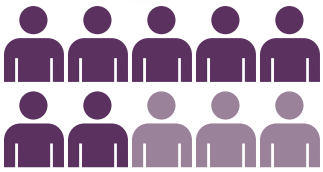
## Introduction

Assessing the state of mental health of the population involves examining two distinct but interrelated concepts: positive mental health and mental illness. A mental illness is a medically diagnosable condition where a person's thinking, mood, and/or behaviours can negatively and sometimes severely impact functioning in life. Positive mental health describes a person's ability to enjoy life, work productively, and manage life's challenges. People living with mental illness can still experience high levels of emotional well-being and positive psychological and social functioning in life, while people not diagnosed with mental illness can experience lower levels of emotional and functional well-being [1, 2].

Overlapping with those which influence physical health, the social determinants of mental health drive risk and protective factors for poor mental health and illness across the lifespan [3]. Research suggests that social inclusion (supportive relationships, community and social connections, and civic engagement), freedom from violence and discrimination (physical security, living in a community that values diversity, self-determination), and access to economic resources (access to adequate housing, education, work, money and meaningful engagement) are important determinants of mental health [4].

Mental illness and poor mental health are associated with a range of negative physical health outcomes, increased health care use, work absenteeism, and lower quality of life [5, 6, 7]. This chapter examines both positive mental health and mental illness, as well as related issues such as stress and coping.

**7** out of **10** adults



**3** out of **10** Indigenous adults

rate their mental health as 'excellent' or 'very good'

p. 77


feel a **sense of belonging** in their community

p. 77

**~100,000**

emergency department visits due to mental health and addiction-related issues in 2016

p. 80


hospitalizations for mental health and addiction-related issues in 2016

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p. 82

**Suicide** is the leading cause of death for those **18-35**

Seriously considered suicide:

- **2%** of adults
- **12%** of grade 7-12 students
- **35%** of lesbian, gay, bisexual, pansexual, other or unsure students

## Positive Mental Health

Mental health is more than the absence of a mental health condition or illness [1]. The World Health Organization defines positive mental health as "a state of well-being in which every individual realizes [their] own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to [their] community" [8]. Improving mental health can occur regardless of the presence or absence of mental illness. Higher levels of positive mental health have also been shown to reduce the risk of developing a mental illness [9]. Mental health promotion includes a range of social and environmental interventions that enable individuals, families, communities, and organizations to increase control over and improve their mental health.

The topics examined in this section are related to concepts described in the Positive Mental Health Surveillance Framework developed by the Public Health Agency of Canada (PHAC) [10, 11, 12, 13]. This framework presents indicators assessing three dimensions of positive mental health: emotional well-being, social well-being, and psychological well-being.

### Emotional Well-Being

Emotional well-being describes the extent to which a person feels positively about themselves and is satisfied with their life. Three indicators of emotional well-being are self-rated mental health, happiness, and life satisfaction.

Among Toronto adults (18 years of age and over):

- 71% rated their mental health as being "excellent" or "very good" in 2015/2016.
- In 2015, 83% reported feeling happy "every day" or "almost every day" in the past month.
- In 2015, 84% reported being satisfied with their lives "every day" or "almost every day" in the past month.


Positive mental health is lower among Indigenous people in Toronto. In 2015/2016, 31% of Indigenous adults reported having "very good "or "excellent" mental health, 65% reported feeling happy "every day" or "almost every day" in the past month, and 59% reported being satisfied with their lives "every day" or "almost every day" in the past month. This inequity should be interpreted in the context of colonization, anti-Indigenous racism, and inter-generational trauma. These root causes and additional social determinants can negatively impact mental health [14].

### Social Well-Being

Sense of belonging to an individual's local community is an indicator of social well-being within the positive mental health framework [11]. It has been associated with perceived mental and general health, with higher sense of community belonging corresponding to better self-rated mental and general health [15].

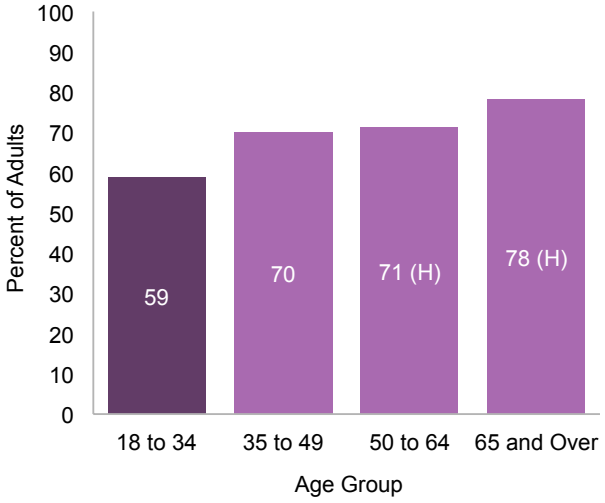
In Toronto, in 2015/2016:

- 68% of adults (18 years of age and over) reported a "very strong" or "somewhat strong" sense of belonging to their local community.
- Younger adults (18 to 34 years of age) (59%) were less likely than those aged 50 to 64 (71%) and those 65 years of age and over (78%) to report a "very strong" or "somewhat strong" sense of belonging to their local community (Figure 6.1).

For youth in school, a sense of belonging to their school community is an important component of social wellbeing. In Toronto, in 2014:

- More than 85% of students in grades 7 to 12 agreed or strongly agreed with statements associated with school connectedness, such as feeling close to people at school, feeling a part of school life, and feeling happy to be at school.

**Figure 6.1: Strong Sense of Community Belonging by Age Group, Toronto, 2015/2016**




H: Significantly higher than those aged 18 to 34 years.
Data Source: Canadian Community Health Survey, 2015/16.

### Psychological Well-Being

Psychological well-being is a dimension of positive mental health that reflects the extent to which people accept themselves, feel that their life has a sense of direction and meaning, have warm and trusting relationships with others, are confident in expressing their opinions, are able to manage daily responsibilities, and feel that they are able to grow as a person [2].

Among Toronto adults (18 years of age and over), in 2015:

- 75% scored highly on the psychological well-being scale.

Among youth in Toronto, in 2014:

- More than 80% of students in grades 7 to 12 agreed or strongly agreed with statements that included phrasing related to liking themselves, being proud of themselves, and feeling that they generally do things well.

Positive mental health is associated with sleep. **More information** on sleep is included in Chapter 11.

## Stress and Coping

Stress is the body's reaction to a perceived danger, but, in moderation, can be a positive source for motivation and problem-solving [16]. Chronic stress, however, can negatively affect positive mental health and the onset and exacerbation of a range of physical and mental health conditions including depression, anxiety disorders, asthma, autoimmune disorders, chronic pain, cardiovascular disease, stroke, and cancer [17, 18, 19]. Chronic stress is also associated with an increased risk of premature mortality [18]. The impact of stress on a person's health can vary and is affected by a number of factors, including an individual's coping skills. Coping has been identified as a determinant of positive mental health [10].

### Stress

Sources of stress (i.e., stressors) are generally described as either acute life events, which usually occur suddenly or over a brief timeframe (e.g., loss of a job, death of a spouse, a serious accident), or everyday chronic stressors that can persist over a longer period of time (e.g., caregiving for an ill family member, precarious employment, or unstable housing conditions) [18]. Common causes of chronic stress include financial worries, care giving, and health problems. Both acute and chronic stressors can contribute to a person's overall perceived level of life stress. In 2010, 6 out of 10 Canadian workers identified work as their main source of stress [20].

In Toronto, in 2015/2016:

- 22% of adults (18 years of age and over) reported most days as "quite a bit stressful" or "extremely stressful".
- Older adults aged 65 and over were significantly less likely to report most days as stressful (12%)[1] compared to younger adults aged 18 to 39 (24%) and 40 to 64 (25%).
- 28% of adults (18 years of age and over) reported that most days at work were "quite a bit stressful" or "extremely stressful".

[1] High degree of variability. Interpret with caution.

### Coping

Coping skills have been identified as a determinant of health and important for supporting a healthy lifestyle and developing effective strategies to deal with adversity [21]. Coping skills can also influence positive mental health outcomes [22]. Social and economic factors, such as social support and income, can affect people's coping skills and ability to make healthy lifestyle choices [21].

- In 2016, 75% of Toronto adults (18 years of age and over) rated their ability to handle both unexpected and difficult problems as well as the day-to-day demands of life as "good" or "excellent", while 25% rated their ability to handle either unexpected and difficult problems or the day-to-day demands of life as "fair" or "poor".

Perinatal mental health is an often overlooked aspect of mental health, crucial to women, their partners and families. **More information** is included in Chapter 4.

## Mental Illness

Mental illness is prevalent in Canada, with twenty percent of people experiencing a mental illness or problem in any given year [23]. Mental illnesses are medically diagnosable conditions where a person's thinking, mood, and/or behaviours can severely and negatively impact cognitive and social functioning. Mental illness can vary in severity and duration, and can be experienced as a single episode or may recur over time. Examples of mental illness include anxiety and mood disorders, eating disorders, schizophrenia, and alcohol and substance dependency.

Mental illness is associated with a range of negative physical health outcomes, increased health care use, lower work productivity and increased work absenteeism [25, 26, 27]. The impact of mental illness on these outcomes can vary depending on the nature and severity of the illness involved, as well as the availability and accessibility of treatment and support options. The economic burden of mental illness is also significant, costing the Canadian economy over 48 billion dollars in 2011 [23]. Prevention of mental illness through addressing its determinants is an important role for public health in reducing this burden. Public health and other social services can also contribute through early identification of mental illnesses and referrals to appropriate services within the health care system.

### Mood Disorders (including Depression)

Complex mood disorders are caused by various factors, including genetic predisposition, personality, stress, and brain chemistry [28]. Clinical depression is a complex mood disorder, and one of the most common mental illnesses in Canada [29].

Among Toronto adults (18 years of age and over), in 2015/16:

- 7% reported having been diagnosed with a mood disorder, such as depression, bipolar disorder, or dysthymia.
- Mood disorders such as depression may be under-diagnosed. Based on a validated tool used for screening, diagnosing, monitoring, and measuring severity of depression [30], 7% of adults had moderate to severe symptoms of depression. An additional 15% were considered having mild depression symptoms.

### Mental Health and Addiction-Related Healthcare Utilization

Estimates for the prevalence of many mental illnesses in Toronto is currently lacking. Therefore, this section uses health care utilization rates as proxy measures. A limitation of these data is that they underestimate the true prevalence of mental illness in the population because they exclude individuals who did not seek medical care for their condition. In addition, the relationship between incidence and utilization can be affected by differences in the provision of

services across areas and other factors related to health care accessibility.

In Toronto, general physician (family doctor) visits due to mental health or addiction-related issues:

- Occurred at a rate of 7.1 per 100 population in 2016.
- Decreased from 8.5 per 100 population in 2007 to 7.1 in 2016. This decrease was observed for both males and females. This may not indicate a decrease in the incidence or prevalence of mental health or addiction related issues, as it does not capture individuals accessing other types of mental health care or treatment programs.
- Were at least 30% higher among females compared to males between 2007 and 2016. In 2016, the rates were 6.2 per 100 males, and 8.0 per 100 females.

In Toronto, in 2016:

- There were 98,407 emergency department (ED) visits (17.2 per 100 population) and 11,671 hospitalizations (2.1 per 1,000 population) for mental health and addiction-related issues.
- The most common diagnoses for a mental health and addiction-related ED visit were substance-related disorders, with a rate of 6.6 per 100 population (Table 6.1), whereas the most common diagnoses for hospitalization were mood/affective disorders, with a rate of 0.7 per 1,000 population.
- Males were more likely to have an ED visit or a hospitalization for substance-related disorders, and schizophrenia, delusional, and non-organic psychotic disorders, whereas females were more likely to have ED visits or hospitalizations for anxiety disorders and mood/affective disorders (Table 6.1).

**Table 6.1: Rates* of Mental Health and Substance-Related Emergency Department Visits and Hospitalizations by Leading Diagnosis Groups, Toronto, Fiscal 2016**

| | ED visits (per 100) | | | Hospitalizations (per 1,000) | | |
|---|---|---|---|---|---|---|
| Diagnosis Group | Overall | Males | Females | Overall | Males | Females |
| Substance-related disorders | 6.6 | 9.8 | 3.7 | 0.5 | 0.8 | 0.3 |
| Anxiety disorders | 4.4 | 3.9 | 4.9 | 0.2 | 0.2 | 0.3 |
| Mood/affective disorders | 3.0 | 2.6 | 3.3 | 0.7 | 0.5 | 0.8 |
| Schizophrenia, delusional and non-organic psychotic disorders | 2.6 | 3.6 | 1.8 | 0.6 | 0.7 | 0.4 |

* Age-standardized rates.

Data Source: National Ambulatory Care Reporting System (NACRS), Discharge Abstract Database (DAD), and Registered Persons Database (RPDB) (2016 fiscal year). Data provided by the Ontario Community Health Profiles Partnership.

**COMPARING TO** Toronto had a lower age-standardized rate of ED visits for anxiety disorders (4.4 per 100 population) compared to the rest of Ontario (6.6 per 100 population), but had a higher rate for schizophrenia, delusional, and non-organic psychotic disorders (2.6 in Toronto compared to 1.6 in the rest of Ontario).

**More information** on substance use is included in Chapter 7.

## Intentional Self-Harm and Suicidal Behaviour

Intentional self-harm and suicidal behaviour are separate but related concepts, both potentially tied to mental illness and/or a lack of positive mental health. Self-harm is often used as a coping mechanism by those who suffer from poor mental health and lack proper social support [31]. It can occur with or without suicidal intent [32], although people who engage in self-harm are generally at higher risk of dying of suicide compared to the general population [33]. Suicide is the ninth leading cause of death in Canada and the second leading cause of death among youth and adults aged 15 to 34 [34].

### HELP IS AVAILABLE

If you or someone you know may be experiencing signs of suicide risk, seek help as soon as possible. There is always help available. You are not alone.

**Crisis Lines (24/7)**

Toronto Distress Centre: 416-408-HELP (4357)

Gerstein Centre: 416-929-5200

If you are in crisis and require emergency assistance, please go to the nearest hospital or call 911.

### Intentional Self-Harm

Intentional self-harm is defined as purposeful injury by cutting, burning, or ingesting poisonous substances. The indicators provided in this section do not provide information about whether intentional self-harm was related to a suicide attempt or non-suicidal self-injury.

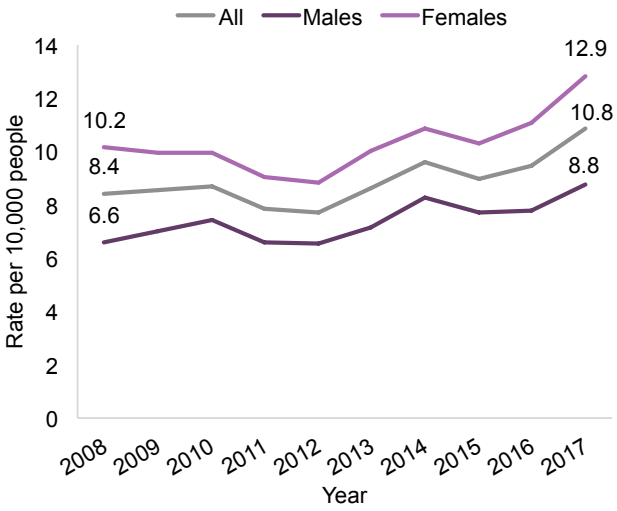
In Toronto:

- Rates of Emergency Department (ED) visits for self-harm fluctuated between 2008 and 2015, then increased from 9.0 per 10,000 residents in 2015 to 10.8 in 2017 (12.9 for females, 8.8 for males) (Figure 6.2).
- Higher rates of ED visits for self-harm occurred among younger people (Figure 6.3). Females aged 10 to 19 had the highest rates of ED visits in 2013 to 2017 combined[2], at 24 cases per 10,000.

Among youth in Toronto, in 2014:

- 11% of students[3] in grades 7 to 12 reported hurting themselves on purpose, for example, by self-cutting or burning, in the past year. Female students (18%) were more likely than male students (6%[4]) to report self-harm in the past year.

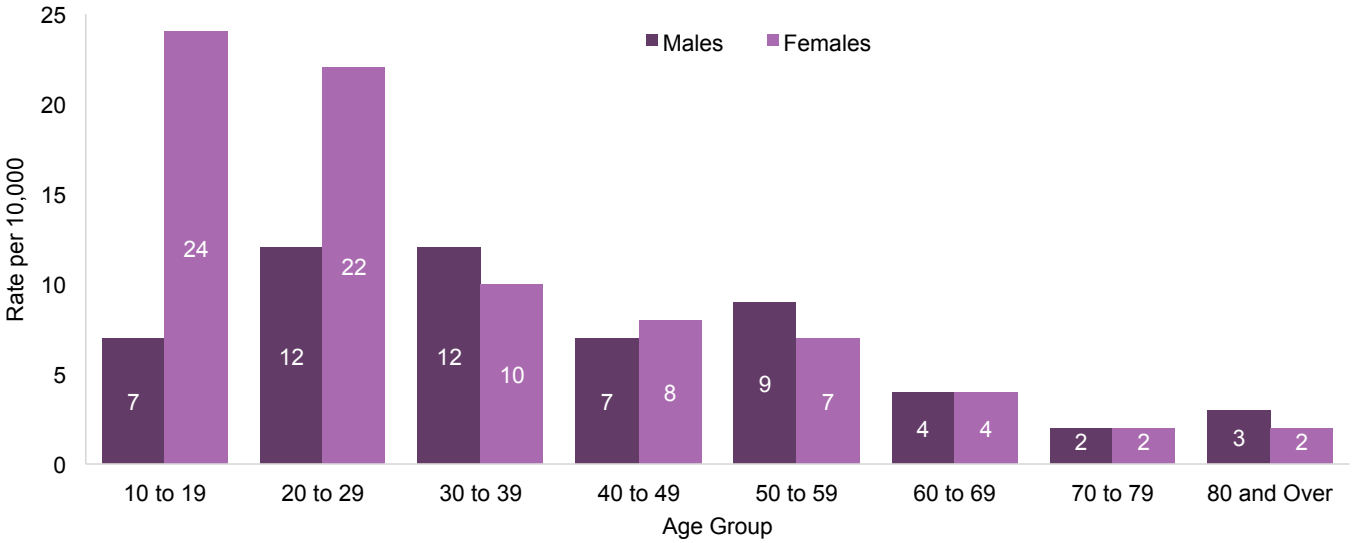
**Figure 6.2: Emergency Department Visits for Intentional Self-Harm, Toronto, 2008 to 2017**




Data Source: National Ambulatory Care Reporting System (NACRS), 2008 to 2017, Ontario Ministry of Health and Long-Term Care, IntelliHealth Ontario

[2] Four years of data were combined in order to stabilize the trend and reduce the likelihood of anomaly due to chance, considering the small numbers within each age/sex group.
[3] Excludes students attending Catholic schools, who were not asked about suicidal ideation or self-harm.
[4] High degree of variability. Interpret with caution.

**Figure 6.3: Emergency Department Visits for Intentional Self-Harm by Age Group, Toronto, 2013 to 2017 Combined**[5]




Data Source: National Ambulatory Care Reporting System (NACRS), 2013 to 2017, Ontario Ministry of Health and Long-Term Care, IntelliHealth Ontario

## Suicide

Suicide is recognized by the World Health Organization (WHO) as an important cause of preventable death that is often overlooked by governments and policy makers [35]. It has wide-reaching consequences in affected families and communities. Public health strategies for preventing suicide include reducing access to means and methods of suicide, responsible media reporting, and training of lay and professional "gatekeepers" on how to identify and respond to suicidal behaviour [36] [35].

In Toronto:

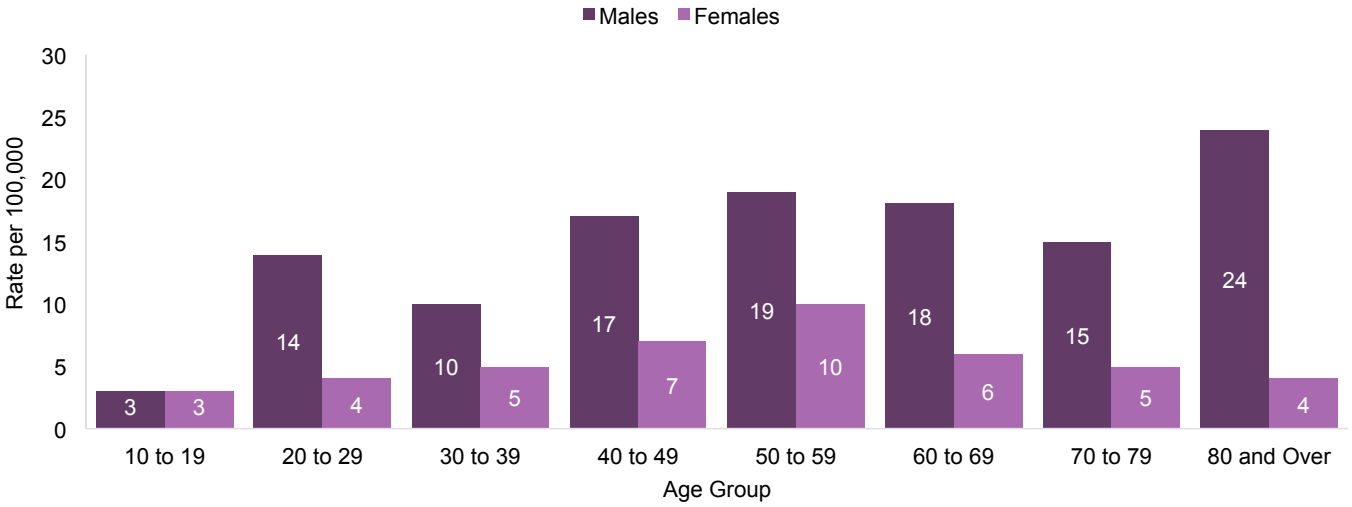
- The overall rate of suicide deaths for adults (aged 18 years and over) was relatively stable from 2006 to 2015, with 9.7 deaths per 100,000 people in 2015. However, the rate of suicide deaths among females increased from 4.6 per 100,000 in 2006 to 6.4 in 2015. Despite this increase, in 2015, the age standardized rate of suicide for males was more than twice as high (13.3 per 100,000) than for females (6.4 per 100,000).
- Males had a higher suicide rate across all age groups. The highest rate of suicide for males was among those 80 and older, whereas it was among those 50 to 59 for females. (Figure 6.4)
- Suicide was the leading cause of death for people aged 18 to 39 in 2015.
- In 2015/16, 2%[6] of adults (aged 18 and older) seriously considered suicide over the preceding year.

Among youth in Toronto, in 2014:

- 12% of students[7] in grade 7 to 12 reported having seriously considered suicide in the preceding year. Female students (18%) were more likely than males (6%) to report having seriously considered suicide in the past year.

[5] Four years of data were combined in order to stabilize the trend and reduce the likelihood of anomaly due to chance, considering the small numbers within each age/sex group.
[6] High degree of variability. Interpret with caution.
[7] Excludes students attending Catholic schools, who were not asked about suicidal ideation or self-harm.

**Figure 6.4: Suicide Rate by Age Group and Sex, Toronto, 2012 to 2015 combined**




Data Source: Vital Statistics 2012-2015, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO.

DATA GAP

Population level data to identify inequities in suicide and self-harm are limited at the local level. Suicide deaths and attempts by Lesbian, Gay, Bisexual, Transgender, Queer, and Two-Spirited (LGBTQ2S+) adults, and data disaggregated by race, ethnicity, income, education level and refugee and immigrant status would add valuable information to understand the extent of these inequities.

**More information** on mortality is included in Appendix 1.

HEALTH INEQUITIES

Among grade 9 to 12 students in Toronto in 2014, Lesbian, Gay, and Bisexual youth had a higher prevalence of suicidal ideation (35%) compared to heterosexual students (12%). An Ontario study found that 35% of transgendered persons reported having considered suicide in the past year, while 11% attempted suicide in the past year [37]. Additional research has established a multitude of mental health inequities in the LGBTQ2S+ community, many of which are due to impacts of homophobia and discrimination.

## References


[1] Canadian Mental Health Association, "Positive Mental Health and Well-Being," [Online]. Available: https://ontario.cmha.ca/documents/positive-mental-health-and-well-being/. [Accessed 26 February 2019].

[2] S. M. A. Lamers, G. J. Westerhof, E. T. Bohlmeijer, P. M. ten Klooster and C. L. M. Keyes, "Evaluating the psychometric properties of the Mental Health Continuum-Short Form (MHC-SF)," *Journal of Clinical Psychology,* vol. 67, no. 1, pp. 99-110, 2011.

[3] R. Shim, C. Koplan, F. J. Langheim, M. W. Manseau, R. A. Powers and M. T. Compton, "The social determinants of mentla health: An overview and call to action," *Psychiatric annals,* vol. 44, no. 1, pp. 22-26, 2014.

[4] H. Keleher and R. R, "Evidence-Based Mental Health Promotion Resource.," 2006.

[5] C. L. M. Keyes and E. J. Simoes, "To flourish or not: positive mental health and all-cause mortality," *American Journal of Public Health,* vol. 102, no. 11, pp. 2164-2172, 2012.

[6] C. L. M. Keyes, "Promoting and protecting mental health as flourishing: A complementary strategy for improving national mental health," *American Psychologist,* vol. 62, no. 2, pp. 95-108, 2007.

[7] S. Ratnasingham, J. Cairnet, J. Rehm, H. Manson and P. Kurkyak, "Opening Eyes, Opening Minds: The Ontario Burden of Mental Illness and Addictions," Institute of Clinical and Evaluative Sciences, 2012.

[8] World Health Organization, "Mental health: A State of Well-Being," 2014. [Online]. Available: https://www.who.int/features/factfiles/mental_health/en/. [Accessed 18 December 2018].

[9] C. L. M. Keyes, S. S. Dhingra and E. J. Simoes, "Change in level of positive mental health as a predictor of future risk of mental illness," *American Journal of Public Health,* vol. 100, no. 12, pp. 2366-2371, 2010.

[10] H. Orpana, J. Vachon, J. Dykxhoorn, L. McRae and G. Jayaraman, "Monitoring positive mental health and its determinants in Canada: The development of the Positive Mental Health Surveillance Indicator Framework," *Health Promotion and Disease Prevention in Canada,* vol. 36, no. 1, pp. 1-10, 2016.

[11] Centre for Chronic Disease Prevention, "Positive Mental Health Surveillance Indicator Framework: Quick Statistics, adults (18 years of age), Canada, 2016 Edition," *Health Promotion and Chronic Disease Prevention in Canada,* vol. 36, no. 1, pp. 11-2, 2016.

[12] H. Orpana, J. Vachon, J. Dykxhoorn and G. Jayaraman, "Measuring positive mental health in Canada: Construct validation of the Mental Health Continuum-Short Form," *Health Promotion and Chronic Disease Prevention in Canada : Research, Policy and Practice,* vol. 37, no. 4, pp. 123-130, 2017.

[13] Centre for Chronic Disease Prevention, "Positive Mental Health Surveillance Indicator Framework: Quick Stats, Youth (12 to 17), Canada 2017 Edition," *Health Promotion and Chronic Disease Prevention in Canada,* vol. 37, no. 4, pp. 131-2, 2017.

[14] S. Loppie, C. Reading and S. de Leeuw, Aboriginal Experiences with Racism and its Impacts, Prince George, BC.: National Collaborating Centre for Aboriginal Health, 2014.

[15] M. Shields, "Community belonging and self-perceived health," *Health Reports,* vol. 19, no. 2, 2008.

[16] Canadian Mental Health Association, "Stress," [Online]. Available: https://cmha.ca/documents/stress. [Accessed 26 February 2019].

[17] G. M. Slavich, "Life stress and health: A review of conceptual issues and recent findings," *Teaching of Psychology,* vol. 43, no. 4, pp. 346-355, 2016.

[18] G. S. Shields and G. M. Slavich, "Lifetime stress exposure and health: A review of contemporary assessment methods and biological mechanisms," *Social and Personality Psychology Compass,* vol. 11, no. e12335, pp. 1-17, 2017.

[19] P. A. Thoits, "Stress and health: Major findings and policy implications," *Journal of Health and Social Behavior,* vol. 51, no. S, pp. S41-S53, 2010.

[20] S. Crompton, "What's stressing the stressed? Main sources of stress among workers," *Statistics Canada — Catalogue no. 11-008: Canadian Social Trends,* pp. 44-51, 2011.

[21] Members of the Federal/Provincial/Territorial Advisory Committee on Population Health, "Strategies for population health: Investing in the Health of Canadians," 1994.

[22] Centre for Chronic Disease Prevention, "Positive Mental Health Surveillance Indicator Framework," Public Health Agency of Canada, 2016. [Online]. Available: https://infobase.phac-aspc.gc.ca/positive-mental-health/index-en.aspx. [Accessed 30 07 2018].

[23] P. Smetanin, D. Stiff, C. Briante, C. E. Adair, S. Ahmad and M. Khan, "The Life and Economic Impact of Major Mental Illnesses in Canada: 2011 to 2041," RiskAnalytica, on behalf of the Mental Health Commission of Canada, 2011.

[24] J. Epp, "Mental health for Canadians: Striking a balance," *Canadian Journal of Public Health,* vol. 79, no. 5, pp. 327-349, 1988.

[25] M. De Hert, C. U. Correll, J. Bobes, M. Cetkovich-Bakmas, D. Cohen, I. Asai, J. Detraux, S. Gautam, H. Möller, D. M. Ndetei, J. W. Newcomer, R. Uwakwe and S. Leucht, "Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care," *World Psychiatry,* vol. 10, no. 1, pp. 52-77, 2011.

[26] J. Alonso, M. C. Angermeyer, S. Bernert, R. Bruffaerts, T. S. Brugha, H. Bryson, G. de Girolamo, R. de Graaf, K. Demyttenaere, I. Gasquet, J. M. Haro, S. J. Katz, R. C. Kessler, V. Kovess, J. P. Lépine, J. Ormel, G. Polidori, L. J. Russo and G. Vilagut, "Disability and quality of life impact of mental disorders in Europe: Results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project," *Acta psychiatrica Scandinavica,* vol. 109, no. S420, p. 38–46, 2004.

[27] Mental Health Commission of Canada, "Making the Case for Investing in Mental Health in Canada," 2013. [Online]. Available: https://www.mentalhealthcommission.ca/English/media/3179. [Accessed 27 February 2019].

[28] Centre for Addiction and Menal Health, "Depression," 2019. [Online]. Available: https://www.camh.ca/en/health-info/mental-illness-and-addiction-index/depression. [Accessed 22 Feburary 2019].

[29] Public Health Agency of Canada, "What is Depression?," 2016. [Online]. Available: https://www.canada.ca/en/public-health/services/chronic-diseases/mental-illness/what-depression.html. [Accessed 22 February 2019].

[30] K. Kroenke, R. L. Spitzer and J. Williams, "The PHQ-9: Validity of a Brief Depression Severity Measure," *Journal of General Internal Medicine,* vol. 16, no. 9, pp. 606-613, 2001.

[31] A. Laye-Gindhu and K. A. Schonert-Reichl, "Nonsuicidal self-harm among communityadolescents: Understanding the "whats" and "whys" of self-harm," *Journal of Youth and Adolescence,* vol. 34, no. 5, pp. 447-457, 2005.

[32] K. Hawton, S. Hall, S. Simkin, L. Bale, A. Bond, S. Codd and S. A, "Deliberate self-harm in adolescents: a study of characteristics and trends in Oxford, 1990-2000," *J Child Psychol Psychiatry,* vol. 44, pp. 1191-1198, 2003.

[33] D. Owens, J. Horrocks and A. Hous, "Fatal and non-fatal repetition of self-harm," *British Journal of Psychiatry,* vol. 181, pp. 193-199, 2002.

[34] Public Health Agency of Canada, "Leading causes of death, total population, by age group," Table 13-10-0394-01 Leading causes of death, total population, by age group, 2018. [Online]. Available: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039401&pickMembers%5B0%5D=2.1&pickMembers%5B1%5D=3.1. [Accessed 31 07 2018].

[35] World Health Organization, "Preventing suicide: A global imperative," World Health Organization, 2014.

[36] D. Stone, K. Holland, B. Bartholow, A. Crosby, S. Davis and N. Wilkins, "Preventing suicide: A technical package of policy, programs and practices," Centers for Disease Control and Prevention, Atlanta, Georgia, 2017.

[37] G. R. Bauer, A. I. Scheim, J. Pyne, R. Travers and R. Hammond, "Intervenable factors associated with suicide risk in transgender persons: a respondent driven sampling study in Ontario, Canada," *BMC Public Health,* vol. 15, no. 525, 2015.