Seniors' Health in the GTA: How Immigration, Language, and Racialization Impact Seniors' Health

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EXECUTIVE SUMMARY

The growing ethnic and linguistic diversity amongst senior populations has been well documented within Canada overall, and specifically within the Greater Toronto Area (GTA). Healthy aging is what we all desire, but how we age in the GTA is not the same for everyone. Some face greater health challenges than others as they age, and this in turn impacts how they perceive their health. What's more is that senior's self-reported health varies widely when accounting for selected diversity variables including immigration, length of time since immigration, mother tongue, and racialized identity.

This work investigates the impact of immigration, language, and racialized identity on social determinants of health (SDOH) outcomes like income, education, employment, sense of belonging to local community, and health care access as well as self-reported health and mental health across ethnically and linguistically diverse senior populations in the GTA. Our analyses of the Canadian Community Health Survey data revealed significant disparities in seniors' health across a number of factors. In addition, we identify groups that experience the greatest health disadvantages – recent immigrant seniors, those whose mother tongue is not English, and racialized seniors.

Key findings include that:

- Nearly two in three seniors in the GTA are immigrants (either long-term, mid-term or recent), and more recent immigrant seniors are mainly from racialized and linguistically diverse groups: 82% of recent immigrant seniors who have lived in Canada for 20 years or less are racialized seniors and 88% report a non-English mother tongue
- Only 27% of recent immigrant seniors perceive their general health as excellent or very good, compared to 52% of non-immigrant seniors
- 53% of recent immigrants perceive their mental health as excellent or very good, compared to 74% of non-immigrant seniors
- 30% of seniors whose mother tongue is not English report excellent or very good general health, compared to 49% of seniors whose mother tongue is English
- 30% of racialized seniors report excellent or very good general health, compared to 44% of non-racialized seniors
- 67% of seniors whose mother tongue is not English report a strong or very strong sense of belonging, compared to 75% of seniors whose mother tongue is English
- 15% of racialized seniors report low or no income, more than twice as high as the rate for non-racialized seniors

This report offers an important contribution to current knowledge of seniors' health inequities in the GTA. The growing ethnic and linguistic diversity in older populations has been highlighted as a critical area of research and policy that requires increased attention and innovative actions to achieve healthy aging for all. Reducing health disparities amongst diverse senior populations in the GTA requires more targeted approaches in service planning and delivery to improve the health and well-being of disadvantaged population groups. As well, to achieve healthy aging for all, understanding and addressing the root causes of health and health inequities should be a critical component of future health policy efforts.

Introduction

The conditions necessary for healthy aging are not consistent throughout the GTA. Healthy aging is what we all desire, but some people face more health challenges than others as they age. Achieving the goal of healthy aging for all seniors requires a strong evidence base on the current status of seniors' health and an examination of health disparities and their underlying causes. In this paper, we provide a snapshot of seniors' self-reported health status and some of the key social determinants of health – income, employment, education, sense of community belonging, and health care access. Using GTA-level population health survey data, we investigate how our senior populations experience health differently by looking at the impact of selected diversity variables, including immigration, length of time since immigration, language, and racialized identity. We also examine which social determinants and diversity variables are strongly associated with seniors' health and mental health status. Findings from our analyses highlight significant disparities in seniors' self-reported health status and many social determinants of health outcomes across diverse senior populations. In addition, we identify groups that experience the greatest health disadvantages – specifically recent immigrant seniors, those whose mother tongue is not English, and racialized seniors.

Methods

This study draws on national survey data from the Canadian Community Health Survey (CCHS). The CCHS is a cross-sectional survey administered by Statistics Canada that collects information on health status, health care utilization, and health determinants for the Canadian population. The CCHS data are collected annually.

For this analysis we combined eight cycles of CCHS data collected between January 2007 and December 2014. This produced a sample of 10,125 people aged 65 and over who were residents of the GTA. Our analysis includes extensive descriptive data on the self-reported health and mental health. We also included five social determinants of health (income, employment, education, sense of belonging to the local community and health care access) for diverse senior populations in the GTA, disaggregated by selected diversity variables including immigration status, length of time in Canada, racialized identity, and mother tongue. We chose these diversity variables based on the availability of data in the CCHS dataset. We could not report on other diverse groups of seniors, such as LGBT seniors, due to the small size of the sampled population. We also provide results from more rigorous statistical tests, evaluating the odds of GTA seniors having excellent/very good self-reported health and mental health, to identify which diversity and social determinants of health variables are associated with seniors' health status.

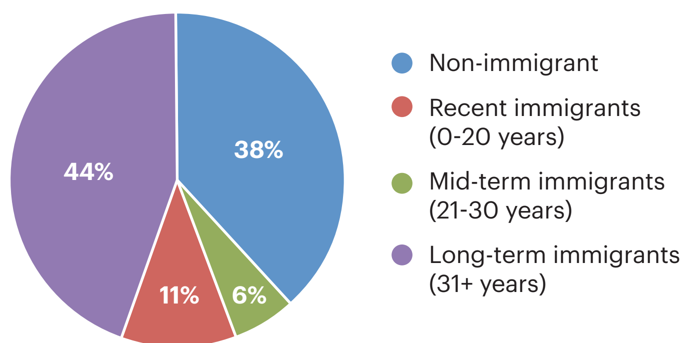
Appendix A contains further details of our methods. Appendix B presents detailed descriptive data tables describing the results of our CCHS analyses. Appendix C presents our logistic regression models.

A Demographic Profile of Senior Populations in the GTA

The growing ethnic and linguistic diversity amongst senior populations has been well documented within Canada overall, and specifically in the GTA.[1] Within our total sample of seniors 38 percent were non-immigrants (born in Canada), 11 percent were recent immigrants in Canada (0-20 years), 6 percent were mid-term immigrants (in Canada 21-30 years), and the largest group (44 percent) comprised long-term immigrants (in Canada 31+ years) (Chart 1). Forty-six percent of seniors in the GTA reported a mother tongue that was not English (Chart 2) and 28 percent reported a racialized identity (Chart 3).

Nearly two in three seniors in the GTA were immigrants. Within immigrant seniors, 43 percent were racialized persons and 69 percent reported a mother tongue that was not English. Our data show clear evidence of the changing composition of immigrant seniors in the GTA; among recent immigrant seniors in the GTA 82 percent were racialized and 88 percent reported a non-English mother tongue, and among long-term immigrant seniors in the GTA 27 percent were racialized and 62 percent reported a non-English mother tongue (see Table 1 in Appendix B).

Chart 1: Immigration Status and Time in Canada



Source: CCHS 2007-2014, Seniors (65 plus), GTA

Top 8 Countries of Birth for Seniors in the GTA:
(except canada)
Italy (8.2%)
UK (6.8%)
China (4.5%)
India (3.6%)
Jamaica (2.3%)
Philippines (2.2%)
Germany (2.0%)
Portugal (1.8%)

*as % of total senior population

Chart 2: Mother Tongue

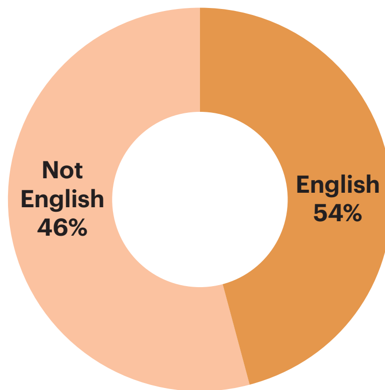
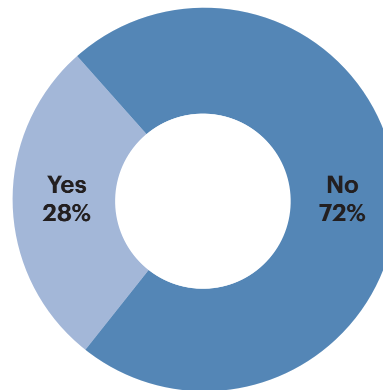


Chart 3: Racialized Identity



Source: CCHS 2007-2014, Seniors (65 plus), GTA

Social Determinants of Health

The social determinants of health (SDOH) are defined as the conditions in which people are born, grow, live, work and age that influence people's health positively and negatively over the life course.[2] They are the root causes of health and health inequities. The CCHS asks respondents a variety of questions related to some of the key SDOHs. These include questions about household income, employment status, level of education, sense of belonging to the local community, and access to health care. This section presents the results of our descriptive analyses examining which groups of seniors in the GTA were disadvantaged on each of the selected five social determinants.

Low Income

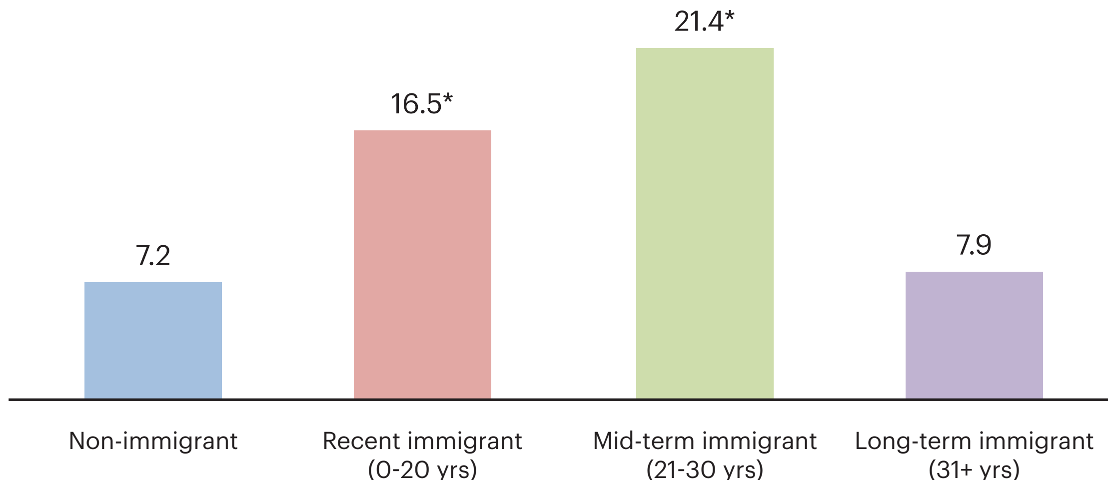
Nearly one in ten GTA seniors reported no income or some form of social assistance (primarily Old Age Security (OAS) and the Guaranteed Income Supplement (GIS)) as their main source of household income, which is commonly used as an indicator of low income.[3]

Among diverse senior populations, approximately seven percent of non-immigrant seniors reported low income as defined above. This rate was significantly higher for the immigrant seniors group as a whole (10.8 percent). Immigrant seniors who had been in Canada for 30 years or less were much more likely than non-immigrant seniors to report social assistance as their main source of income or have no income (Chart 4). Racialized immigrants were nearly twice as likely as non-racialized immigrants to rely on social assistance as their main source of income or have no income (14.7 percent versus 7.5 percent).

Significant group differences were also found between English mother tongue and non-English mother tongue senior groups and between racialized and non-racialized senior

groups. Seniors whose mother tongue was not English were more likely to rely on some form of social assistance as their main source of household income or have no income compared to those whose mother tongue was English (11.5 percent versus 7.9 percent). The rate of low-income for racialized seniors was 15.4 percent, more than twice as high as the rate for non-racialized seniors (7.2 percent).

Chart 4: % reporting OAS/GIS, social assistance or no income as main household income by immigration status and length of time in Canada



Source: CCHS 2007-2014, Seniors (65 plus), GTA
*Note: significantly different ($p<0.05$) from estimate for non-immigrants

Employment

Within the GTA more than one in four seniors between age 65 and 75 responded that they had worked at a job or business at any time in the past 12 months. [4]

Immigrant seniors as a group were significantly less likely to have been employed or self-employed than non-immigrant seniors (Chart 5). Within the immigrant senior group, more recent immigrants and racialized immigrants reported lower rates of employment or self-employment compared to more established immigrants and non-racialized immigrants, respectively, although no significant difference was found. Mother tongue, but not racialized identity, had a strong significant association with seniors' employment or self-employment experience in the past year (Chart 6), with those whose mother tongue was not English reporting significantly lower levels of employment or self-employment than seniors whose mother tongue was English.

Chart 5: Have been employed or self-employed in the last 12 months (%) by immigrant status

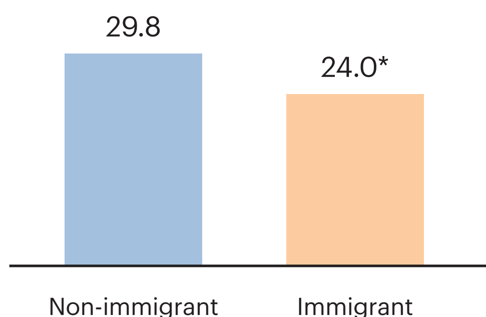
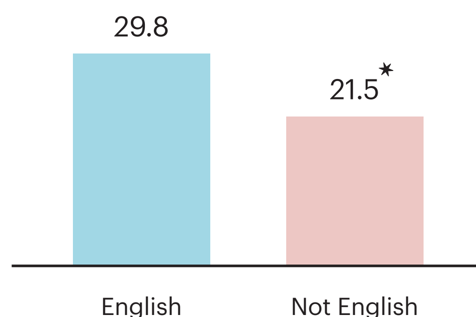


Chart 6: Have been employed or self-employed in the last 12 months (%) by mother tongue



Source: CCHS 2007-2014, Seniors (65 plus), GTA

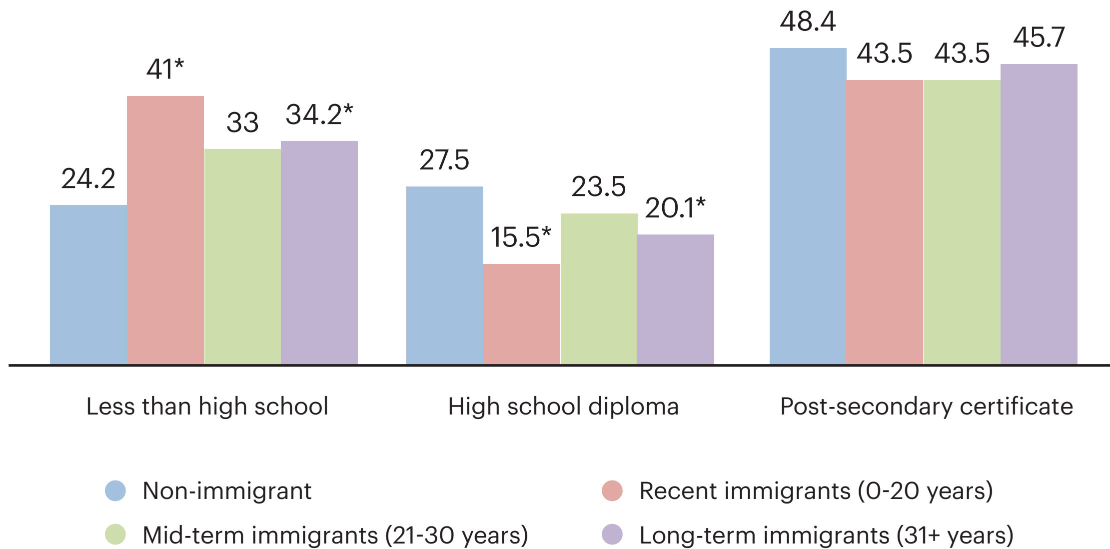
*Note: Significantly different ($p<0.05$)

Education

When asked about the highest level of education they had completed, 46.7 percent of seniors in the GTA reported having a post-secondary certificate, while 22.6 percent had a high school diploma (with or without some post-secondary education experience), and 31 percent reported less than a high school diploma.

Education level varied greatly across diverse senior populations. Immigrant seniors, especially recent immigrant seniors who had been in Canada for 20 years or less, were much more likely to report lower levels of educational achievement compared to non-immigrant seniors (Chart 7). Within the immigrant senior group, there was no significant difference in the percentage of racialized and non-racialized individuals with a post-secondary certificate. Similarly racialized identity was not consistently associated with different education levels across all senior populations. Mother tongue, however, did have a significant relationship. The English mother tongue group reported a significantly higher rate of post-secondary educational attainment than the non-English mother tongue group (50.9 percent versus 40.5 percent). Seniors whose mother tongue was not English were also twice as likely to report less than a high school diploma compared to the English mother tongue group (42.5 percent versus 21.7 percent).

Chart 7: Education Level by Immigrant Status and Length of Time in Canada



Source: CCHS 2007-2014, Seniors (65 plus), GTA
*Note: significantly different ($p<0.05$) from estimate for non-immigrants

Sense of Belonging to Local Community

The majority of seniors in the GTA reported a strong sense of belonging to their community: 72 percent of all seniors perceived their sense of community belonging as “very strong” or “somewhat strong” while the remaining 28 percent reported a “somewhat weak” or “very weak” sense of belonging to their local community.

However, those reporting a strong sense of belonging to their local community varied considerably across diverse senior population groups. Immigration status, length of time in Canada, mother tongue, and racialized identity were all strongly associated with seniors’ sense of belonging to their local community. Non-immigrant seniors had a significantly higher percentage reporting a strong/very strong sense of belonging than immigrant seniors (75 percent versus 70 percent). Within the immigrant senior group, more established immigrants reported a stronger sense of belonging than more recent immigrants, suggesting that a degree of integration occurs within the community over the longer term. Only 60 percent of recent immigrant seniors who had been in Canada for 20 years or less reported a strong sense of belonging, compared to 64 percent of those who had been in Canada for 21 to 30 years and 73 percent of those who had been in Canada for 31 years or more. Seniors whose mother tongue was not English reported a weaker sense of belonging to their local community than those whose mother tongue was English (Chart 8). The sense of belonging was also significantly lower among racialized seniors than non-racialized seniors (Chart 9).

Chart 8: Sense of community belonging by mother tongue

Very strong/Strong   Very weak/Weak

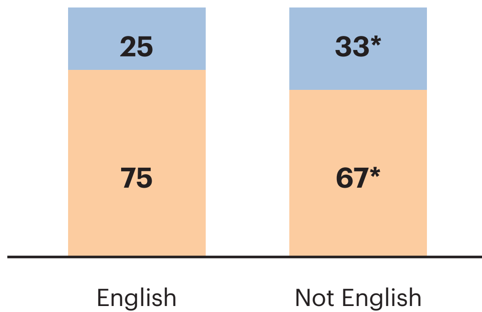
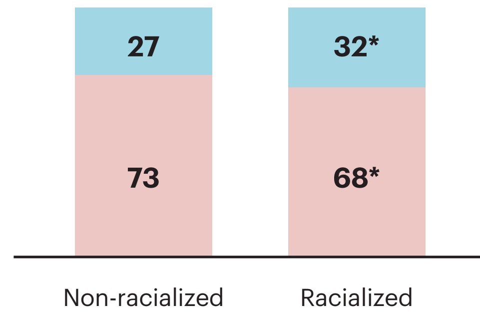


Chart 9: Sense of community belonging by racialized identity

Very strong/Strong   Very weak/Weak



Source: CCHS 2007-2014, Seniors (65 plus), GTA
*Note: significantly different (p<0.05) from estimate for the English mother-tongue group (Chart 8) and for the non-racialized group (Chart 9).

Health Care Access

The vast majority of seniors in the GTA (97.2%) reported that they had a regular medical doctor. The percentage that did not have a regular doctor ranged from 1.9 percent to 3.4 percent across diverse senior population groups, with no significant difference between any comparable groups.

Health Status

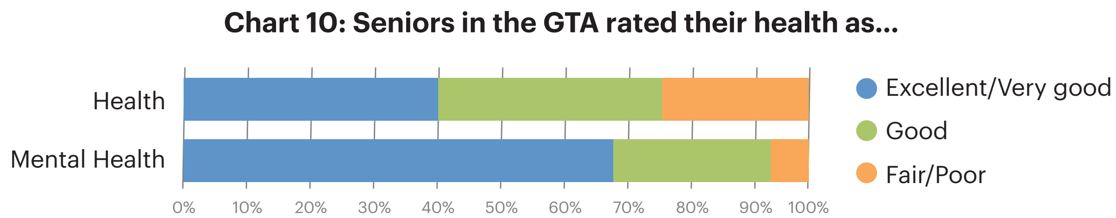
Self-reported Health: General Health and Mental Health

Self-reported health status is a commonly used measure in public health surveys to assess a person's health. Self-reported health is strongly correlated with morbidity, mortality, and the use of health services,[5] and is increasingly found to be a valid and reliable indicator of health.[6]

The CCHS asks respondents to rate their health and mental health on a five point scale. General health in the CCHS survey is defined as "not only the absence of disease or injury but also physical, mental and social well-being." For our analysis, we re-grouped the responses into three categories: 1) excellent or very good, 2) good, and 3) fair or poor. Our data found consistent patterns of significant inequalities across diverse senior groups in their self-reported health and mental health.

Approximately 40 percent of seniors in the GTA rated their general health as excellent/very good, while 67 percent of seniors perceived their mental health as excellent/very good (Chart 10).

Chart 10: Seniors in the GTA rated their health as...



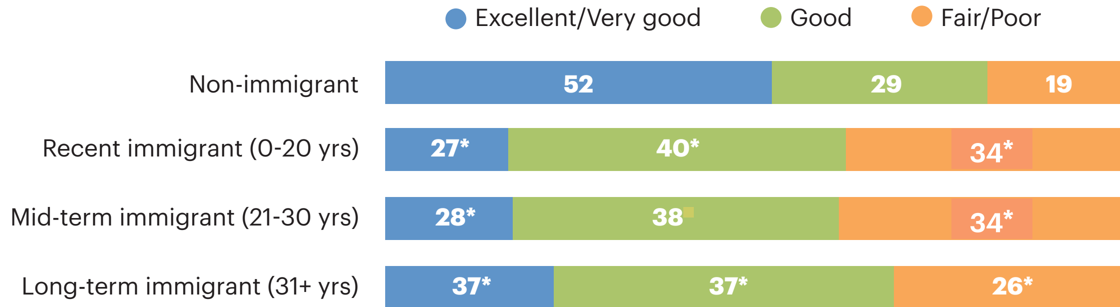
Source: CCHS 2007-2014, Seniors (65 plus), GTA

The compositions of the three categories of self-reported health or mental health significantly differed across diverse senior populations by immigration status, length of time in Canada, mother tongue, and racialized identity. Immigrant seniors, especially those who arrived more recently, reported poorer health status, in both overall health and mental health, than non-immigrant seniors (Chart 11 and Chart 12). While only 19 percent of non-immigrant seniors reported fair/poor health, 34 percent of recent and mid-term immigrants and 26 percent of long-term immigrants rated their health as fair/poor. Similar patterns were found in self-reported mental health (Chart 12).

Mother tongue also had a significant relationship with self-reported health. Seniors whose mother tongue was not English reported poorer health and mental health than those whose mother tongue was English. Nearly one in three seniors whose mother tongue was not English reported fair/poor health, compared to just one in five seniors whose mother tongue was English. The rate of reporting fair/poor mental health was 9 percent for those whose mother tongue was not English, significantly higher than the 5 percent for those whose mother tongue was English.

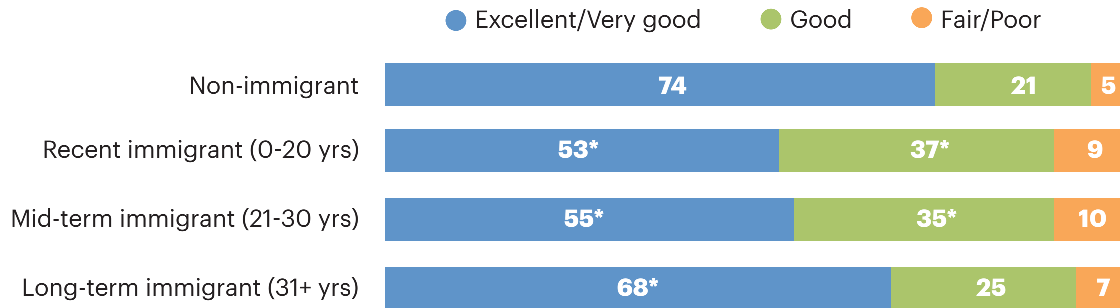
Compared with non-racialized seniors, racialized seniors were less likely to report excellent/very good health and more likely to report good and fair/poor health. The rate of excellent/very good health was 30 percent for racialized seniors and 44 percent for non-racialized seniors, while the rate of fair/poor health was 28 percent for racialized seniors and 24 percent for non-racialized seniors. Racialized seniors also reported poorer mental health than non-racialized seniors: the rate of excellent/very good mental health was significantly lower for racialized seniors (60 percent) than for non-racialized seniors (68 percent).

Chart 11: Self-reported health by immigration status and time in Canada



Source: CCHS 2007-2014, Seniors (65 plus), GTA
*Note: significantly different (p<0.05) from estimate for non-immigrants

Chart 12: Self-reported mental health by immigration status and time in Canada



Source: CCHS 2007-2014, Seniors (65 plus), GTA
*Note: significantly different (p<0.05) from estimate for non-immigrants

Diversity and Social Determinants of Health Variables Associated with Seniors' Health Status

The association between diversity variables and seniors' self-reported health, and between social determinant variables and seniors' self-reported health, was investigated by more rigorous statistical tests using binary logistic regression models.[7] Our models predict the odds of having "excellent" or "very good" self-reported health (Model 1) and mental health (Model 2), as compared to self-reporting "good" "fair" or "poor" health and mental health (see Appendix C for detailed results). Findings from these tests provide strong evidence that all diversity variables, including being an immigrant, having a racialized identity, and reporting a non-English mother tongue, each have a substantive, independent and statistically significant negative effect on self-reporting excellent/very good general health for seniors in the GTA. The same is found true for self-reported mental health for recent and mid-

term immigrants, as well as for seniors whose mother tongue is not English. However, long-term immigrants do not have significantly different odds of reporting excellent/very good mental health than non-immigrants (with the relevant controls applied). Similarly, racialized identity is not found significantly associated with seniors' self-reported mental health, after controlling for all other variables. For the social determinant of health variables,[8] our models provide strong evidence that higher levels of education and stronger community connections, but not health care access and income, are both significantly associated with having better self-reported general health and mental health for GTA seniors, holding immigration status, racialized identity, and mother tongue constant.

Discussion

Our analyses found significant disparities in self-reported health and mental health across the diverse senior populations in the GTA. Immigrant seniors, especially more recent immigrant seniors, racialized seniors, and those whose mother tongue is not English perceived their health and mental health to be much poorer than their non-immigrant, non-racialized, and English mother tongue counterparts. In our logistic regression models, each of the diversity variables, including immigration status, racialized identity, and mother tongue, has a significant and negative association with seniors' self-reported health after controlling for the influence of other explanatory factors.

In addition to demonstrating clear patterns of inequities with regards to self-reported health status for GTA seniors, this report also showed significant disparities in how seniors performed on most of the social determinants of health variables examined. Immigrant, racialized, and non-English mother tongue groups were more likely than their non-immigrant, non-racialized, and English mother tongue counterparts to report low income, no employment or self-employment, a lower education level, and a weaker sense of belonging to their community. Health care access was the only SDOH variable with no significant group difference. Yet, our data show that a number of seniors in the GTA, about 3 percent of senior populations overall, did not have access to a regular medical doctor.

Our logistic regression models found that education and sense of belonging to local community also has a significant and negative relationship with how seniors perceived their health and mental health. Our income variable was not found to be significantly related to seniors' self-reported health and mental health when the influence of all other variables was controlled for. While there is vast evidence on income-based health inequities,[9] this finding can be partly explained by the relatively higher level of income security benefits for low-income senior populations (OAS and GIS combined), compared to the benefit levels available for younger populations, although this requires further investigation.

We note that the pooled CCHS data we used in our analyses have several limitations.[10] As a cross-sectional survey the CCHS does not provide information on changes in individuals'

health status and SDOH outcomes over time. The CCHS data are also limited in providing information on a wide range of SDOH and many diverse senior sub-groups in the GTA due to the small number of respondents who participated in the survey. To better address existing health inequities across diverse ethno-cultural population groups, researchers and advocates have long called for better data to be collected and monitored within and beyond our health system. In Ontario's Three-year Anti-Racism Strategic Plan, released in March 2017, the government announced a promising plan to develop a race-based data collection framework and guidelines across publicly-funded institutions.[11] Once fully developed and implemented, enhanced data collection and analysis across multiple sectors, within and beyond the health sector, will enable us to gain a clearer understanding of existing health and social inequities and inform the development of policy and service planning at the local level to improve the health and well-being of disadvantaged population groups.

The significant health disparities across diverse senior populations presented in our report indicate a need for more targeted approaches in service planning and delivery to improve health equity. As well, the findings from group comparisons within the immigrant senior population highlight the importance of understanding the diversity of experiences/barriers that immigrant seniors face. One of the groups identified as consistently experiencing poorer health is recent immigrant seniors who have lived in Canada for 20 years or less. These populations, predominantly from racialized and non-English mother tongue groups, were at a disadvantage across most social determinants of health, as well as in self-reported health and mental health. We need further investigation to better understand underlying causes of health disadvantages among recent immigrant seniors and develop strategies to reduce any barriers to healthy aging for this group.

Conclusion

The growing ethnic and linguistic diversity in older populations in the GTA and across Canada has been highlighted as a critical area of research and policy that requires increased attention and innovative actions to achieve healthy aging for all.[12] This report on seniors' health status and SDOH outcomes offers an important contribution to current knowledge of seniors' health inequities in the GTA. Our data demonstrate significant and substantive disparities in self-reported health and mental health, as well as SDOH, for immigrant, racialized, and non-English mother tongue senior populations. This suggests an urgent need for further research and policy actions to better understand why these disparities exist and to identify what can help reduce them. Importantly, our findings corroborate the links between some social determinants and seniors' health outcomes. The results offer a limited, but important lesson: To achieve healthy aging for all, understanding and addressing the root causes of health and health inequities should be a critical component of future health policy efforts.

Appendix A: Detailed Methods

This study draws on national survey data from the CCHS. The CCHS is a cross-sectional survey administered by Statistics Canada that collects information related to health status, health care utilization, and health determinants for the Canadian population. The CCHS covers individuals aged 12 or older who live in privately occupied dwellings in all provinces and territories, excluding residents of institutions, full-time members of the Canadian Forces, persons living on reserves and other Aboriginal settlements in the provinces. As of 2007, the CCHS data have been collected annually.

To increase our sample of diverse senior groups, we combined eight cycles of CCHS data collected between January 2007 and December 2014. All analyses in this report are based on weighted percentages or odds ratios calculated from the 10,125 respondents aged 65 or older who were residents of the GTA (including Toronto, Peel, Halton, York, and Durham) within these waves. Weighted frequencies and cross-tabulations were used to estimate the percentage distribution of diverse senior populations with regards to their self-perceived health and mental health status and the selected variables capturing their social determinants of health. For all analyses, Statistics Canada bootstrap weights were applied to calculate variance on estimates and on differences between estimates. Results at the $p<0.05$ were considered statistically significant.

The demographic variables included in our analysis capture sex (male or female) and age of respondent. In addition, four diversity variables were utilized to analyze disparities between diverse senior groups in the GTA. These include immigrant status (born in Canada or elsewhere), length of time in Canada for the immigrant populations, racialized identity, and mother tongue (English or non-English). The majority of racialized individuals and those whose mother tongue was not English were identified as immigrants (97 percent and 93 percent, respectively).

In the 2014 CCHS data, racialized identity was operationalized via the following survey question: "You may belong to one or more racial or cultural groups on the following list. Are you: White? South Asian (e.g. East Indian, Pakistani, Sri Lankan, etc.)? Chinese? Black? Filipino? Latin American? Arab? Southeast Asian (e.g. Vietnamese, Cambodian, Malaysian, Laotian, etc.)? West Asian (e.g. Iranian, Afghan, etc.)? Korean? Japanese? Other-Specify." Racialized persons in this report refer to those who self-identified themselves as non-White on the CCHS.

Numerous variables on the social determinants of health were included in our analyses. The variable selected to capture low income asked respondents to select their main source of household income. We dichotomized this variable to distinguish between those seniors who reported no income, OAS/GIS or Social Assistance/Welfare as their main source of household income, and all others (including those whose main source of household income included

wages and salaries, income from self-employment, dividends and interest, employment insurance, worker's compensation, benefits from Canada or Quebec Pension Plan, RRSP/RRIF, Child support, Alimony, and others). Employment was captured through a variable asking respondents if they had worked at a job or business at any time in the past 12 months. Highest level of education was determined through an ordinal variable asking respondents to identify the highest certificate, diploma or degree that they had completed, ranging from "less than high school diploma or equivalent" to "University certificate, diploma, or degree above the bachelor's level." The variable selected to capture community belonging asked respondents "How would you describe your sense of belonging to your local community? Would you say it is...?" with response categories ranging from "very strong" to "very weak." The variable capturing health care access asked respondents whether or not they had "a regular medical doctor."

The main dependent variables for our analysis focused on health status. These variables capture self-reported health and mental health. These variables asked respondents "In general, would you say your (mental) health is...?" with five response categories ranging from "excellent" to "poor." Respondents were primed in the survey to define "health" as "not only the absence of disease or injury but also physical, mental and social well-being."

Our multivariate predictive modeling relied on two binomial logistic regression models.[7] Our models predict the odds (exp(B)) of having "excellent" or "very good" self-reported health (Model 1) and mental health (Model 2), as compared to self-reporting "good" "fair" or "poor" health and mental health. An odds ratio (OR) above one and a significant p-value is associated with an increased probability of having excellent/very good self-reported health or mental health compared to the reference category; an OR of less than one and a significant p-value means the attribute is associated with a lower probability of having excellent/very good self-reported health or mental health than the reference category. Each model includes the full set of diversity variables (immigration status, length of time in Canada, racialized identity, and mother tongue), social and health attributes (sex, age, living arrangement, number of chronic conditions) and controls for four social determinants of health[8] (education, income, sense of belonging to the community, and access to health care). All control variables were included in the models in order to specify and validate the impact of each of our focal variables.

All the analyses were conducted at the University of Toronto Research Data Centre and all results are presented according to Statistics Canada requirements. The 2014 CCHS questionnaire is available at: http://www23.statcan.gc.ca/imdb-bmdi/instrument/3226_Q1_V11-eng.pdf

Appendix B: Detailed Descriptive Tables

Table 1: Descriptive Data on Immigrant vs. Non-Immigrant Seniors (65+) in the GTA

	Non-immigrants (ref)	All Immigrants	Recent Immigrants (<=20 years)	Mid-term Immigrants (21-30 years)	Long-Term Immigrants (>30 years)
DEMOGRAPHICS					
Racialized Identity					
Non-racialized	98.0	57.3*	18.3*	22.4*	72.6*
Racialized	2.0	42.7*	81.7*	77.6*	27.4*
Mother tongue					
English	92.1	31.0*	12.0*	21.8*	37.6*
Non-English	7.9	69.0*	88.0*	78.2*	62.4*
Sex					
Male	42.3	46.6*	46.9	38.5	47.6*
Female	57.7	52.6*	54.0	61.5	52.5*
Age					
65 to 74	55.3	59.1	61.7	55.6	59.0
75 to 84	35.1	32.5	33.4	30.2	32.6
85+	9.5	8.4	4.9	14.2	8.4
Living Arrangement					
With others	68.6	80.1*	90.6*	80.1*	77.4*
Alone	31.4	19.9*	9.4*	20.0*	22.6*
SOCIAL DETERMINANTS OF HEALTH					
Main Source of Household Income					
Other	92.8	89.2*	83.5*	78.6*	92.1
OAS/GIS, Social Assistance/Welfare, or No Income	7.2	10.8*	16.5*	21.4*	7.9
Employment					
Yes	70.2	76.0*	79.4	78.4	74.8
No	29.8	24.0*	20.6	21.6	25.2
Education					
Less than high school	24.2	35.4*	41.0*	33	34.2*
High school diploma and some post secondary	27.5	19.6*	15.5*	23.5	20.1*
Completed post secondary	48.4	35.1	43.5	43.5	45.7
Sense of belonging to the community					
Very/somewhat strong	75.2	70*	59.5*	64.3*	73.3
Very/somewhat weak	24.8	30*	40.5*	35.7	26.7
Health Care Access					
Has regular medical doctor	3.4	2.3	1.9	2.2	2.4

Does not have regular medical doctor	96.6	97.7	98.1	97.8	97.6
HEALTH STATUS					
Self-Reported Health					
Excellent or very good	51,6	33.8*	26.7*	27.7*	36.5*
Good	29.4	37.7*	39.8*	38.1	37.1*
Fair or poor	19	28.5*	33.5*	23.2*	26.4*
Self-Reported Mental Health					
Excellent or very good	73.7	64.3*	53.5*	54.5*	68,3*
Good	21.4	28.1*	37.3*	35.4*	24.9
Fair or poor	4.8	7.6*	9.4	10.1	6.8
Number of chronic conditions[a]					
None	18.6	17.7	20.9	15	17.2
One	23.7	27.4*	27.3	25.4	27.6*
Two	26.1	26.7	28.8	30	25.7
Three	17.3	16.2	15.1	14.7	16.6
Four or more	14.2	12.1	7.9*	14.8	12.8

ns = not significant, * difference significant at p<=.05;
a includes arthritis, high blood pressure, migraines, diabetes, heart disease, cancer, ulcers, stroke, urinary incontinence, bowel disorder, dementia, mood disorders, and anxiety disorders
ref= reference group
GTA refers to the census divisions Toronto, Halton, York, Durham and Peel
Source: Statistics Canada, 2007-2014 Canadian Community Health Survey (pooled data)
Models have been bootstrapped using Stat Can weights (500)

Table 2: Descriptive Data on Racialized Identity and Mother Tongue Seniors (65+) In the GTA

	Non-Racialized (ref)	Racialized	English Mother Tongue (ref)	Non-English Mother Tongue
DEMOGRAPHICS				
Immigration Status				
Non-immigrants	50.9	2.8*	64.5	6.6*
All immigrants	49.1	97.2*	35.5	93.4*
Immigrants in Canada 0-20 years	2.8	35.7*	2.6	22.8*
Immigrants in Canada 21-30 years	1.9	17.4	2.5	10.5*
Immigrants in Canada >30 years	44.4	44.1	30.4	60.1*
Sex				
Male	44.8	44.7	42.6	47.2*
Female	55.2	55.3	57.4	52.8*
Age				
65 to 74	54.7	65.0*	58.3	56.7

75 to 84	35.6	28.1*	32.9	34.4
85+	9.7	7.0	8.8	8..9
Living Arrangement				
With others	72.6	83.9*	69.9	82.5*
Alone	27.4	16.1*	30.1	17.5*
SOCIAL DETERMINANTS OF HEALTH				
Main Source of Household Income				
Other	92.8	84.6*	92.1	88.5*
OAS/GIS, Social Assistance/Welfare, or No Income	7.2	15.4*	7.9	11.5*
Employment				
Yes	72.1	77.5	70.2	78.5*
No	27.9	22.5	29.8	21.5*
Education				
Less than high school	30.2	33.6	21.7	42.5*
High school diploma and some post secondary	24.0	19.4*	27.5	17.1*
Completed post secondary	45.8	47.0	50.9	40.5*
Sense of belonging to the community				
Very/somewhat strong	73.4	67.5*	75.3	67.2*
Very/somewhat weak	26.6	32.5*	24.7	32.8*
Health Care Access				
Has regular medical doctor	97.0	97.8	97.2	97.1
Does not have regular medical doctor	3.0	2.2	2.8	2.9
HEALTH STATUS				
Self-reported Health				
Excellent or very good	44.1	29.9*	48.6	30.3*
Good	31.7	42.4*	32.1	37.8*
Fair or poor	24.2	27.7	19.3	31.9*
Self-reported Mental Health				
Excellent or very good	70.6	59.7*	73.5	60.5*
Good	23.1	31.8*	21.6	30.5*
Fair or poor	6.3	8.4	5.0	9.1*
Number of chronic conditions[a]				
None	17.8	19.2	17.6	18.9
One	24.9	28.8	26.0	25.8
Two	26.5	26.7	26.8	26.1
Three	17.0	15.1	16.8	16.1
Four or more	13.8	10.3*	12.8	13.0

ns = not significant, * difference significant at p<=.05;
a includes arthritis, high blood pressure, migraines, diabetes, heart disease, cancer, ulcers, stroke, urinary incontinence, bowel disorder, dementia, mood disorders, and anxiety disorders
ref= reference group
GTA refers to the census divisions Toronto, Halton, York, Durham and Peel
Source: Statistics Canada, 2007-2014 Canadian Community Health Survey (pooled data)
Models have been bootstrapped using Stat Can weights (500)

Appendix C: Detailed Results from Binary Logistic Regressions

Model 1. Logistic model predicting the coefficient (B) and odds ratio (exp(B)) of self-reporting excellent/very good health, for seniors (65+), in the GTA, 2007-2014

	Coef. (B)	Std. Error	Significance	OR (Exp(B))
Immigrant Status				
Non-immigrants	(ref)			
Immigrants in Canada 0-20 years	-0.71	0.23	**	0.49
Immigrants in Canada 21-30 years	-0.61	0.25	*	0.54
Immigrants in Canada >30 years	-0.43	0.1	***	0.65
Racialized Identity				
Non-racialized	(ref)			
Racialized	-0.37	0.12	**	0.69
Mother tongue				
English	(ref)			
Non-English	-0.39	0.1	***	0.68
Sex				
Male	(ref)			
Female	0.07	0.08	ns	1.08
Age	-0.02	0.01	*	0.98
Living Arrangement				
With others	(ref)			
Alone	-0.03	0.08	ns	0.97
Number of chronic conditions[a]	-0.59	0.03	***	0.55
Sense of belonging to the community				
Very/somewhat strong	(ref)			
Very/somewhat weak	-0.41	0.09	***	0.66
Health Care Access				
Has regular medical doctor	(ref)			
Does not have regular medical doctor	0.23	0.22	ns	1.26
Main Source of Household Income				
Other	(ref)			
OAS/GIS, Social Assistance/Welfare, or No Income	-0.23	0.15	ns	0.79
Education				
Less than high school	-0.59	0.1	***	0.55
High school diploma and some post secondary	-0.22	0.09	*	0.8
Completed post secondary	(ref)			
Constant	2.80	0.51	***	
N	7621			
R Square (Cox and Snell)	0.23			
Max-rescaled R-Square	0.28			

ns = not significant, * p<.05; ** p<.01 ***<p<.001
a includes arthritis, high blood pressure, migraines, diabetes, heart disease, cancer, ulcers, stroke, urinary incontinence, bowel disorder, dementia, mood disorders, and anxiety disorders
ref= reference group
GTA refers to the census divisions Toronto, Halton, York, Durham and Peel
Source: Statistics Canada, 2007-2014 Canadian Community Health Survey (pooled data)
Models have been bootstrapped using Stat Can weights (500)

Model 2. Logistic model predicting the coefficient (B) and odds ratio (exp(B)) of self-reporting excellent/very good mental health, for seniors (65+), in the GTA, 2007-2014

	Coef. (B)	Std. Error	Significance	OR (Exp(B))
Immigration Status				
Non-immigrants	(ref)			
Immigrants in Canada 0-20 years	-0.52	0.22	*	0.59
Immigrants in Canada 21-30 years	-0.52	0.21	*	0.60
Immigrants in Canada >30 years	-0.03	0.10	ns	0.97
Racialized Identity				
Non-racialized	(ref)			
Racialized	-0.17	0.13	ns	0.84
Mother tongue				
English	(ref)			
Non-English	-0.37	0.10	***	0.69
Sex				
Male	(ref)			
Female	0.06	0.09	ns	1.06
Age	-0.01	0.01	ns	0.99
Living Arrangement				
With others	(ref)			
Alone	-0.17	0.08	*	0.85
Number of chronic conditions[a]	-0.22	0.03	***	0.80
Sense of belonging to the community				
Very/somewhat strong	(ref)			
Very/somewhat weak	-0.67	0.08	***	0.51
Health Care Access				
Has regular medical doctor	(ref)			
Does not have regular medical doctor	0.30	0.25	ns	1.36
Main Source of Household Income				
Other	(ref)			
OAS/GIS, Social Assistance/Welfare, or No Income	-0.14	0.14	ns	0.87
Education				
Less than high school	-0.64	0.10	***	0.53

High school diploma and some post secondary	-0.26	0.10	**	0.77
Completed post secondary	(ref)			
Constant	2.08	0.44	***	
N	7615			
R Square (Cox and Snell)	0.11			
Max-rescaled R-Square	0.14			

ns = not significant, * p<.05; ** p<.01 ***<p<.001
a includes arthritis, high blood pressure, migraines, diabetes, heart disease, cancer, ulcers, stroke, urinary incontinence, bowel disorder, dementia, mood disorders, and anxiety disorders
ref= reference group
GTA refers to the census divisions Toronto, Halton, York, Durham and Peel
Source: Statistics Canada, 2007-2014 Canadian Community Health Survey (pooled data)
Models have been bootstrapped using Stat Can weights (500)

Which diversity and social determinant variables are associated with Senior's health status?

1) Which diversity variables are associated with seniors' health status?

Model 1 examines the odds of having excellent/very good self-reported health for seniors in the GTA. The data indicate that all immigrant groups have significantly lower odds than the non-immigrant group of reporting excellent/very good health (at p<.05). Recent immigrants (in Canada 0-20 years) have the lowest odds of self-reporting excellent/very good health (OR=0.49, or 51 percent lower odds than non-immigrants) followed by mid-term immigrants in Canada 21-30 years (OR=0.54, or 46 percent lower odds), and long-term immigrants in Canada 31+ years (OR=0.65, or 35 percent lower odds). Model 1 also demonstrates that having a racialized identity and a mother tongue that is not English leads to significantly lower odds of self-reporting excellent/very good health than being non-racialized or reporting English as one's mother tongue (for racialized identity OR = 0.69, or 31 percent lower odds than non-racialized seniors; for seniors reporting a non-English mother tongue OR = 0.68, or 32 percent lower odds than reporting English as the mother tongue).

Model 2 examines the odds of having excellent/very good self-reported mental health, using the same diversity variables. For this model, the data indicate that both recent and mid-term immigrants have significantly lower odds than non-immigrants of reporting excellent/very good mental health (OR = 0.59, or 41 percent lower odds for recent immigrants than the Canadian-born, OR=0.60 or 40 percent lower odds for mid-term immigrants, both at p<.05). However, long-term immigrants do not have significantly different odds of reporting excellent/very good mental health compared to non-immigrants, suggesting that differences in disparities between non-immigrants and immigrants disappear over time. Similarly, racialized seniors do not have significantly different odds of having excellent/very good mental health compared to non-racialized seniors in the GTA. Individuals whose mother tongue is not English have lower odds of having self-reported excellent/very good mental health than individuals whose mother tongue is English (OR= 0.69, or 31% lower odds).

Altogether, Model 1 provides strong evidence that immigration status, racialized identity, and mother tongue each have a substantive, independent, and statistically significant negative effect on self-reporting excellent/very good health for seniors in the GTA. The same is true for self-reported mental health in Model 2 for recent and mid-term immigrants, as well as for seniors whose mother tongue is not English.

2) Which social determinant variables are associated with seniors' health status?

The logistic regression models also measure the effects of the social determinants of health variables (controlling for the diversity and social/health attribute variables) on the odds of having self-reported excellent/very good health and mental health. Model 1 demonstrates that lower levels of education are significantly associated with low odds of having excellent/very good self-reported health. Individuals with less than high school education have the lowest odds of self-reporting excellent/very good health (OR =55, or 45 percent lower odds than individuals who have completed post-secondary education), followed by individuals with a high school diploma or some post-secondary education (OR = 0.80, or 20 percent lower odds). Having a very weak or somewhat weak sense of belonging in the community also has a significant negative effect on the odds of reporting excellent/very good health (OR = 0.55, or 45 percent lower odds than individuals with a very strong or somewhat strong sense of belonging in the community). The variables measuring main source of household income and having regular access to a medical doctor do not have significant effects for the GTA senior population.

Model 2 (examining the odds of self-reported excellent/very good mental health) reports similar trends to Model 1 regarding the variables measuring social determinants of health. GTA seniors with less than a high school education have significantly lower odds of having self-reported excellent/very good mental health than individuals who have completed post-secondary education (OR =53, or 47 percent lower odds), followed by individuals with a high school diploma or some post-secondary education (OR = 0.77, or 23 percent lower odds). Having a very weak or somewhat weak sense of belonging to the community also has a significant and negative effect (OR = 0.51, or 49 percent lower odds than individuals with a very strong or somewhat strong sense of belonging to the community). In Model 2 the variables measuring main source of household income and having regular access to a medical doctor again do not have significant effects.

Thus, for the social determinant of health variables, the logistic regression models provide strong evidence that higher levels of education and stronger community connections are both significantly associated with having better self-reported health and mental health for GTA seniors, holding immigration status, racialized identity, and mother tongue constant.

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