



chapter 2

DETERMINANTS AND DISPARITIES

The burden of illness and preventable loss of life arises in large part because of the conditions in which people are born, grow, live, work and age.¹

Although there is no universally-recognized list of the determinants, much is known about the factors which are associated with the health of the population. The evidence indicates that the key factors which influence health include: socio-economic status, education, social support, employment, migration, and the physical, social and built environments. The role of curative medical care is, of course, an important one, but its contribution to health status, as measured, for example, by life expectancy has been limited.

Health protective behaviours – that is to say, personal health practices – refer to those things that individuals can do to enhance their own health, prevent the spread of disease and cope more effectively with health challenges. Health protective behaviours are discussed in greater depth in the “Risk Factor” chapter of this report. Some people emphasize personal choice in health behaviours, while others look to society to encourage healthy decisions. Nonetheless, it is certain that improving health through personal

practices is a responsibility of each of us individually, and also collectively, through public policies which support healthy choices.

Sometimes factors contributing to poor health cluster together. For example, low income, substandard housing, deprived neighbourhoods and poor access to nutritious food are often associated with one another.

What the determinants of health have in common are they have a strong effect on health outcomes and influence a wide range of diseases, both in occurrence and outcome. Furthermore, they tend to have both independent and interactive effects. The impact of education, for example, can be explained in part by the higher incomes associated with higher educational attainment, but education also has an effect on health that is independent of income. Similarly, the determinants affect health by influencing health behaviours. Higher income groups are less likely to engage in behaviours that result in, for example, lung cancer or cardiovascular disease. But after smoking, eating poorly, physical inactivity and other health behaviours are accounted for statistically, the determinants still demonstrate a measurable effect.

The relationship between determinants and disease is not simple. Low income might lead to ill health, or, more rarely, ill health might lead to low income. Another possibility is that a third factor or group of factors could lead to both low income and poor health.

Higher Income... Better Health

Both health and mortality are associated with income.² Compared to people with higher incomes, people with lower incomes have shorter life expectancy, higher risk of exposure to poor living and working conditions, and higher mortality rates. A higher income leads to better health – not only because it improves the ability to purchase adequate food, housing and other necessities, but also because it leads to having more choices and a feeling of control over one’s life.³ Research has shown that the degree of control people have over life circumstances, especially stressful situations, and the amount of discretion they have to act, contribute to the quality of their health. Limited options and poor coping skills are linked to increased susceptibility to diseases through pathways of the immune and hormonal systems.⁴ This pattern

holds true for all Canadians, regardless of age, sex, race and place of residence.

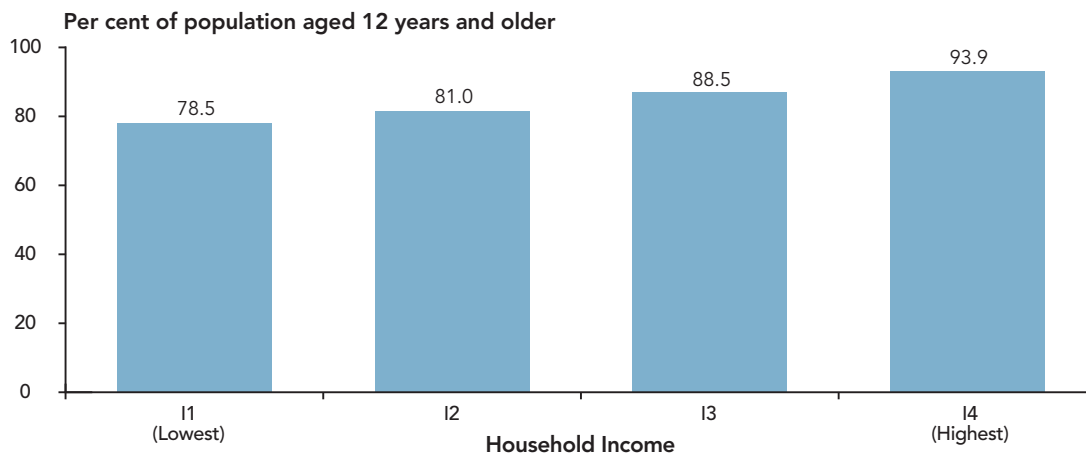
However, it is not just the poorest people who experience negative health outcomes associated with their income levels. There are health differences between moderate and high income groups as well. Furthermore, research across developed countries shows that countries with more equally distributed incomes have better health on average than those in which incomes are more unevenly distributed.

The relationship between income and life expectancy – the “income gradient” – has become less marked over time, but the poorest fifth of the population still has poorer health outcomes, including lifespans that are years shorter than those of the rest of society.⁵

Throughout this section, income level is defined in several different ways depending on the data source. For additional details about the income categories used, please see the Data Methods chapter in the web version.

In Ontario, those in the highest-income group have significantly higher self-rated health than those in the lower income groups (Figure 2.1).

Figure 2.1
Self-Rated Health[†] by Income,
Ontario, 2005



[†] Defined as excellent, very good or good

Source: Canadian Community Health Survey 2005, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care

Life Expectancy and Health-Adjusted Life Expectancy by Income



Definition

Life expectancy estimates the average age at death for a group or cohort at birth. Life expectancy is calculated based on the current mortality rates experienced by all age groups in the population.

Health-adjusted life expectancy (HALE) is an indicator which takes into account the quality of life as well as its duration. Years lived in poor health are counted as equivalent to only part of a full year of good health. HALE, therefore, is always less than life expectancy. The difference between HALE and life expectancy is a measure of the burden of chronic illness, especially in old age.

Life expectancy and health-adjusted life expectancy (HALE) increase with higher levels of income. In Peel, there is a clear relationship between income and many health outcomes, some of which are shown in the following pages. However, we are unable to demonstrate a

meaningful relationship between income and either life expectancy or HALE. There are two plausible explanations for this. The first is that Peel immigrants, both recent and long term, tend to have low income and good health. This is contrary to the usual trend, and could serve to cancel it out. The second reason has to do with Peel's relatively low income spread between income quintiles. Simply put, the numbers of individuals at either end of the income spectrum are too small to support trend analysis.

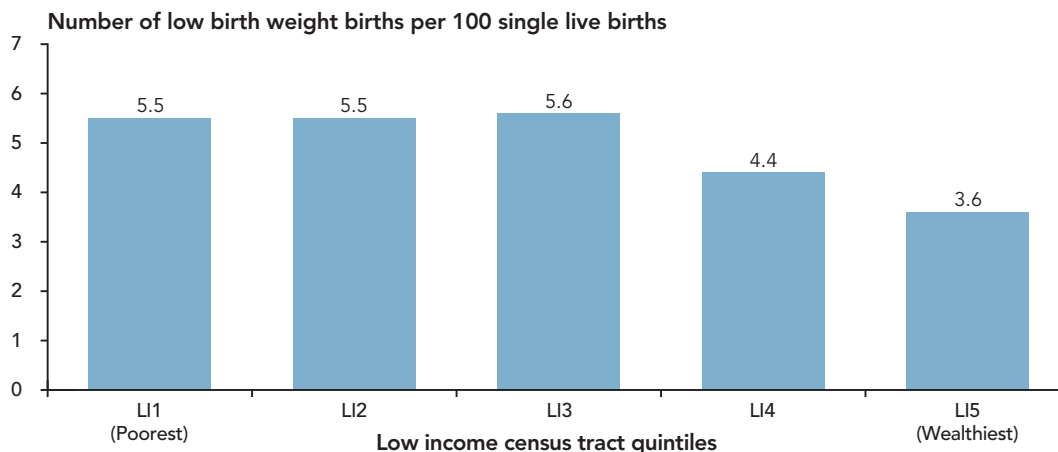
Chronic Disease Prevalence by Income

In Peel, the prevalence of ischaemic heart disease, osteoarthritis and chronic obstructive pulmonary disease vary by income quintile, with residents in the lowest income group having the highest prevalence of disease.^A Canadian data show that this relationship exists for almost all diseases, with breast cancer being one of the few exceptions.

Low Birth Weight by Income

Among single live births in Peel in 2004, the rate of low-birth-weight births was highest in census tracts with the largest proportion of low-income economic families and/or individuals (Figure 2.2).

Figure 2.2
Low Birth Weight by Income, Peel, 2004



Sources: Ontario Live Birth Database 2004, HELPS (Health Planning System), Ministry of Health Promotion
Population Estimates 2004, Provincial Health Planning Database (PHPDB), Ontario Ministry of Health and Long-Term Care
2006 Census, Statistics Canada

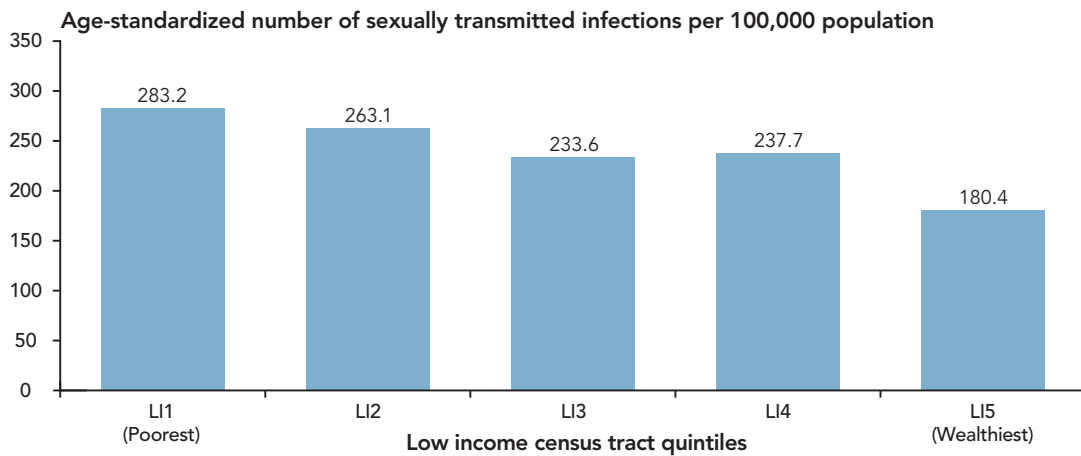
Sexually Transmitted Infections by Income

As seen with low-birth-weight births, the incidence of sexually transmitted infections (STIs), including syphilis, gonorrhea, chlamydia and HIV, was higher in census tracts with the largest proportion of low-income families and/or individuals (Figure 2.3).

Health Behaviours by Income

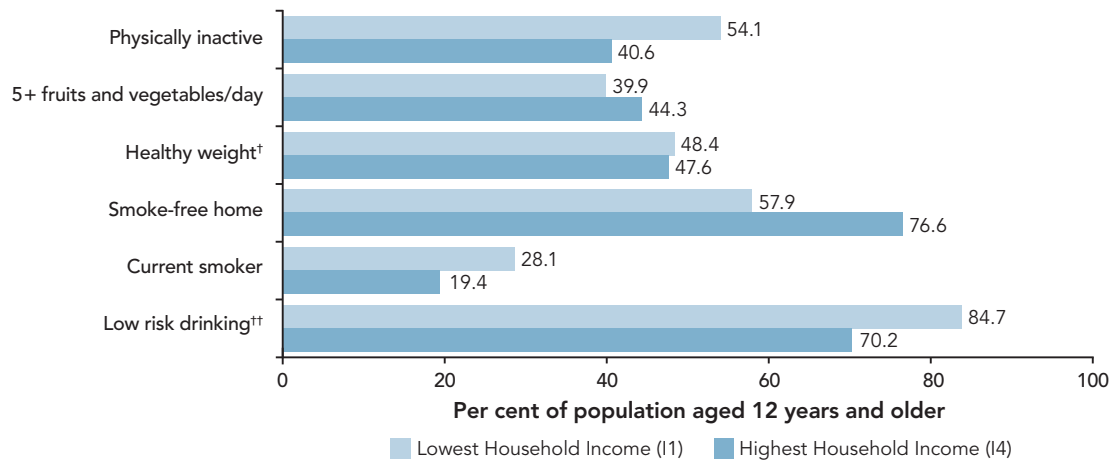
Figure 2.4 presents self-reported health behaviours by Ontarians in the highest- and lowest-income categories. Residents in the highest income category are more likely to eat five to 10 servings of fruits and vegetables per day and maintain smoke-free homes, and also

Figure 2.3
Sexually Transmitted Infections by Income, Peel, 2006



Sources: Integrated Public Health Information System (iPHIS), Peel data from Peel Public Health as of 05/12/2007
Population Projections 2006, Provincial Health Planning Database (PHPDB), Ontario Ministry of Health and Long-Term Care 2006 Census, Statistics Canada

Figure 2.4
Selected Health Behaviours by Income, Ontario, 2005



† BMI measures pertain to the total population 18 years and older
†† Low risk drinking guidelines pertain to the total population 19 years and older
Source: Canadian Community Health Survey 2005, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care

less likely to be current smokers or be physically inactive. In contrast, those in the lowest income category are more likely to meet the criteria for the low-risk drinking guidelines. There is no difference by income with respect to having a healthy body weight.

People who are more connected to others are less likely to suffer from poor physical and mental health and are more likely to live longer



Definition

Social capital is defined as aspects of social organization, such as civic participation and trust in others, that support and encourage cooperation among community members.⁶

One of the most important determinants of health is that collection of factors known as social connectedness, social support or human/social capital. Having friends, being involved in a club or faith community, volunteering and playing sports or music as part of a group – these are all associated with better health.

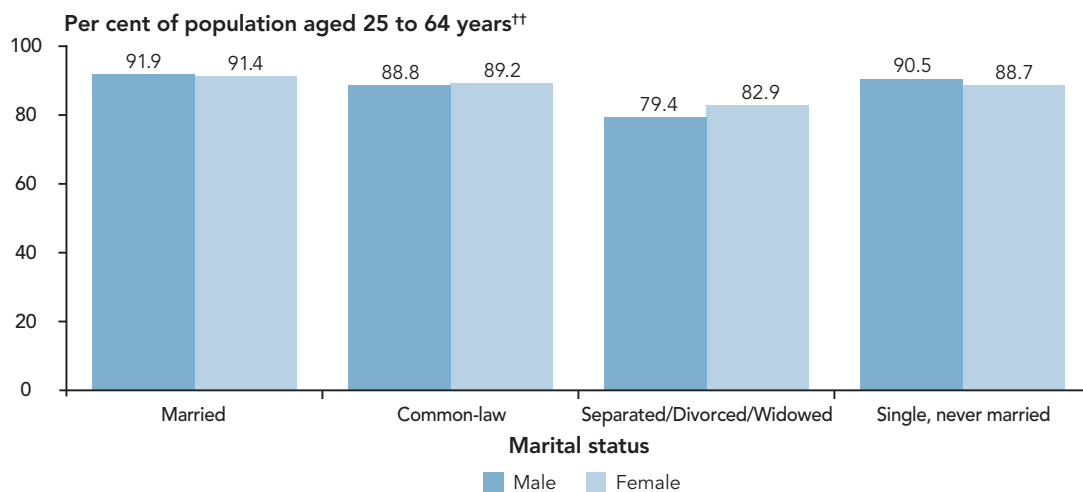
People who are more connected to others are less likely to suffer from poor physical and mental health and are more likely to live longer.⁷⁻⁹

In the last 25 years, the concept of social capital has received increasing attention in health research. High levels of social capital have been linked to lower rates of mortality and positive perceptions of health.^{6,10-13} Social support networks help people solve problems, deal with adversity and maintain some control over life circumstances. Compared with people whose sense of community belonging was weak, those with a very strong sense of community belonging were twice as likely to report excellent or very good general health and even more likely to report excellent or very good mental health.⁶

Marriage is an important domain in which social support can be established.¹⁴ In general, married people have greater satisfaction with life than single individuals.¹⁵ Marital happiness is associated with lower blood pressure levels, lower stress and less depression. In Ontario, those who are separated, divorced or widowed have poorer self-rated health (Figure 2.5).

Societies with wide income disparities and low levels of social connectedness have increased

Figure 2.5
Self-Rated Health[†] by Sex and Marital Status, Ontario, 2005



[†] Defined as excellent, very good or good

^{††} See Data Methods chapter in the web version for rationale for selected age grouping

Source: Canadian Community Health Survey 2005, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care

levels of violence.² The level of social participation in a society is partially shaped by people’s perceived levels of threat and community safety.

In Brampton and Mississauga, the rate of criminal offences (excluding traffic offences) decreased from 4,579.1 per 100,000 population in 2003 to 4,298.4 per 100,000 population in 2007.¹⁶ In 2007, Peel Regional Police investigated 251,413 incidents. Most of the incidents were related to highway traffic offences. Crimes of violence were relatively rare compared to crimes against property (Table 2.1).

Recently there has been a troubling rise in youth violence, which is often gang-related.



Peel Facts

WHO Safe City Designation

In 2007, Brampton became the first municipality in the Greater Toronto Area (GTA), and one of only 10 cities in North America, to be designated as a World Health Organization International Safe Community. This designation is based on six criteria for developing programs and partnerships related to safety promotion and collaboration with other safe-community networks.

Peel Facts

In 2008, according to Macleans magazine, Caledon was the safest place in Canada among 100-plus areas examined. This finding was the result of a comparison of the aggregated per-capita crime rates of municipalities of 50,000 citizens or more to the national average for six crimes – murder, sexual assault, break and enter, vehicle theft, aggravated assault and robbery.

Table 2.1
Number of Selected Types of Criminal Incidents,
Brampton and Mississauga, 2007

	Number of incidents [†]
Crimes of violence.....	6,250
Homicide.....	15
Assault.....	5,022
Robberies.....	1,103
Crimes against property.....	25,250
Motor vehicle collisions.....	30,090
Impaired driving offences	1,296
Speeding offences	48,145
Seat belt charges.....	7,884
Drug offences.....	3,857

[†]Incidents occur within Brampton or Mississauga but may involve those living elsewhere.
 Source: Peel Regional Police, Annual Statistical Report, 2007.

Better educated people have better health than those with lower educational achievement

Better education equals better health. Education contributes to health by increasing people’s ability to seek knowledge, understand information and solve problems. It also improves access to opportunities, increases job security and provides a sense of control over life’s circumstances.

Peel residents who have less than a secondary school education are least likely to report a positive self-rated health (Figure 2.6).

Peel residents aged 25 to 64 years who have less than a secondary school education are more likely to be physically inactive compared to those who completed a post-secondary education (Figure 2.7 on next page).

Among people aged 25 to 64 years in Ontario, those with the lowest level of education are less likely to maintain a smoke-free home than those with higher levels of education (Figure 2.8 on next page).

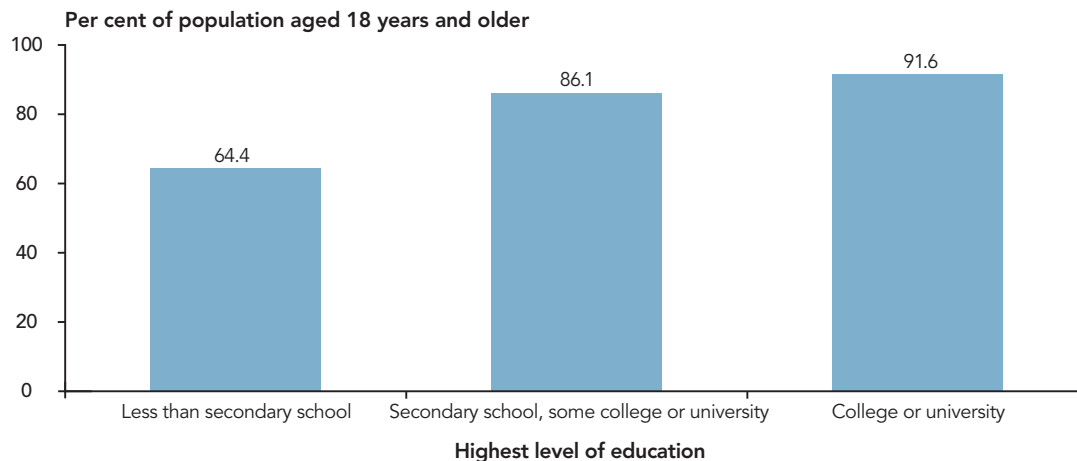
Work influences health in a number of ways

For most people, paid work provides not only money, but also social contacts and a sense of identity and purpose.² Some communities with high unemployment rates have been shown to suffer increased rates of illness and health-damaging practices, including smoking and abuse of alcohol.¹⁷

Social status is also linked to both employment and health. Sir Michael Marmot’s famous studies of the British Civil Service showed that one’s place in the occupational hierarchy correlated to such things as the mortality rate and the risk of heart attack. Other studies have shown that worker stress level and the amount of control workers have over their jobs have an influence on health.

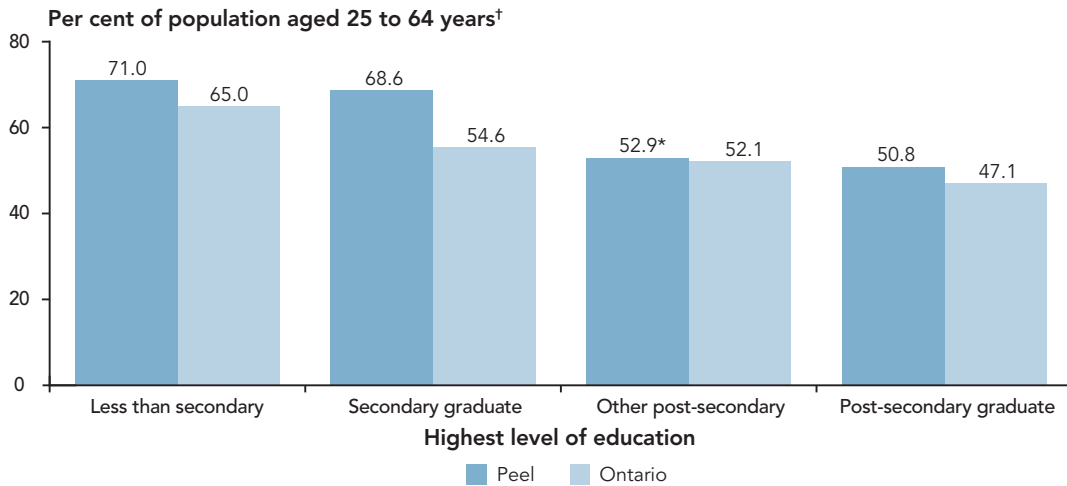
Although working conditions have improved over the years, some people are still exposed to on-the-job hazards. The rate of work-related injuries is higher for workers with lower socioeconomic status because they tend to be employed in jobs with more hazardous working conditions.¹⁸ They are also more likely to experience job demands, such as hard physical labour, shift work, long hours and insecurity of job tenure, as well as stress and low decision-making latitude which have been shown to be related to poor health.^{14,18}

Figure 2.6
Self-Rated Health† by Education Level,
Peel, 2006



† Defined as excellent, very good or good
Source: Rapid Risk Factor Surveillance System, 2006, Peel Public Health

Figure 2.7
Physical Inactivity by Education Level,
Peel and Ontario, 2005

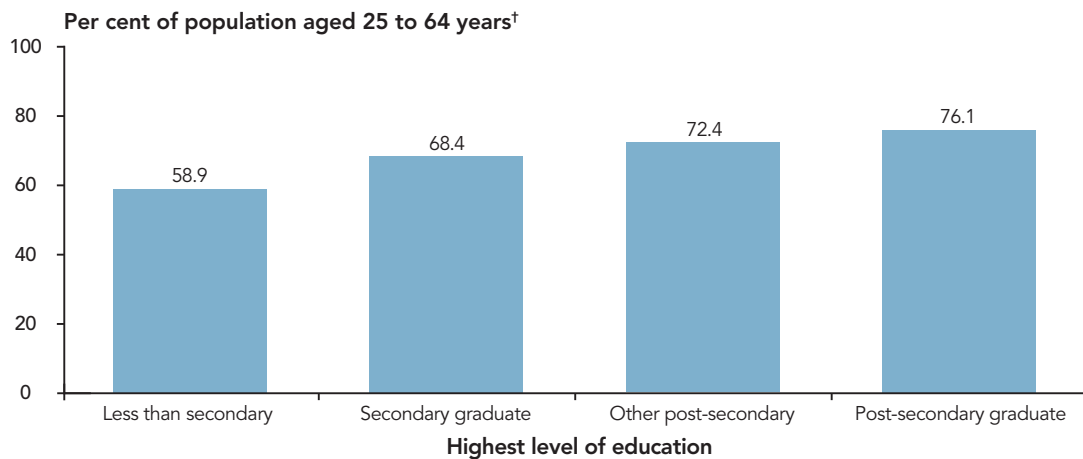


* Use estimate with caution

† See Data Methods chapter in the web version for rationale for selected age grouping

Source: Canadian Community Health Survey 2005, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care

Figure 2.8
Smoke-free Homes by Education Level,
Ontario, 2005



† See Data Methods chapter in the web version for rationale for selected age grouping

Source: Canadian Community Health Survey 2005, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care

Stress is associated with several chronic diseases

Research has linked stress with several chronic diseases, including: arthritis/rheumatism, back problems, chronic bronchitis and emphysema and stomach and intestinal ulcers. Stress is also associated with heart disease among men and asthma among women. Common sources of

stress among Canadians include: taking on too many things at once, not having enough money and having a perception of too many expectations from others.¹⁹

Women report higher average stress scores and a higher number of stressors (10 or more) than men. Stress levels decline with age and people aged 65 years and older have the lowest reported

stress levels. Stress also tends to be higher among people with lower household income, those with less education and those who were previously married.¹⁹

Infancy and childhood are developmental periods that have a lifelong impact on health

Development during infancy and childhood has a lifelong impact on health. Children are shaped by all of their experiences, but the most influential environment is the family. Parents play a critical role in providing the necessary nurturing conditions, including the right amounts of stimulation, protection and structure. A healthy environment is essential for children to develop successfully in their pre-school years.²⁰ Development continues through later childhood and adolescence, but the most significant development occurs in the first six years.

Socioeconomic disparities that affect the quality of life experienced by families can affect childhood development. Higher rates of cognitive difficulties, behavioural issues, hyperactivity and obesity are associated with lower levels of education and income.²¹ Families that are struggling to find shelter, food or employment have fewer emotional, social and economic resources with which to nurture their children. Children are also extremely sensitive to maternal depression, caregiver substance abuse, family violence and abuse of any kind.

Reading to Children

In Peel in 2002, 95% of mothers reported that their children were read to; 75% read to their children daily or several times a day. Mothers

who immigrated within the last five years were less likely to read to their children (84%) and only 63% reported that their children were read to daily or several times a day.^B

Eighty per cent of mothers with household incomes of at least \$70,000 read to their child at least once per day, compared to 69% of mothers with incomes under \$40,000.^B

Only 58% of mothers reported that the entire family ate together every day

In Peel in 2002, only 58% of mothers reported that the entire family ate at least one meal together every day. New immigrant mothers were more likely than Canadian-born mothers to report that their families ate together at least once every day (80% vs. 56%). For mothers who had been immigrants to Canada for more than five years, the figure was 55%.^B

Ready for School

The Early Development Instrument (EDI) is completed by teachers in the second half of the senior kindergarten year. Five developmental domains are scored on a scale of 0 to 10, with higher scores indicating more advanced developmental readiness. In March 2007 in Peel, EDI surveys were conducted on 13,407 children who had not been designated with a special needs status.

Children scoring below the 10th percentile on one or more domains are considered to be “developmentally vulnerable.” In contrast, those scoring above the 75th percentile in one or more domains are considered to be “developmentally ready” (Table 2.2 on next page).



See www.successby6peel.ca for more information about school readiness in Peel.

The longer immigrants reside in Ontario, the more likely they are to adopt the health behaviours of the average Ontarian

Studies related to health outcomes of migrants have shown that, over time, rates of several diseases among immigrants tend to converge towards those of the host country – especially if there were initially significant differences in rates between the host population and the country of origin.^{22–24} Environmental and lifestyle factors associated with the new place of residence

influence the rates of breast and ovarian cancers in immigrants, for example.

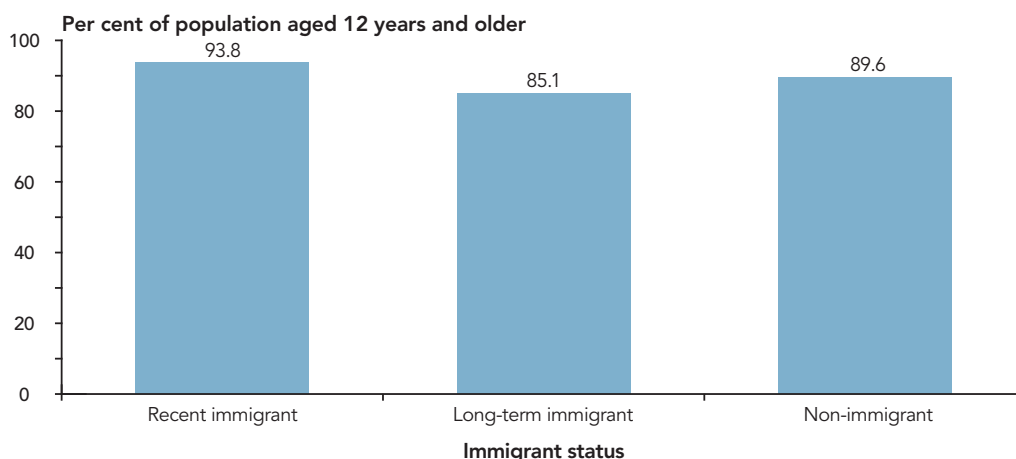
Ontario residents who are recent immigrants (less than 10 years in Canada) are more likely than long-term immigrants (11 years or more in Canada) and non-immigrants to report that their health was excellent, very good or good (94%) (Figure 2.9). This finding could be explained by the “healthy migrant effect,” in which new immigrants tend to be healthier than others in the population due to the selective nature of immigration. The longer immigrants reside in Ontario, the more likely they are to adopt the health behaviours of the average Ontarian.

Table 2.2
Per Cent[†] of Children Developmentally Vulnerable and Developmentally Ready, Peel and Municipalities, 2007

	Brampton	Caledon	Mississauga	Peel
Per cent developmentally vulnerable on one or more EDI domains	29%	20%	25%	26%
Per cent developmentally ready on one or more EDI domains	54%	70%	60%	58%

[†]Percentages do not add up to 100% as only children who fall in the bottom or top percentile cut-points are presented.
Source: EDI Bulletin, Success by 6 Peel, April 2008

Figure 2.9
Self-Rated Health[†] by Immigrant Status, Ontario, 2005



[†] Defined as excellent, very good or good
Source: Canadian Community Health Survey 2005, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care

In Peel, recent immigrants are less likely than long-term immigrants or non-immigrants to be current drinkers or be current smokers. In contrast, non-immigrants are less likely than immigrants to be physically inactive and are more likely to report binge drinking (Figure 2.10).

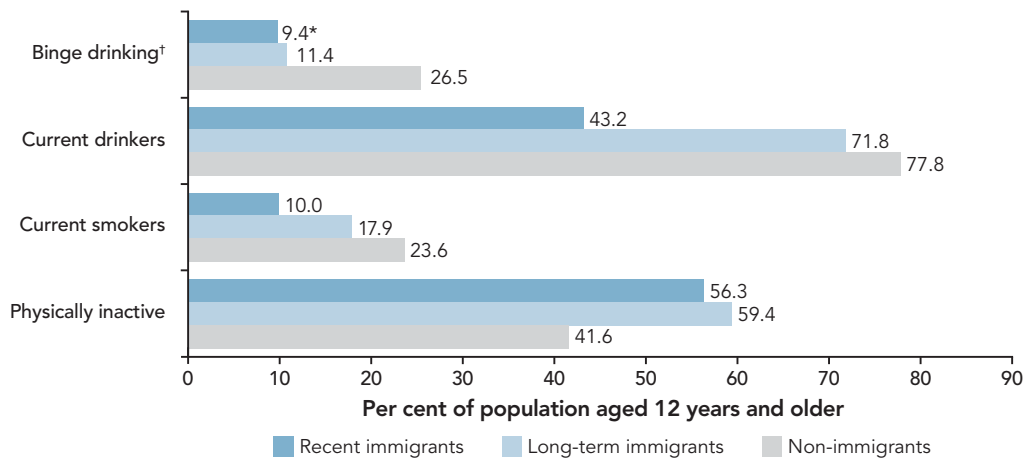
Refugees' Health

Refugees make up 10% of the immigrant population entering Canada each year.²⁵ This group brings unique health challenges as a result of prior experiences with violence, infections, losses and separation. In general, refugees are in less robust health than their immigrant counterparts and are more vulnerable to infectious and parasitic diseases.²⁶ Pre-migration trauma as a result of internment in refugee camps, torture and deprivation has a strong and lasting impact on refugees' mental health.^{25,27} Upon arrival in a new country, refugees face a range of barriers in accessing health services. These include cultural and language constraints, lack of awareness of services, poor understanding of rights and access to providers, and distrust of

government services following previous adverse experiences. Providing adequate social support and health services for refugee families is a significant challenge for many Canadian communities.



Figure 2.10
Selected Risk Factors by Immigrant Status,
Peel, 2005



* Use estimate with caution

† Among current drinkers

Source: Canadian Community Health Survey 2005, Statistics Canada, Share File, Ontario Ministry of Health and Long-Term Care