechanism may be on recent immigrants because they tend to be healthier, and perhaps younger and better educated than older migrants (Gushulak et al. 2011).

Second, the “selective hypothesis” perspective suggests that benefits of strict selection criteria outweigh the costs of losing people who are excluded (Hamilton 2015). For example, there is a set of strict criteria that must be followed for entrance into Canada. As a nation, Canada aims to integrate immigrants on the basis of education and skills through a point system (noted earlier) that explicitly includes age, educational level, language fluency and skillsets; together these points result in better opportunities for entry (Vang et al. 2015; Islam 2013). These criteria for entrance can also result in the placement of immigrants into low

skilled employment positions and low socioeconomic status associated with stress and poor well-being (Bauder 2003; Bunker et al. 2003; Elliot and Gillie 1998; Matuk 1996). Also as noted earlier, it is through this process that only those immigrants in good health, who meet other stringent criteria, are selected for entrance into the country. Before entrance, individuals undergo medical screening to detect any illness or disease, which if serious enough can disqualify people from gaining entry (Gushulak et al. 2011).

Third, the “Structural perspective” emphasizes that social and institutional factors in host countries can adversely affect health (Hamilton 2015; Nazroo et al. 2007). This framework focuses on the historical, sociopolitical, and socio-economic context of health disparities in immigration. Structural perspectives argue that stressful factors experienced through resettlement, racial and social inequalities, and individual, cultural and institutional discrimination may contribute to the decline in immigrants’ health over time (Montazer and Wheaton 2017; Lu et al. 2017; Hamilton 2015; Lebrun 2012).

While all three of these perspectives have framed prior research, they all have challenges in empirical assessment. For example, though the healthy migrant effect and selection hypothesis seem to be a potentially powerful explanatory frameworks, the lack of comparative data on stayers as well as leavers, and random selection for those who leave versus those who stay make for a difficult empirical assessment. In the current study we have focused on the importance of a structural explanation examining how social, economic and demographic factors, as well as length of residence in the host country, are possibly related to physical and mental health outcomes among Caribbean migrants to Canada.

Methods

Canadian Data

Data were collected in Canada and the Caribbean region. The Canadian data were from Statistics Canada’s Canadian Community Health Survey (CCHS). The CCHS collects information on health determinants, socio-demographic characteristics and disease status of non-institutional individuals aged 12 or older living in private dwellings across all provinces and territories. Residents of Indian reservations, Crown lands, institutions and certain remote areas, as well as full-time members of the Canadian Armed Forces were not surveyed (see Rotermann 2011; Beland 2002). Data were largely collected by computer-assisted telephone interviews. An additional 30 to 40% of interviews were conducted in-person in a wide range of native languages of individuals who were not fluent or unable to speak the official languages of Canada (Statistics Canada 2009). In this study, three data cycles (2000/2001, 2003, and 2005) on adult participants 18 years of age or older were merged and analyzed to obtain adequate estimates to address the study objectives (see Thomas and Wannell 2009 for additional information on cycles). The combined cycles included 333,808 participants. There were about 2,238 first generation people reporting Caribbean ethnic origins in the sample from Jamaica, Guyana, Anguilla, Antigua, Aruba, Bahamas, Barbados, Bermuda, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Martinique, Netherlands Antilles, Puerto Rico, St. Christopher and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and the Virgin Islands. The response rates for each data

cycle were: 85% for 2000/2001, 81% for 2003, and 85% for 2005 respectively (Statistics Canada 2009).

Jamaican Data

The Jamaican sample was based upon a multi-stage sampling procedure beginning from the 2002 census tract regions of the urban Kingston areas, St. Andrew, and Portmore (see Boxil et al. 2007). In-person interviewing was the main method of data collection. Interviews conducted with adult individuals over the age of 18 focused on neighborhood safety, religious affiliation, social support, discrimination, physical and mental health, and personal socio-demographic information. The interviews were completed in December of 2005. A total of 1,218 interviews were completed. The sample consisted of 97.4% Blacks, 1.3% Asians and 1.4% who were classified as other. The response rate was 76%.

Guyanese Data

The Guyanese multi-stage sample was also based on the 2002 census tract regions of greater Georgetown (urban), suburban and rural regions (see Bynoe, Choy, and Seligman 2006). Questionnaires were administered to participants between July and December 2005. Similar to the Jamaica sample, adult participants were queried about neighborhood safety, religious affiliation, social support, discrimination, physical and mental health, and personal socio-demographic information. In total, 2,068 participants completed a questionnaire. The sample contained individuals who self-identified as: Black (55%); East Indian (34.7%); and other (10.1%). An overall response rate of 82 percent was obtained.

Measures

Physical Health—To measure *chronic conditions*, CCHS asked respondents about long-term conditions that had lasted or were expected to last six months or longer and had been diagnosed by a health care professional. Chronic conditions included in this analysis were heart disease, hypertension, diabetes, stroke, arthritis, and any cardiovascular disease or metabolic condition. *Any cardiovascular disease or metabolic condition* was created by combining the following conditions: heart disease, hypertension, diabetes, or stroke. Participants with *any cardiovascular disease* had at least one of the conditions listed. *Self-perceived health* reflects respondents' global evaluation of their overall health. Participants were asked, "In general, would you say your health is: excellent, very good, good, fair or poor?" For this analysis, fair or poor health is considered as negative self-perceived health.

Similar measures were used to ascertain the health of individuals in the Caribbean region. Participants were asked to indicate whether they had ever (in their lifetime) been told by a doctor or health professional that they had heart disease, high blood pressure (hypertension), diabetes (or sugar), stroke, and arthritis (rheumatism). *Any cardiovascular disease* consisted of a combination of conditions that included heart disease, hypertension, diabetes and stroke. Participants had *any cardiovascular disease* if they report having at least one of the following conditions including heart disease, hypertension, diabetes or stroke. *Self-rated general health* in the Caribbean sample was determined by the question, "How would you rate your overall physical health at the present time"? Fair or poor health was the focus of analysis.

Mental Health—CCHS measured the prevalence of mood disorder as a long-term condition that had lasted or was expected to last six months or longer, and that had been diagnosed by a health care professional. A respondent in the CCHS is considered to have a mood disorder if they respond positively to the question, “Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?”

Mental disorders in the Caribbean samples were based on WHO-CIDI (Kessler et al. 2005; Jackson et al. 2004), defined by the DSM-IV. Any lifetime mood disorder includes major depressive episode, dysthymia and bipolar (I, II, and bipolar subthreshold within the respondent’s lifetime).

Socio-demographic variables—The socio-demographic variables included: *age* (in years); *gender* (male, female); *marital status* (never married, married, partnered, separated/divorced/ widowed); *educational level* (below high school, high school graduates, post-secondary); *employment status* (employed, unemployed, not in the labor force); and *equivalised household income in quintiles* (bottom, second, middle, fourth, highest).

Length of Time—Length of time since migration for first-generation Caribbean immigrants to Canada included categories of less than 10 years, 11 to 20 years, and more than 20 years. These cut off points are thought to represent possible key transition periods in the health outcomes of immigrants after migration (Kennedy et al. 2015; Williams et al. 2007).

Analytic Strategy

Univariate and multivariate analytic procedures were conducted. Descriptive statistics were used to examine rates of physical and mental health of Caribbean descendants across nationality and ethnic origins. Multivariate logistic regression analytic procedures were employed to examine the independent and joint associations of multiple predictor factors (controlling for other factors) on the health outcomes of participants in the study. In the Canadian data, the original sampling weights were adjusted by a factor of three to account for the three combined data collection cycles to represent the Canadian household population (Rotermann 2011). The combined estimates do not represent the population for any particular year; rather, they reflect the average Canadian household population across the 2000/2001-to-2005 period. Separate analyses were conducted on Canadian Caribbeans (including Jamaican and Guyanese Canadians). The Jamaica and Guyanese samples were post-stratified to reflect the distributions of national population statistics for age and gender subgroups. Race/ethnicity was another stratification factor in Guyana. Statistical significance threshold was set at $\alpha=0.05$ level. Statistical Analysis System (SAS 9.3) and Statistical Packages for the Social Sciences (SPSS 22) were used to generate the results.

Results

Sample Characteristics

Table 1 contains the demographic composition of people reporting Caribbean ethnic origins within Canada and in the Caribbean region (e.g., Jamaica, Guyana). Respondents in the

Caribbean region were on average younger than those in Canada; Caribbean Jamaicans (m= 38.9) had the lowest mean age (see Table 1). Across all race/ethnic cohorts, females were over-represented. Caribbean Jamaican females (69.5%) were most represented in the sample. With the exception of Jamaicans in the Caribbean region who were most likely not to be married (56.6%), a larger percentage in Canada were married. The education levels, however, were different across regions; a majority of Caribbeans in Canada had a post-secondary education, compared with Caribbean Jamaicans (49.8%) who were more likely to have a high school education, and Caribbean Guyanese (54.0%) who tended to have less than a high school education. Furthermore, respondents were generally employed across all country and race/ethnic cohorts, with a higher proportion found among Jamaican Canadians (74.6%). The household income levels varied. In Canada and among respondents in Jamaica, those in the fourth household quintile income were most represented in the sample compared to Caribbean Guyanese (30.0%) who were generally most represented in the second quintile category.

Prevalence Rates of Physical and Mental Health by Country and National Origins

Table 2 presents the lifetime prevalence rates of health conditions among people reporting Caribbean ethnic origins across countries and national origins. Rates of heart disease were higher among Caribbeans with Guyanese (3.8%) and Jamaican backgrounds (3.8%) in Canada. Similarly, high rates of hypertension were found for people reporting Caribbean ethnic origins in Canada, particularly among Jamaican Canadians (25.7%). Dissimilar rates were found across regions and national groups with respect to diabetes. Rates of diabetes were, however, highest among Guyanese Canadians (11.4%). Higher rates of stroke were found among people reporting Caribbean ethnic origins in Canada, with Jamaica Canadians (1.4%) being the highest. In general, first generation people reporting Caribbean ethnic origins in Canada had higher rates of *any* cardiovascular or metabolic condition, but this was most prevalent among Jamaican Canadians (29.2%). Higher rates of arthritic conditions were found among Canadian respondents. Compared to the other country and race/ethnic cohorts, all the Caribbean Canadian groups in general (14.4%, 15.2% and 15.2%, respectively) had higher rates of arthritis than those in the Caribbean (5.0% and 7.8%, respectively).

Self-rated general health had a slightly different pattern than chronic health conditions (see Table 2). In general, respondents in the Caribbean region rated their health more negatively than those in Canada. Rates of self-rated fair or poor health were higher in Jamaica (25.7%) as compared to Guyana (17.5%) in the Caribbean region. Again, there were generally higher rates of *any* mood disorders among participants in the Caribbean region, with higher proportions observed among Jamaicans (8.2%).

Multivariate Findings Examining Factors Independently Associated with Physical and Mental Health

Tables 3 through 8 provide the multivariate findings of the association between length of time in Canada and health conditions including hypertension, diabetes, *any* cardiovascular disease, arthritis, fair/poor self-perceived physical health and *any* mood disorder controlling

for other factors (e.g., demographic variables) among people reporting Caribbean ethnic origins.

Hypertension

As shown in Table 3, the odds for hypertension is reduced among Guyanese Canadians (AOR = 0.60, $p < .001$) who migrated between 11 to 20 years ago, and for Jamaican Canadians (AOR = 0.75, $p < .001$) that resided in Canada for more than 20 years, relative to those who had migrated for less than 10 years. In contrast to these results, the odds for hypertension is increased among Jamaican Canadians (AOR = 2.26, $p < .001$) and Caribbean Canadians in general (AOR = 1.31, $p < .001$) living in Canada between 11 to 20 years.

Diabetes

There is an association between length of time in Canada and the diagnoses of diabetes among Caribbean immigrants (see Table 4). For Guyanese Canadians, the odds (AOR = 1.20, $p < .01$) increased among those residing in Canada between 11 to 20 years. Yet, the opposite is found among Jamaican Canadians (AOR = 0.78, $p < .001$) and Caribbean Canadian participants in general (AOR = 0.77, $p < .001$) who had resided in Canada for the same period of time. Similarly, Guyanese Canadians (AOR = 0.36, $p < .001$), Jamaican Canadians (0.84, $p < .001$) and Caribbean Canadians in general (AOR = 0.62, $p < .001$) had reduced odds for this condition if they resided in Canada for more than 20 years.

Any Cardiovascular Disease

Table 5 reveals that first-generation Guyanese Canadians (AOR = 1.35, $p < .001$), Jamaican Canadians (AOR = 2.64, $p < .001$) and Canadian Caribbeans in general (AOR = 1.41, $p < .001$) who had spent between 11 to 20 years in Canada had increased odds for *any* cardiovascular or metabolic conditions compared to those who had spent less than 10 years. The opposite was found for Jamaican Canadians (AOR = 0.66, $p < .001$) and Caribbean Canadians (AOR = 0.86, $p < .001$) in general residing in the country for more than 20 years.

Arthritis

Table 6 reveals that Guyanese Canadians (AOR = 0.27, $p < .001$) who had resided in the country between 11 to 20 years (AOR = 0.68, $p < .001$) and for more than 20 years (AOR = 0.29, $p < .001$) had lower odds for arthritis compared to those who lived in the country for up to 10 years. Opposite results are found for Jamaican Canadians, where the odds increased among participants that resided in the country between 11 to 20 years (AOR = 2.08, $p < .001$) and for more than 20 years (AOR = 1.64, $p < .001$). This is also true for Caribbean respondents in general; the odds increases for those who lived in the country between 11 to 20 years (AOR = 1.47, $p < .001$) and more than 20 years (AOR = 1.16, $p < .001$).

Fair/Poor Self-Reported Physical health

In general, Caribbean Canadians who spent between 11 to 20 years (AOR = 1.37, $p < .001$), as well as more than 20 years (AOR = 1.03, $p < .05$) had increased odds for self-rated fair or poor general health (see Table 7). Jamaican Canadians who had spent between 11 to 20 years (AOR = 1.89, $p < .001$) and more than 20 years (AOR = 1.63, $p < .001$) also

had increased odds for fair or poor self-rated general health. Guyanese Canadians (AOR = 1.12, $p < .001$) who had lived in Canada between 11 to 20 years (AOR = 1.40, $p < .001$) had increased odds for fair poor self-rated health. Among those within this ethnic group, however, who had spent more than 20 years (AOR = 0.53, $p < .001$) in Canada, the odds are significantly reduced for this condition.

Any Mood Disorder

Table 8 displays the reduced odds in general for any mood disorder among Caribbean immigrants who had lived in Canada between 11 to 20 (AOR = 0.91, $p < .001$) years and for more than 20 years (AOR = 0.83, $p < .001$), relative to those who lived in Canada for less than 10 years (see Table 8). But among Jamaican Canadians the odds increased for respondents that resided in the country between 11 to 20 years (AOR = 3.17, $p < .001$) and for longer than 20 years (AOR = 1.30, $p < .001$). Analyses were not conducted on Guyanese Canadians for this condition due to small sample sizes.

Discussion

This study on the health of Caribbean descendants in Canada revealed higher rates of physician-diagnosed physical conditions, including hypertension, diabetes, heart disease, stroke, arthritis and any cardiovascular or metabolic disease, among first-generation people reporting Caribbean ethnic origins in Canada, when compared to those residing in the Caribbean region. These results largely provide support for the “healthy immigrant effect” hypothesis that suggests foreign-born migrants generally have better physical health than ethnically similar native-born individuals. Only self-rated fair or poor health and *any* mood disorders were higher among respondents in the Caribbean region.

In contrast to other studies, however, this study did not find overall the health of immigrants deteriorates the longer they are in Canada. Specifically, the risk for poor health conditions was *reduced* for migrating ethnic origin Caribbeans living in Canada for more than 20 years, especially for cardiovascular conditions and *any* mood disorder. This result might reflect the influence of a universal health-care system and thus greater access to resources for all Canadian citizens and permanent landed immigrants. It could also be attributable to characteristics of different cohorts within the country and race/ethnicity cohorts because of the large age categories used. Overall these results did not hold, however, for specific conditions among certain national Caribbean groups within the earlier years (11 to 20 years) of entry. For instance, increased odds for hypertension and *any* cardiovascular disease were found among Jamaicans. Guyanese who migrated to Canada were also found to have a greater likelihood for conditions such as diabetes and *any* cardiovascular diseases within those years.

For other chronic and self-rated conditions, however, the findings were consistent with previous studies. There was higher likelihood for arthritis and fair or poor self-rated general health to be associated with longer residence in Canada among Caribbean immigrants. Jamaican migrants were, in fact, at increased risk for arthritis and fair or poor self-rated general health. These results are consistent with possible social, economic and other structural factors that might predispose Caribbean migrants to these health risks. This was

not the case for Guyanese Caribbean immigrants who were at lower odds for these same conditions.

It is possible that characteristics generally associated with certain national ethnic groups could serve as a protective factor for some, while increasing the risks of poor conditions for others. Although a larger percentage of Jamaican immigrants to Canada are of African descent (Williams et al. 2007), there are individuals from other Caribbean countries or regions (e.g., French, English, Dutch, and Spanish speaking islands) that are of different racial/ethnic origins; Guyana's population in particular is more heterogeneous than other Caribbean countries (e.g., Wilson, Wilson, and Johnson 2010; Hintzen 1983). Due to similarities in racial/ethnic compositions with the dominant group in Canada, some Caribbean migrants may experience fewer post-migration challenges as compared to others with dissimilar characteristics, contributing to the health differences found. This was partly supported by the additional analyses that showed increasing odds for a number of health conditions among blacks compared to non-blacks (data not shown in tables) (e.g., Ng et al. 2005).

Although not discussed in the results section, socio-demographic factors were also associated with various health risks, both positive and negative, at various points of post-migration (see Tables 3 through 8). Consistently, age was associated with declining health for many chronic health conditions, including *any* cardiovascular disease, arthritis, diabetes, and hypertension, in addition to fair or poor self-rated health (Lacey et al. 2015; Strait and Lakatta 2012; Blazer 2003). These results may reflect the increasing physical health risks that are associated with aging. Quite possibly, some health conditions (e.g., hypertension, stroke, etc.) may be a consequence of the accumulation of stressful life circumstances over time.

In general, physical health diseases and conditions are associated with increasing age. On the contrary, mental health statuses, such as mood disorders, have relatively early onsets (Raposo et al. 2014; Asnaani et al. 2012; Himle et al. 2009; Kessler et al. 2007; Jackson et al. 2004). It is possible that the selective migration policy of Canada interacts with the average early onset of mood disorders in migrating ethnic origin individuals from the Caribbean and the later onset of physical health disorders to affect the lower rates of mood disorders among Canadian Caribbeans when compared to Caribbeans residing in the two countries examined in this study. Since some of this selectivity is a function of more recent Canadian policies, it could be that the anomalous results for the 11 to 20 years category in the host country reflect cohort differences in the application of selection criteria. Nonetheless, the findings differ between Caribbean immigrants in general and Jamaicans in particular to Canada in relation to length of time in the country. Unexpectedly, the risk for mental disorders was lower over time for Canadian Caribbean immigrants. One can speculate that along with access to health care and resources with time in the country, Caribbean immigrants in general may become more educated and cognizant to the issues of mental health while attempting to address their condition when confronted with health and life challenges. The fact that there tend to be less stigma associated with mental health in Westernized host countries may allow those with such conditions to freely seek help that may be less accessible in their homelands and places of origin. In contrast, the risk

for mood disorder increased with time among Jamaican Canadians and can be attributed to stressful social and structural conditions (e.g., racism, underemployment, etc.) (Seeman 2011). Additionally, Jamaicans who migrate to Canada may already be predisposed to this condition in their homeland, which might explain the increase. Illustrated by studies conducted in the Caribbean region, significant higher rates of depression were found for Jamaicans as compared to other national groups (e.g., Guyanese) (Lacey et al., 2015; Lacey et al. 2016).

There are a few limitations to the study that should be noted. We did not directly test certain potential hypothesized variables (e.g., discrimination, social support, etc.) that may help explain the health outcomes of ethnic origin Caribbeans because of Canadian (CCHS) data limitations. Second, while length of time spent in Canada was useful in assessing differences in the health outcomes of ethnic origin Caribbeans, it did not include subsequent generational status markers that may provide information on whether longer exposure to certain cultural contexts over time may influence health outcomes. Third, because of measurement and sample size issues, we were unable to examine certain physical and mental health conditions across the datasets. Fourth, the Jamaica sample was limited to the urban Kingston area. Although a majority of the country's population reside in this urban region at the time of data collection, differences might have been observed if non-urban residents had they been included. Fifth, we did not examine other ethnic and national Caribbean groups within and outside of Canada to get a complete understanding of the general migratory health patterns. Jamaican and Guyanese were selected due to their generally higher migration rates among this population to Canada and other western countries. Sixth, we examined data over a decade old and conditions may differ today. We believe, however, that the results of this study are less likely to change during this relatively short period of time (e.g., Lee et al. 2013). Finally, all the data used in this paper are cross-sectional and therefore, causality cannot be inferred from the analyses.

Even given these shortcomings, this is one of few studies that used population-based probability data across regions to understand the health patterns of Caribbeans in Canada and their homelands of origins. This research also provides rarely used additional information pertaining to the influence of social, economic, place of residence and length of time since migration on the health and well-being of immigrants to host countries using multiple physician-diagnosed and self-rated measures to address the health of Caribbean participants. This study was able to address the health of specific migrating national groups both within and outside the Caribbean region. Moreover, the datasets used for this study permitted cross-national comparisons with the few available population-based probability samples collected within the Caribbean regions.

Overall, this study provides initial evidence that the health outcomes of first-generation migrants is not linear and often depends on year of initial entry, sending country, race/ethnicity and perhaps destination host country. This suggest that migrants who relocate to countries with higher living standards and universal health system, such as Canada, may fare better with respect to their health over a longer period. Canada is still ranked high among countries in the world regarding quality of life in comparison to other high-income nations. It is also a country that has a universal health system that is available to all citizens

and permanent landed immigrants to the country. This set of policies provides opportunities to those with health challenges to receive care that is less dependent upon socioeconomic limitations. Among other potential Caribbean diasporic destinations (e.g., the U.S.), these resources and options may not be readily available to immigrant groups who lack the financial ability to meet these health costs.

Similar to other diasporic nations, however, there are health inequities in Canada that continue to shape the lives of individuals across certain age, gender, social-economic status and racial/ethnic categories. Those in more disadvantaged and marginal statuses are at greater risk for poorer health outcomes. Therefore, it is important that we examine these disparities along racial/ethnic and other lines of divisions in future studies, especially with the projected increase of immigrants to Canada and other host countries. Continued research on the influences of socio-cultural contexts and place and time of residence on mental and physical health is necessary to identify key areas for intervention and support for Caribbean and other immigrant groups during their migratory transitions. As revealed in other studies (e.g., Lacey et al. 2015), mental health status is an understudied area that is gaining prominence, particularly given the stigma and debilitating effects on family, employment opportunities, and social life generally associated with mental disorders (especially mood disorders) among ethnic origins Caribbeans and other migrant groups in countries like Canada.

Clinical Implication of Study

The results of this study have implication for health care service providers. Services geared toward maintaining good physical health for immigrants is critical as Caribbean immigrants to Canada are vulnerable to certain conditions. Health care providers need to be cognizant in recognizing these vulnerabilities and become instrumental in preventative measures that might assist in reducing and managing these risks. Specifically, poor health conditions such as cardiovascular disease (i.e., diabetes), tends to be more prominent among blacks compared to other ethno racial groups. Therefore, it might be effective to have specialized need-based programs led by physicians that reflect the health needs of culturally diverse communities.

As illustrated in this study, certain ethnic groups within the Caribbean population may already be predisposed to health risks. Despite general improvement in health conditions with time in the country, mood disorders persistently remain a concern for Jamaican Canadians. Given their presence as the largest Caribbean group, development of community organizations geared to providing resources, treatment, and strategies for coping might be helpful to mitigate this mental health concern, especially after arrival. For example, support from these organizations may be useful for improving awareness and developing healthy coping strategies, enabling recent and established immigrants to deal with stressors that may contribute to poor mental well-being. Likewise, these community organizations might be beneficial to Guyanese immigrants who are at risk for cardiovascular condition with time spent in the country.

In addition to program initiatives and intervention measures, it is equally important that immigrants are able to access these and other medical services and programs necessary for

the improvement and maintenance of health. Few service providers in Canada, especially in urban areas like Toronto, have been instrumental to the improvement of health of people of Caribbean ethnic origins. Currently, for example, the TAIBU community health center, Women's Health in Women's Hand, and the Black Creek Community Health Center, are preventative health care clinics that largely serve Caribbean populations. These medical settings reveal that there is potential in understanding how cultural, religious and socio-economic issues and beliefs are critical in preventing, deterring or encouraging individuals and families to seek care. Building trust with physician and physician assistants, and nurses who seek to understand and assist immigrants in open and unbiased ways is a path to gaining more confidence in the health system and services and may begin the process of removing barriers and stigmas that prevent individuals from seeking necessary medical and mental health care.

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Table 1.

Sample Characteristics

Characteristics	Guyanese Canadians (%)	Jamaican Canadians (%)	Caribbean Canadians (%)	Caribbean Guyanese (%)	Caribbean Jamaicans (%)
Age (years)	45.4	47.0	45.6	40.5	38.9
Gender					
Male	48.2	42.2	44.2	48.2	30.5
Female	51.8	57.8	55.8	51.8	69.5
Marital Status					
Never married	17.8	26.1	23.1	31.2	56.6
Married	62.1	48.1	54.1	34.2	20.3
Partnered	2.6	7.7	5.1	16.0	13.2
Sep-Div-Widowed	17.5	18.1	17.7	18.6	9.9
Education Level					
Below high school	19.4	18.8	18.7	54.0	28.3
High school grad	29.9	17.5	20.5	29.7	49.8
Post-secondary	50.7	63.7	60.9	16.3	21.9
Employment Status					
Employed	74.5	74.6	71.3	53.7	44.1
Unemployed	2.8	2.9	4.2	10.8	28.6
Not in labour force	22.7	22.5	24.5	35.5	27.4
Equivalised Income					
Bottom quintile	13.5	14.3	12.4	14.0	21.1
Second quintile	12.6	12.9	12.5	30.0	24.3
Middle quintile	21.7	24.2	24.8	23.4	1.6
Fourth quintile	32.1	28.1	28.8	22.4	42.4
Highest quintile	20.2	20.5	21.4	10.2	10.7
Unweighted sample size	424	831	2238	2068	1218

Characteristics	Guyanese Canadians (%)	Jamaican Canadians (%)	Caribbean Canadians (%)	Caribbean Guyanese (%)	Caribbean Jamaicans (%)
Weighted N	76655	110996	333808		

Data source: Canadian Community Health Survey and samples collected in Jamaica and Guyana in 2005

Table 2.

Prevalence of Health Outcomes by Geographic Location and Ethnicity

Health	Guyanese Canadians (%)	Jamaican Canadians (%)	Caribbean Canadians (%)	Caribbean Guyanese (%)	Caribbean Jamaicans (%)
Heart Disease	3.8	3.8	3.3	1.4	1.7
Hypertension	18.3	25.7	20.9	14.6	14.1
Diabetes	11.4	5.9	7.5	6.6	7.5
Stroke	0.8	1.4	1.2	0.4	0.4
Any Cardiovascular / Metabolic Disease	25.9	29.2	25.6	13.5	12.4
Arthritis	14.4	15.2	15.2	5.0	7.8
Self-Rated General Health (fair/poor)	11.9	14.2	13.1	17.5	25.7
Mood Disorder	3.5	3.7	3.3	5.1	8.2

Note. Analysis was based on first generation Caribbeans

Table 3:

Factors Associated with the Prevalence of Hypertension

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
Age (years)					
	1.09(1.08–1.09) ***	1.09 (1.09–1.09) ***	1.08(1.08–1.08) ***	1.09(1.08–1.11) ***	1.06(1.05–1.08) ***
Gender					
Male	1	1	1	1	1
Female	1.05(1.00–1.10) *	1.01(0.98–1.04)	1.01(0.99–1.03)	1.99(1.41–2.80) ***	3.64(2.14–6.20) ***
Marital Status					
Never married	1	1	1	1	1
Married or partnered	1.47(1.35–1.60) ***	1.28(1.22–1.33) ***	0.98(0.96–1.01)	2.09(1.32–3.33) **	1.33(0.84–2.09)
Sep+Div+Widowed	1.84(1.68–2.02) ***	1.15(1.09–1.21) ***	0.93(0.90–0.96) ***	1.01(0.59–1.74)	1.11(0.56–2.18)
Education Level					
Below high School	1	1	1	1	1
High school grad	0.53(0.50–0.57) ***	1.71(1.61–1.80) ***	0.91(0.88–0.94) ***	0.86(0.55–1.33)	1.04(0.53–2.03)
Post-secondary	0.40(0.38–0.43) ***	1.86(1.78–1.95) ***	0.90(0.88–0.92) ***	0.53(0.31–0.91) *	0.74(0.32–1.74)
Employment Status					
Employed	1	1	1	1	1
Unemployed/not in labour force	1.48(1.40–1.57) ***	1.13(1.08–1.18) ***	1.07(1.04–1.09) ***	0.96(0.66–1.40)	0.91(0.56–1.45)
Equalised Income					
Bottom/second quintiles	1	1	1	1	1
Middle quintile	3.02(2.81–3.24) ***	1.82(1.73–1.91) ***	1.47(1.43–1.52) ***	1.27(0.81–1.97)	0.96(0.11–8.22)
Fourth quintile	3.57(3.31–3.85) ***	0.83(0.79–0.87) ***	1.21(1.18–1.25) ***	0.84(0.50–1.40)	0.98(0.52–1.87)
Highest quintile	2.79(2.56–3.03) ***	1.39(1.32–1.47) ***	1.34(1.29–1.38) ***	0.83(0.44–1.55)	0.83(0.32–2.10)
Length of Time					
Up to 10 years	1	1	1	---	---

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
11–20 years	0.60(0.54–0.68)***	2.26(2.12–2.40)***	1.31(1.26–1.37)***	---	---
More than 20 years	0.95(0.89–1.01)	0.75(0.72–0.78)***	0.99(0.96–1.01)	---	---

Note.

* $p < .05$

** $p < .01$

*** $p < .001$

Being Black has a positive effect on hypertension (odds ratio 1.74***); it has no effect on other correlates.

Table 4:

Factors Associated with the Prevalence of Diabetes

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
Age (years)					
	1.04(1.04–1.04)***	1.08(1.08–1.08)***	1.06(1.06–1.06)***	1.07(1.05–1.09)***	1.07(1.05–1.09)***
Gender					
Male	1	1	1	1	1
Female	0.71(0.67–0.75)***	1.18(1.10–1.25)***	0.72(0.72–0.72)***	1.53(1.00–2.33)*	2.16(1.18–3.94)**
Marital Status					
Never married	1	1	1	1	1
Married or partnered	2.47(2.22–2.75)***	0.78(0.72–0.85)***	1.11(1.11–1.11)***	1.42(0.83–2.43)	1.12(0.63–2.00)
Sep+Div+Widowed	8.53(7.64–9.53)***	1.13(1.04–1.23)**	1.89(1.89–1.89)***	0.77(0.40–1.47)	0.87(0.40–1.91)
Education Level					
Below high School	1	1	1	1	1
High school grad	0.82(0.76–0.88)***	1.59(1.45–1.73)***	0.92(0.92–0.92)***	0.68(0.39–1.19)	0.82(0.36–1.86)
Post-secondary	1.26(1.18–1.35)***	1.28(1.19–1.37)***	0.98(0.98–0.98)***	0.23(0.10–0.53)**	0.90(0.32–2.58)
Employment Status					
Employed	1	1	1	1	1
Unemployed/not in labour force	0.71(0.66–0.76)***	1.31(1.22–1.40)***	10.95(0.95–0.95)***	0.71(0.44–1.14)	1.10(0.59–2.07)
Equalised Income					
Bottom/second quintiles	1	1	1	1	1
Middle quintile	0.64(0.59–0.69)***	0.68(0.63–0.73)***	0.71(0.71–0.71)***	0.88(0.49–1.58)	na
Fourth quintile	0.45(0.42–0.48)***	0.62(0.57–0.67)***	0.67(0.67–0.68)***	0.69(0.36–1.31)	0.68(0.28–1.62)
Highest quintile	0.26(0.24–0.28)***	0.37(0.33–0.41)***	0.42(0.42–0.43)***	1.18(0.58–2.41)	1.18(0.40–3.54)
Length of Time					
Up to 10 years	1	1	1	---	---

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
11–20 years	1.20(1.09–1.33) ***	0.78(0.70–0.87) ***	0.77(0.76–0.77) ***	---	---
More than 20 years	0.36(0.33–0.39) ***	0.84(0.78–0.90) ***	0.62(0.62–0.62) ***	---	---

Note.

* $p < .05$

** $p < .01$

*** $p < .001$

Being Black has a negative effect on diabetes (odds ratio 0.74***), it has no effect on other correlations.

Table 5:

Factors Associated with the Prevalence of Any Cardiovascular Disease

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
Age (years)					
	1.08(1.08–1.08)***	1.10(1.09–1.10)***	1.09(1.09–1.09)***	1.08(1.07–1.10)***	1.05(1.03–1.06)***
Gender					
Male	1	1	1	1	1
Female	0.74(0.71–0.77)***	1.04(1.01–1.08)*	0.88(0.86–0.89)***	1.99(1.44–2.74)***	2.92(1.80–4.71)***
Marital Status					
Never married	1	1	1	1	1
Married or partnered	1.99(1.85–2.14)***	1.19(1.14–1.24)***	1.06(1.03–1.09)***	1.60(1.06–2.42)*	1.49(0.99–2.25)
Sep-Div-Widowed	4.89(4.51–5.30)***	1.25(1.19–1.32)***	1.36(1.32–1.41)***	1.01(0.62–1.63)	1.26(0.69–2.31)
Education Level					
Below high school	1	1	1	1	1
High school grad	0.45(0.42–0.48)***	1.85(1.75–1.95)***	0.88(0.85–0.90)***	0.85(0.56–1.28)	0.74(0.41–1.35)
Post-secondary	0.61(0.57–0.64)***	2.08(1.99–2.17)***	1.03(1.00–1.06)*	0.51(0.30–0.85)	0.57(0.27–1.20)
Employment Status					
Employed	1	1	1	1	1
Unemployed/not in labour force	0.92(0.87–0.97)**	1.22(1.17–1.27)***	0.94(0.92–0.96)***	1.00(0.71–1.43)	0.99(0.08–5.22)
Equalised Income					
Bottom/second quintiles	1	1	1	1	1
Middle quintile	2.09(1.96–2.22)***	1.45(1.38–1.52)***	1.27(1.23–1.30)***	1.13(0.74–1.71)	0.64(0.08–5.22)
Fourth quintile	2.82(2.65–3.00)***	0.92(0.87–0.96)***	1.18(1.15–1.22)***	0.81(0.50–1.32)	1.29(0.71–2.33)
Highest quintile	1.84(1.71–1.98)***	1.14(1.08–1.21)***	1.19(1.15–1.23)***	0.88(0.49–1.58)	0.80(0.33–1.93)
Length of Time					
Up to 10 years	1	1	1	---	---

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
11–20 years	1.35(1.24–1.48)***	2.64(2.48–2.81)***	1.41(1.36–1.47)***	---	---
More than 20 years	1.03(0.97–1.09)	0.66(0.63–0.69)***	0.86(0.83–0.88)***	---	---

Note.

* $p < .05$

** $p < .01$

*** $p < .001$

Being Black has a positive effect on any cardiovascular disease (odds ratio 1.32***); it has no effect on other correlates

Table 6:

Factors Associated with the Prevalence of Arthritis

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
Age (years)					
	1.09(1.09–1.09) ***	1.06(1.05–1.06) ***	1.06(1.06–1.06) ***	1.30(1.10–1.16) ***	1.09(1.07–1.12) ***
Gender					
Male	1	1	1	1	1
Female	2.12(2.01–2.23) ***	1.72(1.64–1.79) ***	1.95(1.91–2.00) ***	1.88(1.06–3.33) *	1.09(0.59–2.03)
Marital Status					
Never married	1	1	1	1	1
Married or partnered	1.87(1.70–2.05) ***	1.08(1.03–1.14) ***	1.80(1.74–1.86) ***	1.94(0.81–4.64)	0.44(0.213–0.90) *
Sep+Div+Widowed	2.86(2.58–3.17) ***	1.40(1.32–1.48) ***	1.88(1.81–1.95) ***	0.92(0.37–2.32)	0.41(0.17–0.98) *
Education Level					
Below high School	1	1	1	1	1
High school grad	2.78(2.56–3.01) ***	0.75(0.70–0.80) ***	0.79(0.76–0.82) ***	1.08(0.48–2.43)	1.17(0.44–3.07)
Post-secondary	3.11(2.89–3.35) ***	1.00(0.95–1.05)	1.01(0.99–1.04)	0.38(0.14–1.08)	1.03(0.28–3.80)
Employment Status					
Employed	1	1	1	1	1
Unemployed/not in labour force	1.76(1.65–1.87) ***	3.04(2.91–3.18) ***	1.75(1.71–1.79) ***	0.71(0.36–1.40)	1.62(0.76–3.47)
Equalised Income					
Bottom/second quintiles	1	1	1	1	1
Middle quintile	0.46(0.43–0.50) ***	1.89(1.79–1.99) ***	1.38(1.33–1.42) ***	1.50(0.69–3.25)	na
Fourth quintile	0.66(0.62–0.71) ***	0.73(0.68–0.77) ***	0.82(0.79–0.85) ***	0.66(0.26–1.71)	0.81(0.30–2.18)
Highest quintile	0.05(0.05–0.06) ***	0.83(0.77–0.89) ***	0.81(0.78–0.84) ***	0.59(0.18–1.96)	0.25(0.03–2.02)
Length of Time					
Up to 10 years	1	1	1	---	---

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
11–20 years	0.68(0.62–0.76)***	2.08(1.93–2.23)***	1.47(1.41–1.54)***	---	---
More than 20 years	0.29(0.27–0.31)***	1.64(1.57–1.72)***	1.16(1.13–1.20)***	---	---

Note.

* $p < .05$

** $p < .01$

*** $p < .001$

na means insufficient data

Being Black has a positive effect on arthritis (odds ratio 1.32***); it has no effect on other correlates

Table 7:

Factors Associated with the Prevalence of Fair/Poor Self-Rated Health

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
Age (years)					
	1.06(1.06–1.06)***	1.03(1.03–1.03)***	1.04(1.04–1.04)***	1.05(1.04–1.06)***	1.03(1.02–1.04)***
Gender					
Male	1	1	1	1	1
Female	0.98(0.93–1.03)	1.31(1.26–1.36)***	1.30(1.27–1.33)***	1.10(0.85–1.44)	1.45(1.05–1.99)*
Marital Status					
Never married	1	1	1	1	1
Married or partnered	0.79(0.73–0.86)***	0.74(0.70–0.77)***	0.90(0.88–0.93)***	0.91(0.67–1.24)	1.01(0.74–1.38)
Sep-Div-Widowed	1.32(1.20–1.44)***	0.99(0.93–1.04)	1.14(1.10–1.18)***	0.96(0.65–1.42)	1.14(0.70–1.85)
Education Level					
Below high school	1	1	1	1	1
High school grad	0.71(0.66–0.76)***	1.40(1.33–1.49)***	0.99(0.96–1.02)	0.87(0.62–1.21)	0.75(0.49–1.15)
Post-secondary	0.68(0.63–0.72)***	0.61(0.58–0.64)***	0.71(0.69–0.73)***	0.50(0.33–0.77)**	0.52(0.31–0.88)*
Employment Status					
Employed	1	1	1	1	1
Unemployed/not in labour force	1.74(1.63–1.85)***	2.74(2.63–2.86)***	2.75(2.68–2.82)***	1.20(0.90–1.60)	1.38(1.01–1.89)*
Equalised Income					
Bottom/second quintiles	1	1	1	1	1
Middle quintile	1.63(1.63–1.74)***	0.87(0.82–0.92)***	0.91(0.88–0.94)***	0.97(0.69–1.37)	0.37(0.08–1.69)
Fourth quintile	0.43(0.39–0.46)***	1.22(1.15–1.29)***	0.61(0.59–0.63)***	0.82(0.56–1.21)	0.90(0.60–1.37)
Highest quintile	0.56(0.50–0.61)***	2.16(2.03–2.30)***	0.77(0.74–0.80)***	0.91(0.56–1.47)	1.04(0.61–1.77)
Length of Time					
Up to 10 years	1	1	1	---	---

Characteristics	Guyanese Canadians	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
11–20 years	1.40(1.28–1.53)***	1.89(1.77–2.03)***	1.37(1.31–1.43)***	---	---
More than 20 years	0.53(0.49–0.57)***	1.63(1.56–1.71)***	1.03(1.00–1.06)*	---	---

Note.

* $p < .05$

** $p < .01$

*** $p < .001$

Being Black has a negative effect on self-perceived health (odds ratio 0.94***); it has no effect on other correlates.

Table 8:

Factors Associated with the Prevalence of Mood Disorders

Characteristics	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
Age (years)				
	0.99(0.98–0.99)***	0.98(0.98–0.98)***	0.98(0.97–1.00)	0.97(0.95–0.99)***
Gender				
Male	1	1	1	1
Female	0.90(0.81–0.99)*	1.35(1.35–1.35)***	1.07(0.70–1.64)	1.60(0.96–2.67)
Marital Status				
Never married	1	1	1	1
Married or partnered	19.84(15.02–26.20)***	1.43(1.43–1.43)***	0.85(0.54–1.35)	0.72(0.42–1.21)
Sep+Div+Widowed	23.70(17.73–31.70)***	3.37(3.37–3.37)***	1.14(0.60–2.17)	1.80(0.85–3.85)
Education Level				
Below high school	1	1	1	1
High school grad	5.63(4.85–6.53)***	1.94(1.94–1.94)***	0.94(0.57–1.55)	0.92(0.47–1.77)
Post-secondary	0.90(0.77–1.05)	0.91(0.91–0.91)***	0.71(0.38–1.34)	0.86(0.39–1.91)
Employment Status				
Employed	1	1	1	1
Unemployed/not in labour force	5.24(4.72–5.81)***	2.75(2.68–2.82)***	0.79(0.50–1.25)	0.83(0.51–1.35)
Equalised Income				
Bottom/second quintiles	1	1	1	1
Middle quintile	0.39(0.33–0.46)***	0.69(0.69–0.69)***	0.98(0.57–1.69)	1.50(0.32–6.88)
Fourth quintile	0.94(0.81–1.09)	0.90(0.90–0.90)***	0.89(0.50–1.60)	0.74(0.40–1.36)
Highest quintile	1.60(1.36–1.88)***	0.83(0.83–0.83)***	1.35(0.68–2.68)	1.07(0.51–2.26)
Length of Time				
Up to 10 years	1	1	---	---

Characteristics	Jamaican Canadians	Caribbean Canadians	Caribbean Guyanese	Caribbean Jamaicans
11–20 years	3.17(2.80–3.59) ***	0.91(0.91–0.91) ***	---	---
More than 20 years	1.30(1.16–1.46) ***	0.83(0.83–0.83) ***	---	---

Note.

* $p < .05$

** $p < .01$

*** $p < .001$

Analysis was not conducted on Guyanese Canadians for this condition due to insufficient data.

Being Black has a positive effect on mood disorder (odds ratio 1.74***); it has no effect on other correlates.