



## Research Article

# Perceptions of Health, Depression and Anxiety Vary by Social Determinants

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## Abstract

**Objective:** First, to assess how Ontarians perceive their general health; second, to determine whether self-reported general health, depression, social anxiety, and perceptions of healthcare service quality vary by six social determinants of health. **Method:** A correlational design ( $N=714$ ) used closed-ended survey items to collect social demographic information and assess indicators of health. Chi-square tests, independent samples t-tests, and MANOVAs were utilized to test for differences across groups by ethnicity, gender, homelessness, ability, education, and employment status. **Results:** All four outcomes tested varied by one or more social determinants of health. There was a significant difference in perception of healthcare services across homelessness and disability. There was a significant difference in general health across homelessness, education, and employment. Differences in depression were seen across employment status, gender, and homelessness. Social anxiety disorder varied by gender. **Conclusion:** This study in Canada provides evidence that several social determinants of health relate to both physical and mental health. The findings show that homelessness is related to three of the four outcomes tested: self-reported general health, depression, and perceptions of healthcare, while employment relates to general physical health and depression. Disability, education, and gender, each relate to perception of healthcare services, general health, and social anxiety respectively. Social determinants of health clearly implicate guidelines for treatment, program planning, and policy.

**Keywords:** Social determinants of health; Canada; Health services; Equity; Mental health

## Introduction

The importance of addressing the social determinants of health (SDH) has been recognized by Canadian public policy [1] as well as by the World Health Organization (WHO) [2]. While it has been acknowledged that the social and environmental contexts are imperative to disease onset [3] and related to both general and oral health [4], Canada's performance in reducing inequalities across SDH has been slim [5]. The Canadian framework of the SDH encapsulates 14 factors: income and income distribution, education, unemployment, employment and working conditions, early childhood development, food insecurity, housing, social exclusion, social safety net, health services, Aboriginal status, gender, race, and disability [1]. More research is needed to understand the specific impact of these factors on Canadians' physical health, mental health, and perceptions of healthcare services.

Literature across the globe suggests that experiences and perceptions of treatment in healthcare settings differ by SDH.

A Jordanian study found that females were more satisfied in healthcare quality than males [6] whereas a U.S. study found the opposite [7]. Research from the U.S. has found that perceptions of healthcare differ by ethnic identity (e.g., [8]). An international systematic review of 70 studies found racism was associated with lower levels of healthcare-related trust, satisfaction, and communication [9]. Recent studies show ethnic minorities perceive discrimination by health care professionals [10,11]. Alternatively, one study found that ethnic minority groups within a U.S. Midwestern state reported low levels of racism from health care providers, high access to services, and overall satisfaction with providers, except for Native American peoples who reported significantly more experiences of poor treatment by health care providers [12]. These findings on ethnic disparities in perceptions of health among U.S. samples are consistent with research in other countries (e.g., [13]).

In addition to variations across the SDH in perceptions of healthcare, similar trends have been found in self-reports of general health and mental health. Irrespective of age or location of study, women consistently report poorer health

than men (e.g., [14]). Racial disparities in health among the U.S. population are well established and may be explained by exposure to social and economic disadvantage [15]. A review of Canadian literature on homelessness and health suggests an explicit relationship between these variables, potentially resulting from direct causes such as crowded shelter conditions and prolonged walking and standing, but also societal factors such as poverty and substance use [16]. Additionally, a US-based study indicates that early childhood programming has been associated with a smaller prevalence of risk factors for physical ailments [17]. There exists a wide variety of indicators of mental health and mental illness. Generally, mental health is a positive, promotable attribute for individual wellbeing whereas mental illness is a negative state to be prevented or treated with a goal of recovery (i.e., restoration of mental health). Commonly used indicators of mental illness include anxiety and mood disorders such as depression.

There is evidence to suggest that depression is a worldwide leading cause of disability [18,19] with higher rates consistently reported among women [18,20]. Aside from gender, depression is associated with living in low socio-economic conditions and countries with greater income inequality [18]. Further, those with more educational attainment report decreased levels of depression [18]. A longitudinal review of an early childhood program found no differences in mental health across control and treatment group at age 30 [21]. Last, researchers have examined differences in mental health across variations of work placements, with those employed under temporary job contracts more likely to be prescribed psychotropic medication [22].

Within Canada, depression is a highly prevalent mental health issue; in a sample of over 24,000 Canadians residing within the ten provinces, the 12-month prevalence of major depressive disorder was 4.7%, while the lifetime prevalence was 11.2% [23]. Further, the rate of anxiety and/or mood disorders among adult Canadians in 2014 was 11.6% [24]. The presence of depression also differs across the SDH, including ethnicity, disability, education, gender, and employment [25].

Evidence is inconclusive as to whether depression varies by ethnicity. Some ethnic minorities have reported lower depression in Canada [26] and the U.S. [27], whereas in a different U.S. study, ethnic minorities reported greater depression than White counterparts [28]. Disability is associated with a higher likelihood of depression in a Korean sample, after controlling for extraneous variables [29]; research on disability and depression is limited. Additionally, education has been associated with depression among various populations (e.g., [20]). Due to these mixed findings and very few studies conducted within the Canadian context, more research is required to investigate relationships among all of these SDH and depression symptomatology within the Canadian context. Depression is frequently found to be comorbid with anxiety; however, limited research focuses on the SDH and anxiety, particular social anxiety.

A search of various databases (Google Scholar, PsycArticles, and PubMed) returned few results regarding the SDH and social anxiety disorder (SAD), aside from articles focused on the relationship between gender and SAD. None of

these studies examined a Canadian population. There is strong evidence that women are more likely to have SAD than men (e.g., [30,31]) and interactions have been reported among gender and ethnicity and employment. A study in the U.S. found that participants reporting SAD were more likely to be Hispanic, less likely to be Black, and that men reporting SAD were more likely to be unemployed [31]. Asian American students also reported higher social anxiety scores than European Americans [32]. These studies suggest that there are potential differences in the prevalence of SAD across ethnic backgrounds. However, no Canadian research was found regarding variations in prevalence of social anxiety across other SDH.

## Present Study

The limited Canadian-based research regarding the SDH highlights a major gap within the literature. This study aimed to fill this gap by assessing a large community-based sample of individuals living in Ontario, Canada. Seven of the 14 SDH in the Raphael model (2009) were examined: disability status, early childhood education, homelessness, education, employment, ethnicity, and gender. Based on the aforementioned literature, the present research had three research objectives:

1. Assess how Ontarians perceive healthcare services and rate their general health;
2. Determine whether there are disparities across the SDH (participating in early childhood development programming, gender, ethnicity, educational attainment, homelessness status, employment status, and disability status) in perceived quality of care, self-reported general health, and self-reported depression scores;
3. Assess how self-reported social anxiety differs across the SDH.

## Method

### Participants and data collection

A sample of participants (N=714;  $M_{age} = 43.38$  years,  $SD=13.89$ ) residing across Ontario was recruited from a longitudinal database of over 1700 individuals to complete a survey about growing up in Ontario. More than 20 years previously, participants had been recruited based on their residence in a highly economically disadvantaged neighbourhood. The research design resulted in five ethnically and linguistically diverse communities, including Indigenous and Francophone families, newcomers to Canada, and other minority groups. Data for the current study were collected as part of a multi-wave longitudinal project examining the outcomes of an early childhood intervention on child-, family, and community-based outcomes. Participants who gave permission to be contacted for subsequent research were recruited for the current study by email, phone, social media, Canada Post, and contact through relatives. Between January 2018 and August 2019 they were invited to complete a survey. Participants could select to complete a 45-60 minute survey online, over the phone with a research assistant, or in-person with a site researcher in either English or French with

a remuneration of \$25. The study was approved by a university research ethics board.

## Measures

Age and SDH characteristics were collected along with assessments of health, depression, and social anxiety outcomes.

**SDH:** SDH variables included gender (male, female), education, job-status (unemployed, part-time, full-time), homelessness status at some point in time (yes, no), disability status and ethnic identity. Education was collapsed into 6 categories: did not complete secondary education; completed secondary education; some post-secondary education; completed post-secondary education; graduate degree; other. Disability status was conceptualized as receipt of Ontario Disability Support Program (ODSP; yes, no). Ethnic identity was operationalized into nine categories: African, American (including Central and South), Asian, British, Canadian, European, French, Indigenous, and Other.

**Health:** Participants were asked one item regarding their self-reported general health, rated on a five-point Likert scale from 1 (poor) to 5 (excellent). Additionally, participants were asked whether they have felt in the last year that the services they were receiving were not as good as services received by other people (yes or no).

**Depression:** Participants completed a 12-item version of the Centre for Epidemiological Studies Depression Scale (CES-D; Radloff 1977) and rated how frequently they experienced the feeling in each item from 1 (rarely or none) to 4 (most or all of the time). This scale has been validated and found to be reliable in a sample of high school students [33]. Additionally, through receiver operating characteristic (ROC) curve analysis, the authors established three categories of depressive symptoms: minimal (12 to 23); somewhat elevated (24 to 32); and very elevated (33 to 48; [33]). In the present study with adults, the scale has good internal consistency ( $\alpha = 0.865$ ).

**Social Anxiety:** Participants completed the 17-item Social Phobia Inventory [34] and rated statements on a 5-point scale from 0 (not at all) to 4 (extremely). Total scores range from 0 to 68 with higher scores representing greater symptoms of social anxiety. Among a non-clinical sample of Canadians, the scale was found to have high internal consistency among both English- ( $\alpha = 0.93$ ) and French-speaking ( $\alpha = 0.93$ ) individuals [35]. In the present study, the scale has good internal consistency ( $\alpha = 0.94$ ).

## Results

A total of 714 individuals completed the survey. Of those, one identified as transgender and was thus excluded from analyses due to small sample size. Complete demographic information can be found in Table 1. The average depression score was in the minimal category but had a wide standard deviation ( $M=19.84$ ,  $SD=6.67$ ).

Overall, 15.5% of respondents perceived healthcare services they received were “not as good” compared to that which others received, and health was rated as good to very

good ( $M=3.56$ ,  $SD=0.98$ ). There was no significant difference in perceptions of healthcare services across gender, ethnic identity, education level, or employment status. However, there was a significant difference in perception of healthcare services across homelessness status,  $\chi^2(1) = 8.05$ ,  $p=0.008$ , such that a greater proportion of individuals who experienced homelessness in their lifetime also reported that they perceived poorer service in healthcare (30.2%), as compared to those who have never experienced homelessness (14.2%). Additionally, a significantly lower proportion of individuals who do not receive ODSP reported experiencing poorer service (14.8% of 49 of the 331 participants) compared to those receiving ODSP (40.0%, 8 of 20 individuals),  $\chi^2(1) = 8.80$ ,  $p=0.008$ .

There was a significant difference in general health across almost all of the SDH. For example, there were differences in self-rated general health across educational attainment,  $F(5, 333) = 3.98$ ,  $p=0.002$ . Individuals who had not completed secondary education ( $M=3.12$ ,  $SD=0.92$ ) rated their general health lower than those who had completed a post-secondary degree partially ( $M=3.49$ ,  $SD=0.98$ ,  $p=0.001$ ) or in its entirety ( $M=3.63$ ,  $SD=0.97$ ;  $p=0.001$ ) as well as those who had a graduate degree ( $M=3.83$ ,  $SD=0.93$ ;  $p<0.001$ ). Additionally, those who completed secondary school ( $M=3.48$ ,  $SD=0.97$ ) had poorer general health than those with a graduate degree ( $p=0.037$ ). Those who were unemployed ( $M=3.24$ ,  $SD=1.15$ ) reported significantly lower general health than those with part-time employment ( $M=3.78$ ,  $SD=0.89$ ,  $p<0.001$ ) and those with full-time employment ( $M=3.51$ ,  $SD=0.92$ ,  $p=0.017$ ),  $F(2,333) = 8.86$ ,  $p<0.001$ . Surprisingly, those with part-time employment reported higher general health than those with full-time employment ( $p=0.002$ ). Last, there were significant differences across homelessness status,  $F(1,333) = 7.50$ ,  $p<0.006$ , such that those who had experienced homelessness reported lower general health ( $M=2.90$ ,  $SD=1.12$ ) compared to those who had never experienced homelessness ( $M=3.60$ ,  $SD=0.96$ ). However, there was no significant difference in perceived general health across disability status, gender, or ethnicity. There were no significant findings on all assessments for an effect of participating in an early childhood development program, comparing an intervention group ( $n=474$ ) to a matched comparison group ( $n=239$ ).

There were significant differences in depression scores across employment status,  $F(2,331)=11.25$ ,  $p<0.001$ , gender,  $F(1,331)=8.13$ ,  $p=0.005$ , and homelessness status,  $F(1,331) = 14.94$ ,  $p<0.001$ . Those who were unemployed ( $M=20.74$ ,  $SD=7.23$ ) had significantly higher depressive symptoms than those with full-time employment ( $M=18.96$ ,  $SD=5.43$ ;  $p=0.006$ ), and those with part-time employment had significantly lower depression than those with full-time employment ( $M=20.28$ ,  $SD=7.28$ ,  $p<0.001$ ). Those who had experienced homelessness ( $M=26.14$ ,  $SD=7.9$ ) reported much higher depressive symptoms than those who had never experienced homelessness ( $M=19.45$ ,  $SD=6.36$ ). Depression scores did not vary by disability status, education level, or ethnicity. Women reported higher social anxiety ( $M=35.66$ ,  $SD=13.47$ ) compared to men ( $M=29.10$ ,  $SD=11.47$ ),  $F(1,326) = 17.85$ ,  $p<0.001$ .

Demographic	Frequency	Percent
<b>Gender</b>		
Male	183	25.9
Female	524	74.1
<b>Ethnicity</b>		
African	14	2.0
American	15	2.1
Asian	79	11.2
British	11	1.6
Canadian	406	57.6
European	14	2.0
French	61	8.6
Indigenous	27	3.8
Other	78	11.1
<b>Employment Status</b>		
Unemployed	135	19.6
Part-Time	251	36.5
Full-Time	302	43.9
<b>Educational Attainment</b>		
Incomplete Secondary	67	9.6
Complete Secondary	114	16.3
Some Post-Secondary	104	14.8
Completed Post-Secondary	308	43.9
Graduate Degree	74	10.6
Other	34	4.9
<b>Ever Been Homeless</b>		
Yes	43	6.2
No	651	93.8

**Table 1:** Demographic characteristics of sample (N = 713).

## Discussion

The findings of this study suggest that health-related factors differ across the SDH, and therefore should not be treated nor viewed primarily from a symptoms-focused lens. Interestingly, this study found disparities in general health and depression across employment status. While the literature suggests disparities across temporary and permanent work [22], little literature was found regarding the differences across unemployment, part-time, and full-time employment status. Not only were there differences between those who reported unemployment and full-time employment, but surprisingly, those who reported part-time employment reported greater general health and less depression than those with full-time employment. It was hypothesized that the financial security provided by full-time work would lead to greater health outcomes; however, this was not the case. Possibly, the traditional 40-hour (or greater) work week contributes to poor health due to time away from family, work-related stress, and the disparity between days working and days off.

Although the existing literature provides mixed findings regarding differences in perceptions of quality of health across gender (e.g., [7]) and ethnic identity (e.g., [8]), this study found no differences across these domains. However, it is possible that the way in which ethnicity was categorized within this present study could have resulted in the lack of differences. It is possible that different conceptualizations of ethnicity could have led to varying, and potentially significant results. Instead, we found differences in perceptions of quality

of care across homelessness and disability status. Not only is this a novel finding in the Canadian context, but the findings of this study suggest that members of these groups face greater perceived discrepancies than their counterparts. Though no literature was found to support the correlational link between these statuses and perceptions of healthcare (as those who have faced homelessness and persons with disabilities face marginalization in wide aspects of life), the findings of this study suggest a clear limitation in the provision of health services within Canada when supporting these groups.

As was supported by the literature, this study found discrepancies across most dependent variables when analyzed by homelessness status. This is not surprising as those who are precariously housed may not prioritize accessing healthcare services or may feel marginalized in these spaces. Additionally, a correlational link has been found in the literature to suggest that homelessness impacts health both directly (e.g., crowded shelter conditions, prolonged walking) as well as societal factors such as poverty and substance use [16].

There were also differences across general health by educational attainment with respondents who reported more educational attainment also reporting greater general health. It is possible that those with more education have greater health literacy, which has been reported to impact access and utilization of health services as well as self-care [36]. Therefore, while it was not measured in the present study, it is possible that those with greater education are practicing more self-care and accessing health services more frequently which may be promoting their overall health.

Not surprisingly, this study found discrepancies across gender regarding depression and social anxiety, with females reporting greater symptoms of both these conditions than their male counterparts. Similar results have been supported in other literature (e.g., [20,30]). Yet, paradoxically within the Canadian context, both males and females have equal access to free healthcare. Contrarily, mental health services are not considered a free service covered by the Ontario Health Insurance Plan (OHIP), and not all work-place provided insurance plans cover psychological services or cover only limited or select services. Though these coverage discrepancies do not explain gender differences, they could explain the lack of a discrepant finding regarding general health.

Overall, discrepancies were seen across all of the dependent variables when considered by the SDH, and 15.5% of participants reported perceiving differences in quality of care than that received by others. These findings add to the evidence that examining outcomes solely from a symptoms focus is negating numerous factors that impact health-related outcomes; therefore, an SDH-focused model should be employed when examining and seeking to improve health outcomes. Additionally, the findings suggest that there are areas for improvement within the healthcare sector that should be addressed by policy and targeted intervention. Marginalized groups such as persons with disabilities and those who have experienced homelessness report lower health outcomes and therefore require not only more evidence-based interventions to promote healthcare access and quality, but also policy and systems changes to address the societal

inequities that lead to these health and mental health disparities [37]. Further, job status impacts health which should be considered by employers when providing aid to workers as well as when constructing the typical work schedule of their employees. It is possible that a shift to a more flexible work week could improve health outcomes.

## Limitations

As with all work, there are some limitations to the present study. First, the overarching study was not intended to examine subgroup differences in health; many questions that could have been interesting to explore to further broaden the scope of this study were not initially asked. Similarly, receipt of ODSP was our proxy for disability status, which does not necessarily encapsulate every individual who self-identifies as a person with a disability. Further, not all SDH could be assessed due to the scope of the overarching study. Despite this lack of specificity, the present study nevertheless provides interesting preliminary findings regarding discrepancies in health across indicators of the SDH. While it is possible that some individuals may have reported their health as better than it really is, the confidential nature of the survey promotes truthful disclosure. Most importantly, this study is limited to Ontario's context and may not apply to all Canadians, nor to international contexts; however, due to the large sample size, the findings may be applicable beyond the provincial setting in which the research took place. Therefore, more research is required to examine health discrepancies across the SDH among all Canadians across the provinces and territories.

## Conclusions

The findings of the present study provide unique information regarding the importance of focusing on multiple indicators of the SDH to understand variance in population health outcomes. This research expands the evidence base by examining the SDH across numerous health-related variables within a Canadian context. The finding of differences in quality of health and mental health across the SDH sheds light on a need to address the SDH in healthcare, health promotion, and interventions. Further research should examine whether similar differences exist across additional indicators of the SDH, as well as across the country.

## Acknowledgements

“Examining the impact of an early childhood intervention on individuals' wellbeing, education, and employment 20 years later” is supported in part by funding from the Social Sciences and Humanities Research Council. “Examiner l'impact d'une intervention de la petite enfance sur le bien-être, l'éducation et l'emploi des individus 20 ans plus tard” est en partie financé par le Conseil de recherches en sciences humaines.

## Conflict of Interest

The authors declare they have no conflict of interest.

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**Received date:** October 06, 2020; **Accepted date:** December 03, 2020; **Published date:** December 07, 2020

**Citation:** Gilmer A, Loomis C, Dimakos C, Pelletier J, DeV Peters R, Christens BD, Wright C (2020) Perceptions of Health, Depression and Anxiety Vary by Social Determinants. *J Health Sci Educ* 4(6): 201.

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