

**EXPLORING RELATIONSHIPS BETWEEN OCCUPATIONAL PRESTIGE,  
PERCEIVED PUBLIC STIGMA, MENTAL HEALTH EXPERIENCES OF STIGMA,  
AND PROFESSIONAL HELP-SEEKING IN THE GENERAL CANADIAN  
POPULATION**

By  
Lyndsey Telega

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QUEEN'S UNIVERSITY  
KINGSTON, ONTARIO, CANADA

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## Abstract

**Background:** Workplace mental health has increasingly become a public health concern in Canada as employees are missing work every week because of a mental health issue, costing the Canadian economy billions annually. This is the first study to examine occupational prestige and its relationship to perceived public stigma, mental health experiences of stigma, and professional help-seeking.

**Methods:** Cross-sectional survey data on a nationally representative sample of working Canadians between the ages of 15 and 75 from Statistics Canada's 2010 Canadian Community Health Survey (CCHS) and rapid response stigma modules were used to explore both objectives (N=10,389). SAS 9.4 was used to conduct complex survey data analyses, all of which incorporated Statistics Canada's recommended sampling weights and bootstrap variance estimation procedures. Multiple linear regression and logistic regression were used to examine the associations between occupational prestige, perceived public stigma toward depression, mental health experiences of stigma during the past 12 months because of a past or current emotional or mental health problem, and professional help-seeking.

**Results:** Controlling for perceived public stigma in the *direct effect* between occupational prestige and professional help-seeking ( $OR_{\text{direct}}=0.994$ , 95% CI: 0.970-1.020) did not attenuate the *total effect* between occupational prestige and professional help-seeking, without controlling for perceived public stigma ( $OR_{\text{total}}=0.995$ , 95% CI: 0.972-1.020). The confidence interval for the indirect effect of perceived public stigma toward depression as a mediator in the relationship between occupational prestige and professional help-seeking crossed the null value of one ( $OR_{\text{indirect}}=0.999$ , 95% CI: 0.949-1.053), indicating that perceived public stigma toward depression is not an important mediator. Higher occupational prestige scores significantly

reduced the odds of experienced stigma during the past 12 months because of a past or current emotional or mental health problem (OR=0.954, 95% CI: 0.913-0.998). Occupational prestige was not significantly associated with negative opinions or unfair treatment affecting work life (OR=0.945, 95% CI: 0.762-1.173).

**Conclusion:** Perceived public stigma toward depression is not an important mediator in the explored relationship between occupational prestige and professional help-seeking. Higher occupational prestige scores might facilitate resistance against mental health experiences of stigma.

## **Co-Authorship**

This thesis presents the work of Lyndsey Telega completed under the supervision of Dr. Heather Stuart. The statistical analyses were based on data derived from Statistics Canada's 2010 Canadian Community Health Survey (CCHS) and the rapid response stigma modules; therefore, this thesis is an analysis of secondary data.

The conceptualization of this thesis was informed by a question posed to Lyndsey Telega by the Queen's University Chaplain, Kate Johnson, and Dr. Stuart's work as the Bell Canada Mental Health and Anti-Stigma Research Chair. The decision to examine both the potential mediating effect of public expectations of stigma on the relationship between occupational prestige and professional help-seeking, and the relationship between occupational prestige and mental health experiences of stigma was the result of several discussions held between Dr. Stuart and Lyndsey Telega.

As the primary author of this thesis, Lyndsey Telega was responsible for the literature review, data preparation, statistical analyses, interpretation of results, and writing of the thesis. The final product incorporates Dr. Stuart's feedback and guidance.

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## **List of Abbreviations**

BMI	Body Mass Index
CATI	Computer-Assisted Telephone Interviewing
CAPI	Computer-Assisted Personal Interviewing
CCHS	Canadian Community Health Survey
CI	Confidence Interval
CV	Coefficient of Variation
GSS	General Social Survey
HBSC	Health Behaviour in School-aged Children
HR	Health Region
HRSDC	Human Resources and Social Development Canada
HRQOL	Health-Related Quality of Life
HSREB	Health Sciences Research Ethics Board
ISCO	International Standard Classification of Occupations
LFS	Labour Force Survey
MHCC	Mental Health Commission of Canada
MHE	Mental Health Experiences
NHIS	National Health Interview Survey

NOC	National Occupational Classification
NOC-S	National Occupational Classification for Statistics
OM	Opening Minds
OR	Odds Ratio
RDD	Random Digit Dialing
ROC	Receiver Operating Characteristic
SDIS	Short-Term Disability
SES	Socio-Economic Status
SEP	Socio-Economic Position
SIOPS	Standard International Occupational Prestige Scale
SRH	Self-Rated Health
U.K.	United Kingdom
U.S.	United States
WHO	World Health Organization

# Chapter 1

## Introduction

### 1.1 Background

According to the Mental Health Commission of Canada (MHCC), one in five Canadians will experience a mental health problem over the course of their lifetime<sup>1</sup>. Every week, half a million Canadians are missing work because of a mental health issue, which costs the Canadian economy over \$50 billion annually<sup>2</sup>. Although a recent Ipsos poll conducted in mid-April 2017 revealed that more Canadians than ever are getting help<sup>1</sup>, stigma is still prevalent and a major barrier to seeking professional mental health care.

People form expectations as to whether most people will reject an individual with a mental illness in social relationships such as a friend, employee, neighbour, or intimate partner, and whether most people will devalue a person with a mental illness as less trustworthy, intelligent, and competent<sup>3</sup>. Once someone becomes mentally ill, those beliefs become personally relevant, and the individual may self-stigmatize by internalizing public beliefs, which in turn may affect their psychological state, coping behaviours, and promote secrecy and social withdrawal<sup>4,5</sup>.

Researchers have found that treatment fearfulness due to expectations of stigma, specifically regarding image concerns, are a barrier to seeking help for mental or emotional problems<sup>6-9</sup>. A recent systematic review examining the relationship between mental health-related stigma and mental health care seeking has shown that stigma has a small to moderate detrimental impact on help-seeking for a mental illness (Cohen's  $d=-0.27$ )<sup>10</sup>.

A central stereotype about persons with a mental illness is the belief that because of the symptoms and functional limitations associated with their illness, they are less capable members

of the workforce. Workers' self-reports of stigmatizing experiences in the labour market suggest that workers often know when they are being discriminated against, which may be reflected in a deterrence from seeking help for an emotional or mental health problem<sup>11</sup>.

People are known by their work, in short, because occupational roles locate individuals in social space, thereby setting the stage for their interaction with one another and the world around them<sup>12</sup>. A hierarchy of occupational roles allows individuals to rank themselves and others with respect to the social privilege derived from occupational status. Holding a prestigious job may provide health benefits in many ways, such as enhancing self-esteem and providing opportunities for social support through expanded networks, which are both important determinants of health<sup>13-17</sup>.

Because public and self-stigma toward mental illnesses can be detrimental to help-seeking behaviours, efforts should be made to identify other potential factors that facilitate stigma resistance and professional help-seeking. Despite the lack of empirical research on the role of occupational status on stigma and help-seeking, researchers have theorized that status-related characteristics influence health-related outcomes<sup>18-23</sup>. In 2010, *Opening Minds (OM)* funded rapid response stigma modules in Statistics Canada's 2010 Canadian Community Health Survey to address the gap in detailed information on stigma in the Canadian population, which provided the opportunity for this knowledge gap to be explored for the first time<sup>24</sup>.

If occupational prestige is shown to be related to perceived public stigma, mental health experiences of stigma, and/or professional help-seeking, it may be an appropriate target for anti-stigma programs designed to improve public and self-stigmatizing attitudes and behaviours in the workplace. Improvements to professional help-seeking for an emotional or mental health

problem would help to alleviate the personal and economic costs associated with mental illnesses in the workplace in Canada.

## **1.2 Purpose and Public Health Relevance**

Using the 2010 CCHS and rapid response stigma modules, this thesis examined perceived public stigma toward depression as a potential mediator in the proposed relationship between occupational prestige and professional help-seeking. The relationship between occupational prestige and mental health experiences of stigma was also assessed. The current literature provides few direct investigations of the association between occupational prestige and health-related outcomes, which is a knowledge gap that this thesis sought to address<sup>13</sup>.

By addressing this knowledge gap, this thesis can provide public health officials and workplaces with some empirical evidence required to encourage the development of anti-stigma policies and programs tailored to workers in different occupational roles with burdening stigma experiences. More precisely, the focus and scope of this thesis produced evidence that although all organizations should consider adopting a comprehensive framework and resources to create more mentally healthy work environments, such as the Mental Health Commission of Canada's National Standard of Canada for Psychological Health and Safety in the Workplace (the Standard), workplaces with primarily low-prestige jobs should be especially aware of the stigma their workers have experienced due to a past or current emotional or mental health problem<sup>25</sup>.

The contributions made by this thesis are relevant to public health discourse on how to improve mental health-related outcomes for working Canadians. This increase in mental health experiences of stigma for a past or current emotional or mental health problem in Canadians with lower occupational status requires more attention to get a better understanding of how this social

status factor affects mental health experiences of stigma and potentially impacts past, current, or present help-seeking behaviours. Moreover, a better understanding can help to identify targets for workplace policies and programs to improve professional help-seeking behaviours by reducing the impact of mental health experiences of stigma in the Canadian workforce.

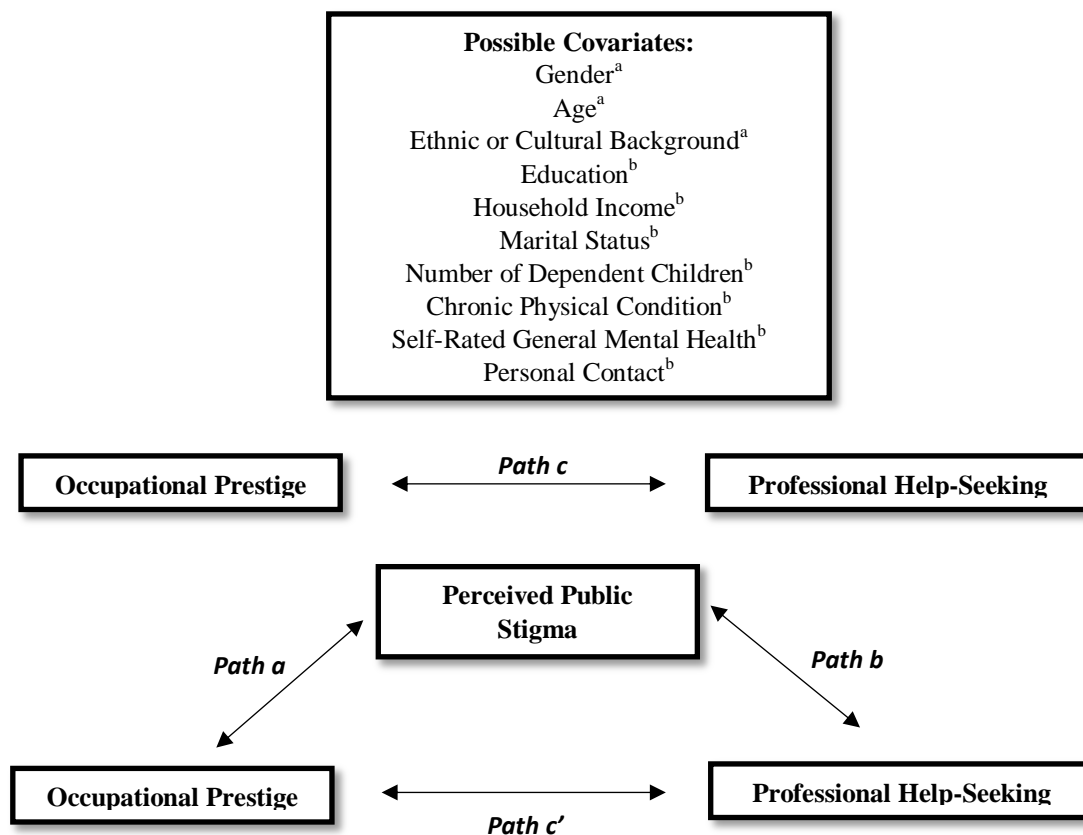
Identifying factors that impact mental health-related outcomes in the workforce, such as stigma and help-seeking, should be further explored to promote mental health and prevent psychological harm at work, which will offer the best emotional and economic return to individuals and organizations.

### **1.3 Objectives and Hypotheses**

This thesis is the first known study to examine occupational prestige and its relationship to mental health-related factors. Two empirical objectives were addressed:

1. Investigate whether perceived public stigma toward depression mediates the relationship between occupational prestige and professional help-seeking in working Canadians between the ages of 15 and 75 in the past 12 months (see Figure 1). Using Zhao, Lynch, and Chen's<sup>26</sup> recommended steps for mediation analysis, which is a more recent reconsideration of Baron and Kenny's<sup>27</sup> original criteria for mediation, the hypotheses for the first objective are: (1) Occupational prestige will be negatively associated with perceived public stigma toward depression (*indirect path a* in Figure 1); (2) Perceived public stigma toward depression will be negatively associated with help-seeking (*indirect path b* in Figure 1); and (3) Occupational prestige will be positively associated with professional help-seeking (*direct path c* in Figure 1). Partial mediation by perceived public stigma, signified by a reduction in the strength of the *total path* from occupational prestige to professional help-seeking, is expected (see Figure 1).

2. Investigate whether there is a relationship between occupational prestige and mental health experiences of stigma due to a past or current emotional or mental health problem in working Canadians between the ages of 15 and 75 (see Figure 2). The hypothesis for the second objective is that higher levels of occupational prestige would decrease the odds of stigma experienced amongst working Canadians ages 15 to 75 in the past 12 months.

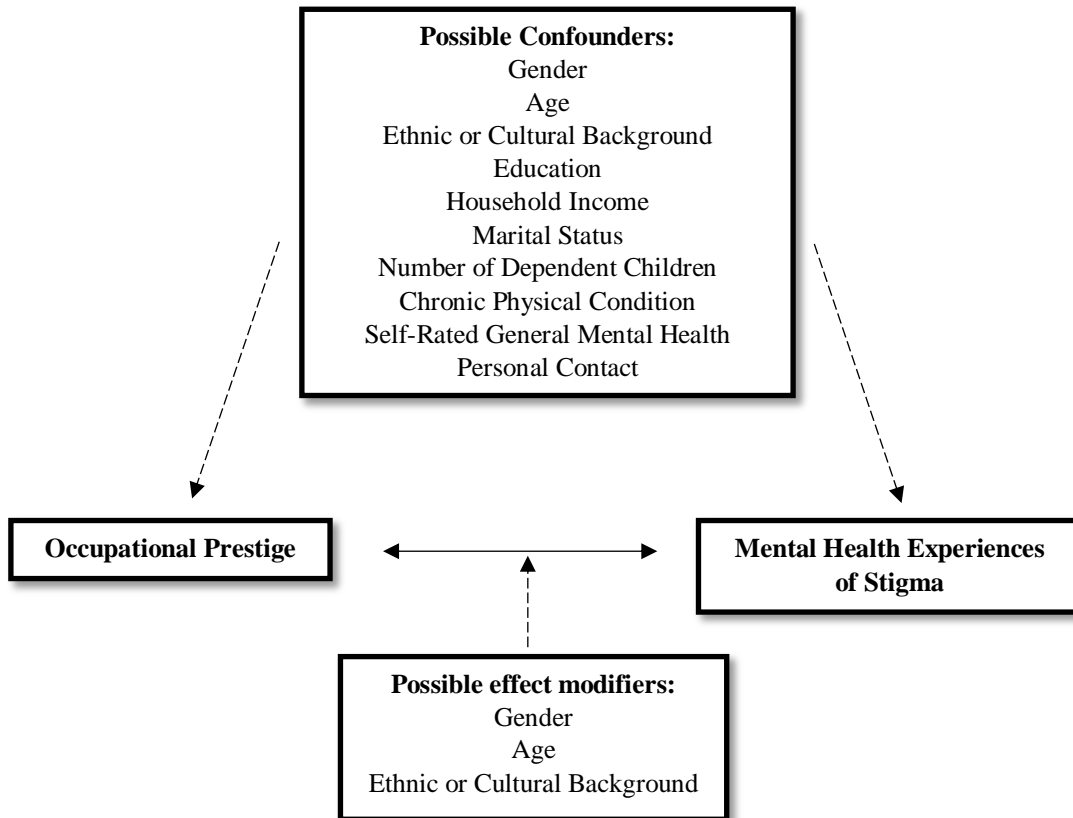


**Figure 1.** Conceptual mediation model of the relationships between occupational prestige, perceived public stigma, and professional help-seeking.  $Path A \times Path B$  reflects the *indirect effect*,  $Path C'$  reflects the *direct effect*, and  $Path C$  reflects the *total effect*. Possible covariates for the hypothesized associations are included.

<sup>a</sup> Represents covariates assessed as effect modifiers and confounders, according to previous literature.

<sup>b</sup> Represents covariates assessed as confounders, according to previous literature.

Notes: (1) Two-headed arrows are being used to emphasize that this is a correlation. Causation cannot be determined using cross-sectional data. (2) Conceptual model is simplified to avoid over-crowding.



**Figure 2.** Relationship between occupational prestige and mental health experiences of stigma due to a past or current emotional or mental health problem. Possible covariates for the hypothesized association are included.

Note that a two-headed arrow is being used to emphasize that this is a correlation. Causation cannot be determined using cross-sectional data.

#### 1.4 Ethical Considerations

Ethics approval was obtained prior to beginning analysis for this thesis project from the Queen’s University Health Sciences and Affiliated Teaching Hospitals Research Ethics Board (HSREB) and the Social Sciences and Humanities Research Council (SSHRC) (see Appendix A). The 2010 CCHS data is publicly available, therefore, there were no difficulties in obtaining ethics approval. The data was accessed through the Data Research Center at Queen’s University.

## 1.5 Thesis Organization

This thesis conforms to the requirements of the manuscript format set forth in the *General Forms of Theses* by the School of Graduate Studies at Queen’s University<sup>28</sup>. The first chapter has presented an introduction to the thesis, including a brief overview, purpose, objectives, and ethical considerations. The second chapter will delve into a critical review of existing literature relevant to the study of social status and occupational prestige, perceived and experienced stigma, and professional help-seeking– with a focus on the Canadian context. The third chapter details the first manuscript stemming from the first objective of this thesis project, titled “Exploring perceived public stigma toward depression as a mediator in the relationship between occupational prestige and professional help-seeking in the general Canadian population”. The fourth chapter details the second manuscript stemming from the second objective of this thesis project, titled “Exploring the relationship between occupational prestige and mental health experiences of stigma in the general Canadian population”. The fifth, and final, chapter summarizes the research findings from both study objectives, and discusses the strengths and limitations from an epidemiological perspective as well as the contributions to public health and future research directions that each study objective brought forth.

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## **Chapter 2**

### **Literature Review**

#### **2.1 General Overview**

The purpose of this thesis was to test: (1) The relationship between occupational prestige and professional help-seeking with perceived public stigma for depression as a potential mediator, and, (2) The relationship between occupational prestige and mental health experiences of stigma in the past 12 months for a past or current emotional or mental health problem. This thesis is the first study to examine occupational prestige and mental health-related outcomes and describe occupational prestige in the general Canadian population.

This chapter provides a comprehensive review of existing literature in topic areas most relevant to this thesis. Key concepts in epidemiology, psychiatry, psychology, and sociology are elucidated to create a robust and in-depth understanding of the material presented in this thesis. The chapter starts by defining key terms to ensure a continuity of understanding throughout the thesis document when referring to these terms. Gaps in knowledge in the literature will be identified to highlight how this thesis contributes to the existing literature. To conclude the chapter, the literature review will be summarized and the rationale for the thesis revisited.

#### **2.2 Key Definitions**

##### **2.2.1 Mental and Emotional Health**

According to the World Health Organization (WHO), mental health is a state of well-being in which individuals can cope with the normal stresses of daily life, can work productively, and are able to contribute to the community<sup>1</sup>. Emotional health is a state of positive psychological

functioning and can be thought of as an extension of mental health<sup>2</sup>, including an overall experience of wellness in what we think, feel, and do through life's challenges. When respondents were asked about stigma experiences because of an emotional or mental health problem, the 2010 CCHS was referring to an emotional or mental condition that had ever received professional treatment<sup>3</sup>. To ensure continuity throughout this thesis document, the terms emotional and mental health problem, mental disorder, and mental illness will be used interchangeably.

### **2.2.2 Stigma**

The concept of stigma can be applied to scores of circumstances, referring “to an attribute that is deeply discrediting” and reduces the bearer “from a whole and usual person to a tainted, discounted one”<sup>4</sup>. Stigma can be seen as a relationship between an “attribute and a stereotype” where a “mark” (attribute) links a person to undesirable characteristics (stereotypes)<sup>4,5</sup>. Discrimination of the stigma-bearer as a result of the associated stereotypes has also been an added component to the definition in more recent years<sup>6</sup>.

#### **2.2.2.1 Public Stigma**

Public stigma occurs when large segments of the general public agree with the associated negative stereotypes, which can include dangerousness, blameworthiness, and incompetence in persons with an emotional or mental health problem<sup>5,7</sup>. These stereotypes can lead to various types of discrimination which can negate attempts at social support, treatment, and recovery for those being stigmatized.

#### **2.2.2.2 Self-Stigma**

Self-stigma can occur when people with an emotional or mental health problem internalize these publicly-held stereotypes, which can diminish self-esteem and self-efficacy, and hinder help-seeking<sup>8-10</sup>.

#### **2.2.2.3 Perceived Public Stigma**

Perceived public stigma is the extent to which an individual perceives the public to stereotype and discriminate against a stigmatized group<sup>11</sup>. Link's Devaluation-Discrimination Scale was adapted for the 2010 CCHS to ask respondents to indicate whether they think most people would devalue (think less of) or discriminate against someone who had been treated for depression<sup>12</sup>. Depression was defined for respondents as "a prolonged period of sadness or loss of interest in usual activities that interferes with daily life"<sup>3</sup>.

#### **2.2.2.4 Experienced Stigma**

To assess levels of stigma experienced by people who had been treated professionally for an emotional or mental health problem in the year prior to the survey, The Inventory of Stigma Experiences scale was modified for the 2010 CCHS (now termed the Mental Health Experiences [MHE] Scale)<sup>13</sup>. Experienced stigma was defined for respondents as a feeling that someone held "negative opinions about you or treated you unfairly because of your past or current emotional or mental health problem"<sup>3</sup>.

#### **2.2.3 Professional Help-Seeking**

Although help-seeking can be a broad term used in a variety of contexts, for the purpose of this thesis, help-seeking behaviour will refer to a professional consultation about mental health.

Respondents to the 2010 CCHS were asked, “In the past 12 months, have you seen or talked to a health professional about your emotional or mental health?”<sup>3</sup>. A health professional was referred to as either a family doctor or general practitioner, psychiatrist, psychologist, nurse, social worker or counsellor, or respondents were allowed to specify another health professional (such as a case-worker or therapist, for example).

## **2.3 Theoretical Underpinnings of Social Status**

The primary fabric of human social interactions and relationships has formed because of how group living imposes the conflict over divergent goals and resource competition<sup>14</sup>. The formation of social hierarchies presents as a solution to these conflicts and the basis on which these hierarchies are formed shows high-ranking individuals reliably receiving greater influence, deference, attention, and valued resources than those of a lower rank<sup>15-21</sup>. A substantial body of evidence indicates that stable social hierarchies generally result in better group coordination, performance, and more satisfying relationships, which will be explored further below<sup>22-26</sup>.

### **2.3.1 Social Identity Theory and Self-Categorization**

One way in which social status has been theorized to impact individuals’ identification with the innate hierarchal classification of human society, is through social identity theory and self-categorization. In social identity theory, a social identity is a person’s knowledge that he or she belongs to a social category or group<sup>27</sup>. A social group is a set of individuals who hold a common social identification or view themselves as members of the same social category. Individuals can categorize, classify, or name themselves in relation to other social categories or classifications in a process called *self-categorization*<sup>28</sup>. An accentuation of the perceived similarities between the self and other in-group members and differences between the self and

out-group members is a consequence of self-categorization in a structured society<sup>29</sup>. This accentuation occurs for all the attitudes, beliefs, values, affective reactions, behavioural norms, styles of speech, and other properties believed to be correlated with the relevant intergroup categorization.

In identity theory, the core of an identity is the categorization of the self as an occupant of a role and the incorporation of the meanings and expectations associated with that role into the self<sup>30,31</sup>. Identifying with a group can help to reduce individuals' feelings of uncertainty because group identification tells them who they are and how to perceive and behave in their social environment<sup>32</sup>. Occupational identities develop through direct experiences within the workplace and vocational training<sup>33,34</sup>. Individuals are familiarized with a vocational habitus – the knowledge, skills, values, attitudes, beliefs, meanings, and norms that characterize a person for a job<sup>35</sup>. Drawing on social identity theory helps to understand the link between occupational identities and prestige<sup>36</sup>. Identities are constructed in a dialectical process of internal identification and external classification (offered by others), which is what makes occupational identities more or less valorizing for individual workers depending on the occupational prestige associated with them.

### **2.3.2 Occupational Prestige**

Occupational prestige plays an important role in a structurally organized society, such as Canada, where occupations are a point of hierarchal classification for individuals and families within the social structure. Prestige refers to influence that is willingly granted to individuals who are recognized and respected for their skills, success, or knowledge<sup>14</sup>. Earned respect represents a fundamental path to rank attainment in humans, which assumes hierarchal differences based on skills and abilities individuals contribute to the group<sup>37-41</sup>. Regarding an occupational hierarchal

classification, prestige represents cultural perceptions of occupations, used as a means of tapping into psychosocial and symbolic dimensions of socioeconomic differences, that is different from objective measures derived from education or employment income<sup>42,43</sup>. As you can see below in Table 1, National Occupational Classification (NOC) major groups are listed in descending order of occupational prestige status, however, the average education and personal income of each group do not follow the same trend.

Table 1. A comparison between the prestige scores for the 26 National Occupational Classification (NOC) major groups from the *Occupational Prestige in Canada: 2005* survey<sup>52</sup> to the corresponding average personal income and education in the 2010 CCHS.

NOC Major Groups	Prestige Score <sup>a</sup>	Average Education <sup>b</sup>	Average Income <sup>c</sup>
<b>Professional Occupations in Health</b>	80.9	4.51	8.92
<b>Technical and Skilled Occupations in Health</b>	78.0	3.32	6.32
<b>Professional Occupations in Social Science, Government Services and Religion</b>	77.5	5.05	7.70
<b>Senior Management Occupations</b>	77.1	4.45	12.08
<b>Professional Occupations in Natural and Applied Sciences</b>	76.6	4.56	9.52
<b>Technical Occupations Related to Natural and Applied Sciences</b>	74.8	3.12	6.90
<b>Assisting Occupations in Support of Health Services</b>	71.8	2.34	4.88
<b>Professional Occupations in Business and Finance</b>	71.7	4.19	8.68
<b>Paraprofessional Occupations in Law, Social Sciences, Education and Religion</b>	69.8	2.98	5.25
<b>Professional Occupations in Art and Culture</b>	69.2	4.41	7.89
<b>Skilled Administrative and Business Occupations</b>	66.8	2.92	7.00
<b>Skilled Occupations in Primary Industry</b>	66.7	1.66	7.12
<b>Technical and Skilled Occupations in Art, Culture, Recreation, and Sport</b>	66.6	2.60	4.40
<b>Middle and Other Management Occupations</b>	65.7	2.92	7.83
<b>Trades and Skilled Transport and Equipment Operators</b>	64.9	2.03	7.61
<b>Processing, Manufacturing and Utilities Supervisors and Skilled Operators</b>	64.0	2.08	9.28
<b>Intermediate Occupations in Transport, Equipment Operators, Installation and Maintenance</b>	62.4	1.60	6.71
<b>Skilled Sales and Service Occupations</b>	62.0	2.26	6.64
<b>Trades Helpers, Construction Labourers</b>	58.2	0.97	5.05

<b>and Related Occupations</b>			
<b>Intermediate Sales and Service Occupations</b>	57.8	2.16	4.88
<b>Processing and Manufacturing Machine Operators and Assemblers</b>	57.2	1.57	5.56
<b>Clerical Occupations</b>	56.7	2.52	6.15
<b>Intermediate Occupations in Primary Industry</b>	54.8	1.13	6.17
<b>Labourers in Processing, Manufacturing and Utilities</b>	54.1	0.96	4.67
<b>Labourers in Primary Industry</b>	52.8	1.00	4.75
<b>Elemental Sales and Service Occupations</b>	52.3	1.42	3.43

<sup>a</sup> Scale is on a 0-100 metric.

<sup>b</sup> Numeric values represent the highest education completed on average in each category as coded in the 2010 CCHS, where 0 represents less than high school; 1 represents high school graduate; 2 represents a trade certificate or diploma from a vocational school or apprenticeship training; 3 represents a non-university certificate or diploma from a community college, CEGEP, school of nursing, etc.; 4 represents a university certificate below bachelor's level; 5 represents a bachelor's degree; 6 represents a university degree or certificate above bachelor's degree.

<sup>c</sup> Numeric values represent the personal income category from all sources, before taxes and deductions, in the past 12 months, on average in each category as coded in the 2010 CCHS, where 0 represents less than \$5,000; 1 represents \$5,000-\$10,000; 2 represents \$10,000-\$15,000; 3 represents \$15,000-\$20,000; 4 represents \$20,000-\$25,000; 5 represents \$25,000 to \$30,000; 6 represents \$30,000 to \$40,000; 7 represents \$40,000 to \$50,000; 8 represents \$50,000 to \$60,000; 9 represents \$60,000 to \$70,000; 10 represents \$70,000 to \$80,000; 11 represents \$80,000 to \$90,000; 12 represents \$90,000 to \$100,000; 13 represents \$100,000 and over.

George Counts pioneered work on occupational prestige in post-World War I America (1914-1918), which was a period of dramatic transformation both in terms of the social structure of classes and occupation types<sup>44</sup>. He took 45 occupation titles and asked several small samples of high school students and college freshmen to rank them. The next major advance in occupational prestige research began in 1947 by the National Opinion Research Center (NORC), which was a University of Denver-based agency that developed the capability for national-level survey research on American society<sup>45</sup>. The survey posed a vocational question reading, “suppose some outstanding young man asked your advice on what would be one of the best occupations to aim toward. What one occupation do you think you would advise him to aim toward?”. Hodge, Siegel, and Rossi replicated this study in 1963 to compare occupational prestige rankings in America over the selected time period, and produced a Pearson's correlation of 0.99 between the 1947 and 1963 results, showing temporal stability in occupational prestige ratings<sup>46</sup>.

Following the sociological interest in occupational prestige scales in the United States, Pineo and Porter prepared to field their national survey on occupational prestige in Canada<sup>47</sup>. The data that Pineo and Porter collected between April and December of 1965 brought Canada to the forefront of the international movement to analyze industrial societies by means of comparing the hierarchy and consensual structure of occupational stratification as perceived by citizens<sup>48</sup>. After noticing the high correlations between occupational prestige scales around the world, Treiman embarked on creating an international occupational prestige scale, the Standard International Occupational Prestige Scale (SIOPS), with the Canadian data being ranked as one of the higher quality studies in his cross-national data bank<sup>49</sup>. When Pineo and Porter compared their scale to the 1963 NORC replication by Hodge, Sigel, and Rossi, a Pearson's correlation coefficient of 0.98 was found<sup>46,47</sup>.

Two studies in Kitchener-Waterloo compared occupational prestige scores from 1975 and 2000 samples, collected by Guppy and Siltanen<sup>50</sup> in 1975 and replicated by Goyder, Guppy, and Thompson<sup>51</sup> in 2000. A key finding of the 1977 research was that occupations specified as practiced by males were attributed 5.0 more prestige points on a 0-100 scale than the same occupation practiced by a female worker<sup>50</sup>; however, this disappeared in the 2000 replication<sup>51</sup>. This can be attributed to social changes over the latter quarter of the twentieth century, reflecting a shift towards equality ideology.

Noticing that occupational prestige rankings are not temporally stagnate, Canadian researchers became concerned with changes since the 1965 Pineo-Porter study, which was the last time a national occupational prestige study had covered the Canadian population. The need for a current and nationally comprehensive scale based on prestige was addressed by Goyder and Frank<sup>52</sup>, which is the occupational prestige scale used for this research project (see Table 1). Details on

the methodology of the occupational prestige scale will be given in the ‘Methods’ section of each manuscript.

Some exploration into associations between occupational prestige and health-related outcomes has been done in Canada and other countries using the occupational prestige scales mentioned above. A study on the 2003 CCHS using Goyder and Frank’s occupational prestige scale<sup>52</sup> studied the relationship between occupational prestige and body mass index (BMI). They found that for women, relative to the referent category (elemental sales and service, which includes jobs such as cashiers and janitors), those with occupations of higher occupational prestige had a lower average BMI<sup>53</sup>. For men, associations represented a nonlinear pattern whereby those in certain higher prestige jobs (e.g. professional occupations in health) were lighter on average, and those in certain mid-range prestige jobs (e.g. skilled administrative and business occupations; intermediate occupations in transport, equipment operators, installation, and maintenance) were heavier on average than those in the reference category. The authors concluded that these results spoke to a lesser prominence of occupation defining class or status for women versus men<sup>54,55</sup>.

A study on the National Health Interview Survey (NHIS), an annual household survey of the U.S. population, used occupational prestige scores developed from the 1989 General Social Survey (GSS)<sup>56</sup> to look at mortality outcomes. An independent and protective effect of increasing occupational prestige on mortality hazard in the years 1986 to 1994 was found, with more pronounced effects seen for service workers and respiratory-related deaths<sup>57</sup>. Similarly, Treiman’s SIOPS<sup>49</sup> was used to assess occupational prestige and lung cancer in SYNERGY, an international pooled case-control study on occupational lung cancer<sup>58</sup>. Researchers found that low occupational prestige in men was associated with lung cancer independent of smoking habits and occupational exposures.

Using the 1989 General Social Survey and corresponding occupational prestige scores<sup>56</sup>, researchers investigated occupational prestige by distinguishing it from other aspects of occupation (i.e. occupational categories and job characteristics) and other SES indicators<sup>59</sup>. A major finding of the study was that higher occupational prestige was significantly associated with better self-rated health. Similarly, an analysis on the 2005/2006 Health Behaviour in School-aged Children (HBSC) study looked at several indicators of socioeconomic position (SEP) and self-rated health in young people aged 11-15 years in six regions (Germany, Macedonia, Norway, Turkey, Wales, and Scotland)<sup>60</sup>. Parental occupation was categorized using the International Standard Classification of Occupation (ISCO-88), where three traditional measures of occupational status based on ISCO were examined – Treiman’s SIOPS being one of them<sup>49</sup>. In the pooled sample, higher levels of socioeconomic position were associated with lowered risk of poor self-rated health for all socioeconomic position measures, including parental occupational prestige, independent of family affluence and family well-off. Differences in the effects of the ISCO-based measures on self-rated health were small. Therefore, the researchers concluded that ISCO-based measures are valid measures of socioeconomic position in self-administered adolescent health surveys as they allow for stronger cross-country comparisons as well as direct comparability with other surveys and routine data. Although substantive exploration of associations between occupational prestige and health-related outcomes is limited, the use of these indicators may help to form explanations and thus provide insight into aspects of social class as suggested by social identity theory and vocational habitus.

## **2.4 Mental Illnesses and Stigma in the Canadian Workplace**

Mental illnesses are a class of conditions which incur a significant use of health resources, loss of productivity, and poor health outcomes. The Mental Health Commission of Canada (MHCC)

estimates that one in five Canadians will experience a mental health problem over the course of their lifetime. This high lifetime prevalence impacts the Canadian workforce as 500,000 Canadians are missing work because of a mental health issue each week<sup>61</sup>. A study on the economic burden of persons with a mental illness aged 20 and above in Canada in 2003 was estimated at \$51 billion<sup>62</sup>. This was due to excess costs and losses in outcomes that are attributable to mental illnesses, including: (1) the excess costs of the use of medical services resulting from mental illnesses, (2) the excess of work loss, both long-term (unemployment) and short-term (absenteeism), because of disorders, and (3) the excess loss in health utilities (health-related quality of life [HRQOL]) attributable to mental illnesses. But note that this number is from 2003, the most recent year for which this type of data has been assessed, which begs the question of how much larger the burden would be currently.

Over the past decade, short-term disability (SDIS) claims related to mental disorders have garnered the most attention among employers because of their steady growth<sup>63</sup>. In addition, the length of a SDIS claim for a mental illness can be double that for a physical condition, resulting in twice the cost<sup>64</sup>. As organizations seek solutions to cope with the rise in SDIS claims related to mental illnesses, they have also been confronted with the fact that treatment alone is not the answer. The most difficult aspects of addressing mental disorders in the workplace are the negative attitudes and behaviours associated with mental illnesses<sup>65</sup>. Stigma is still prevalent in the workplace with a major misconception being that taking time away for treatment is a weakness. Addressing the stigma of mental disorders is one-way employers may decrease the burden of mental illnesses in the workplace, as is recommended by the Mental Health Commission of Canada<sup>66</sup>.

A study on the economic costs and benefits of a workplace anti-stigma intervention found that it is possible for a stigma program to break even depending on the program cost, SDIS claim cost, and stigma program performance metrics, such as reduction in the number of employees going on SDIS leave and SDIS duration<sup>66</sup>. Workplace stigma programs need to be piloted and evaluated in a real-world setting to truly measure the costs and benefits of a workplace stigma program. Unfortunately, research on the effectiveness of workplace anti-stigma interventions is scarce and presents inconclusive evidence in the field<sup>67,68</sup>. Although seven systematic reviews investigating anti-stigma reduction programs have been conducted, only one focused specifically on workplace interventions<sup>69-75</sup>. This recent systematic review examined the effectiveness of interventions targeting stigma towards mental illnesses at the workplace and found that anti-stigma interventions can have a positive impact on employees' knowledge, attitudes, and supportive behaviour towards people with mental illness<sup>75</sup>. Two other non-systematic reviews of current workplace anti-stigma programs were published but mainly focused on the conceptual frameworks rather than evaluating the effectiveness of the programs<sup>67,68</sup>.

An evaluation of *Take care of your health!*, a comprehensive mental health promotion program delivered to a financial organization based mainly in Quebec, reported a significant reduction in stress levels, signs of stress, and feelings of depression at the end of a three-year study period<sup>76</sup>. Staff turnover and absenteeism also decreased substantially over the course of the program, showing that workplace anti-stigma interventions can help reduce the economic burden of mental illnesses for Canadian employers. Partners for Mental Health runs an initiative called *Not Myself Today*, which offers workshops and activities for employers using evidence-informed practical solutions focusing on building greater awareness and understanding of mental health among the

workforce, reducing stigma, and fostering safe and supportive work cultures<sup>77</sup>. However, *Not Myself Today* has yet to be formally evaluated on a diverse sample of workplaces.

A cross-case analysis examined the implementation of the Mental Health Commission of Canada's National Standard for Psychological Health and Safety in the Workplace (the Standard)<sup>78</sup> in healthcare sector organizations and non-healthcare organizations<sup>79</sup>. The Standard is a voluntary set of guidelines, tools, and resources to guide organizations in promoting mental health and preventing psychological harm at work. The three-year formative evaluation of 41 Canadian organizations implementing the Standard, majority of which fall within the healthcare sector, had several key findings: (1) healthcare organizations demonstrated more progress in implementing the Standard; (2) healthcare organizations varied considerably in implementation progress and strategy (i.e. staged vs. full roll-out), likely reflecting different levels of readiness for change; (3) healthcare organizations showed notably low levels of employee knowledge and confidence regarding organizational programs and policies related to the Standard implementation; and (4) both sectors had limited access to indicators specifically reflective of psychological health and safety issues.

## **2.5 Personal Responses to Stigma**

### **2.5.1 Modified Labelling Theory**

A critical aspect of the stigma process is the development of labels, which implies that the social selection of human difference into designations of “us” and “them” can have implications. This component of stigma is especially troubling when labelling associates human differences with negative attributes. When labelled differences link a person to a set of undesirable characteristics that form a stereotype, a rationale is constructed for the labelled person to experience several

forms of discrimination: devaluation, rejection, and exclusion from general life<sup>80</sup>. An official label given through a professional diagnosis is important because it brings personal relevance to a labelled person's views about the attitude of the community toward mental illnesses (beliefs about devaluation and discrimination)<sup>10</sup>. Modified labelling perspective relies heavily on the idea that individuals then internalize these social misconceptions about what it means to be labelled mentally ill<sup>81</sup>. Possible responses to labelling – secrecy of treatment history, withdrawal from social interaction, and education to ward off negative attitudes – can produce consequences because although educating does not connote passive acceptance of labelling, the need to educate still suggests an internalization of public stigma<sup>10</sup>. Adoption of these responses may limit life chances as withdrawal may lead to more constricted social networks and fewer attempts at seeking professional mental health care. These deficits are regarded as major social and psychological risk factors for the development of psychopathology<sup>82,83</sup>. Thus, for some individuals, labelling and stigma may induced a state of vulnerability that increases their likelihood of experiencing repeated episodes of disorder.

### **2.5.2 Professional Help-Seeking Behaviours**

The negative impact of delayed help-seeking behaviour on the person, such as delayed diagnosis and treatment, and the poor outcomes identified as a result of help negation are a driving force behind research in this area<sup>84</sup>. Help-seeking behaviour represents intentional action to solve a problem that challenges personal abilities. It is a complex decision-making process that begins with the recognition and definition of the problem, which leads to the decision to act, and is influenced principally by social cognitive factors. Although treatment options are available for mental-health related problems, a study done in the U.K. reported that a quarter of respondents said that they would not seek any form of help and one in six people said that they would not

seek help from their GP if their health was suffering because of stress in their lives<sup>85</sup>.

Unfortunately, the treatment gap for mental disorders is universally large as is shown in a systematic review of community-based psychiatric epidemiology studies on the median rates of untreated cases of mental disorders<sup>86</sup>. The median treatment gap for individual mental disorders was: 32.2% for schizophrenia and other non-affective psychosis, 56.3% for depression, 50.6% for bipolar disorder, 50.2% for panic disorders, 55.9% for generalized anxiety disorder, and 57.3% for obsessive compulsive disorder (OCD).

Several factors have been identified that contribute to the treatment gap between true and treated prevalence: (1) lack of knowledge of the symptoms of mental illnesses and how to access treatment, (2) prejudicial attitudes, and (3) anticipated or real acts of discrimination against people who have mental-health problems<sup>87-89</sup>. These factors comprise public and self-stigma, which have far-reaching consequences for those affected<sup>75</sup>. Unsuccessful help-seeking can result in problems remaining unresolved, leading to no change in health status or the realization that nothing can be done<sup>90,91</sup>. Further to this, labelling and symptom disregard by a professional healthcare worker may enhance feelings of stigmatization<sup>92-94</sup>. It has been described that negative experiences with healthcare professionals impart negative outcomes of help-seeking behaviours through a reduction in help-seeking<sup>96</sup>.

As previously stated, researchers have found that treatment fearfulness due to expectations of stigma, specifically regarding image concerns, are a barrier to seeking help for mental or emotional problems<sup>97-100</sup>. A recent systematic review also confirmed these findings, showing that stigma has a small to moderate detrimental impact (Cohen's  $d=-0.27$ ) on help-seeking for a mental illness<sup>101</sup>. Regarding the relationship between social status and help-seeking behaviours, a study was performed to determine the impact of social factors on health care utilization among

adult migrants compared to German nationals<sup>102</sup>. The results showed that higher rates of health care utilization were associated with the middle or upper social class in both groups, and regarding the utilization of preventative services in both groups, an association between low rates of use of preventative services with the lower social class was found. Similarly, there is empirical support for the notion that heightened consciousness of health among the higher educated and proto-professionalized leads to more professional healthcare consultations<sup>103,104</sup>.

## **2.6 Potential Covariates (Confounders and Effect Modifiers)**

Several potential confounders and/or effect modifiers have been identified as being associated with occupational prestige, perceived public stigma, mental health experiences of stigma, and professional help-seeking.

### **2.6.1 Gender**

Gender differences in help-seeking behaviours have consistently been noted, with females utilizing mental health services more frequently, having more positive attitudes toward help-seeking, and indicating greater help-seeking intentions than males<sup>99</sup>. Clement et al. discussed a common theme found in the literature, which is that females are less likely to report stigma-related barriers to help-seeking while males have more difficulty talking to mental health care professionals<sup>101</sup>. There are also gender differences discernable in the workplace, specifically in regards to occupational achievement, which can be attributed to factors such as social stereotypes, overt gender discrimination, the gendered nature of the workplace, and the gendered nature of networks<sup>105,106</sup>. These differences between the genders in occupational achievement, stigma, and help-seeking behaviours are why gender was assessed as a potential effect modifier and/or confounder in this thesis.

### **2.6.2 Age**

Age is a highly relevant factor to be considered in investigations of stigma and help-seeking behaviours, and was explored as an effect modifier and/or confounder in the studied associations. Although there has always been a recognized difference between adolescents and adults in how they perceive stigma and seek mental health care, even for adults at different ages, there is some evidence that attitudes toward mental health differ significantly. Leaf et al. reported that both young adults (ages 18-24) and old adults (over age 64) were less receptive to mental health services than were those in the middle age group<sup>107</sup>. According to Levy et al., older individuals must often deal with serious stresses that are not as common with younger individuals, such as role loss, increased social isolation, the death of a spouse, declining general health, and fear of death, which give them unique concerns about seeking out formal mental health services<sup>108</sup>. In addition, fears of being labelled as “crazy” or “not normal”, have been discussed as being more common in older and younger individuals<sup>98,101</sup>. Stuart et al. also showed a distinctive age gradient among a representative sample of Canadians who had received mental health treatment in the year prior to the survey, where youth aged 12 to 25 reported the highest level of personal stigma<sup>109</sup>.

### **2.6.3 Ethnic or Cultural Background**

Due to differing cultural or social milieus, populations from various ethnic backgrounds have different expectations and concerns about stigma and the mental health care system. In Canada, individuals from ethnic minorities may be faced with unique concerns about how they will be received in the predominantly White, middle-class mental health care system<sup>110</sup>. Past studies have shown that factors related to mental health care seeking can vary significantly depending on ethnic background<sup>107,111,112</sup>. Studies providing evidence of whether ethnic minority groups

stigmatize people living with a mental illness more or less than majority groups have shown divergent findings. Anglin et al. found that African Americans were more likely to believe that people living with a mental illness were dangerous and susceptible to violent acts<sup>113</sup>. Similarly, Whaley found that Asians and Hispanics were more likely to perceive people with a mental illness as dangerous<sup>114</sup>. Corrigan et al. found that non-Caucasians were less likely to endorse stigmatizing attitudes towards people with a mental illness than Caucasians, however, another study found inverse results<sup>115</sup>.

Racism and stigmatization are identified as being at the forefront of Indigenous peoples' healthcare experiences<sup>116-118</sup>. As it is being increasingly recognized, it is important to understand how multiple accounts of stigma (i.e. illicit substance use, homelessness, poverty) intersect and contribute to experiences of marginalized populations<sup>119</sup>. For Indigenous peoples, when stigma for a reported mental health problem is layered with racialized discrimination and experiences of colonialism, it is likely to be much more difficult to seek help<sup>120,121</sup>.

Discrepancies also occur in the labour market between Indigenous and non-Indigenous Canadians. Historically, Indigenous people have not fared well in the labour market as lower educational attainment has channeled them into less skilled jobs and more frequent unemployment<sup>122</sup>. In 2006, within management, business, finance, and administration occupations, non-Indigenous Canadians held a greater share of the professional occupations. An earning disadvantage prevails across all Indigenous groups, with more than half of the gap explained by Indigenous persons having lower endowments of pay determining characteristics (i.e. lower levels of education and working in lower paying occupations)<sup>123</sup>. Based on this previous literature, ethnic or cultural background was explored as a potential effect modifier and/or confounder in the studied associations.

#### **2.6.4 Education and Household Income**

Occupational prestige scores tend to be positively correlated with the typical education and income of occupational incumbents<sup>52</sup>. In the 2000 Kitchener-Waterloo data, years of education correlated ( $r=0.378$ ) with group prestige. Income from the 1998 Survey of Labour and Income Dynamics (SLID) also found a correlation with group prestige ( $r=0.309$ )<sup>51</sup>. Featherman et al. showed a similar pattern for correlations between education, income, and prestige scorings of occupations for Australian and United States data<sup>124</sup>. There is more to occupational prestige than income-reward coupled with educational human capital, however, they remain important factors in the relationships being studied between occupational prestige and stigma, as 90% of respondents chose qualifications and 74% chose standard of living as important determinants of prestige<sup>125</sup>. It has also been found that those with higher education indicated less perceived stigma toward those with a mental illness<sup>126</sup>. Education and income were assessed as potential confounders in the studied associations.

#### **2.6.5 Urban/Rural Residence**

Research has shown that living in an urban area has been associated with more positive public attitudes towards individuals with a mental illness, which may promote optimistic mental health care seeking behaviours<sup>127</sup>. Unfortunately, the 2010 CCHS and rapid response stigma modules did not include any direct questions regarding urban or rural living, which means it was necessarily excluded from this analysis as a potential confounder.

#### **2.6.6 Marital Status**

A systematic review looking at help-seeking behaviour among individuals with major depression found divergent results. Four studies showed that being married or living as married was

negatively associated with help-seeking behaviour<sup>128-131</sup>, and one study found the opposite association<sup>132</sup>. Gadalla reported that single mothers with dependent children had the lowest odds of seeking treatment in comparison to other women<sup>133</sup>. In past research, being married has been associated with higher earnings, greater work effort, and job stability – also known as the “marriage premium”<sup>134-136</sup>. Marital status was explored as a potential confounder in the studied associations.

### **2.6.7 Number of Dependent Children**

As mentioned above, it was reported that single mothers with dependent children had the lowest odds of seeking treatment in comparison to other women<sup>133</sup>. Glauber found the number of children in the home to be negatively related to women’s earnings<sup>137</sup>. Coltrane et al. echoed this finding, showing that men with more children earn more, whereas women do not – known as a “fatherhood bonus”<sup>138</sup>. The total number of dependent children under the age of 18 living in the respondent’s home was assessed as a potential confounder in the studied associations.

### **2.6.8 Self-Reported General Mental Health**

Self-reported general mental health was assessed in the relationships being studied as it coincides with the recent finding that experiences of discrimination were strongly associated with self-reported poor mental health<sup>109</sup>.

### **2.6.9 Mental Illness Diagnosis**

This potential confounder would have only been applicable for the second objective as it deals with stigma experienced for an emotional or mental health problem treated by a health professional. Manning and White showed that those with an affective disorder have better employment rates than those with alcoholism or schizophrenia, confirming that differential

employment barriers exist across a wide range of mental and emotional health problems<sup>139</sup>. Data from a pioneering study in Edmonton also showed that employment rates varied by mental disorder diagnosis in a Canadian sample<sup>140</sup>. More recently, a study on the 2009 and 2010 American National Survey on Drug Use and Health found that employment rates varied substantially by mental illness severity<sup>141</sup>. Unfortunately, the 2010 CCHS and rapid response stigma modules did not ask participants to specify the emotional or mental health problem for which they were receiving treatment, thus, it was unable to be assessed as a potential confounder.

#### **2.6.10 Chronic Physical Condition**

In a study on doctors from the United Kingdom, it was suggested that although mental illnesses are self-stigmatized by doctors more than the general public, the self-stigmatization extended to physical illnesses as well<sup>142</sup>. Workers who reported experiencing stigma also reported higher rates of functional limitations compared to those who did not, suggesting that the presence of functional limitations may be a trigger for discrimination<sup>143</sup>. Whether or not respondents have a chronic physical condition that has been diagnosed by a health professional was assessed as a potential confounder.

#### **2.6.11 Prior Mental Health Care Seeking**

Prior professional help-seeking behaviours have been shown to increase individuals' likelihood of current help-seeking and also alter their perception of stigma<sup>144,145</sup>; however, it has also been shown to reduce help-seeking if negative experiences with healthcare professionals occur<sup>96</sup>.

Unfortunately, the 2010 CCHS does not ask respondents about their mental health care seeking behaviours prior to mental health consultations in the past 12 months, which is why it was unable to be assessed as a potential confounder in the first objective.

### **2.6.12 Social Support**

Social support is defined as an individual having close relationships that provide a sense of emotional security and well-being. Social support has been linked to greater perceived need for mental health care and has been found to facilitate treatment-seeking among individuals with severe mental illnesses<sup>146,147</sup>. Studies have shown that social support is negatively linked to internalized stigma and moderates the effect of stigma on the outcomes of serious mental illnesses<sup>148-150</sup>. The social support availability and utilization questions on the 2010 CCHS were not collected across all of the provinces; thus, it was omitted as a potential confounder in the analyses to avoid unnecessarily reducing the sample size. However, assessing marital status and number of dependent children as potential confounders in the studied associations may help explain social support by proxy. Spouses, if available, have been reported to be the most likely to provide instrumental forms of support and assistance than any other support provider<sup>151-153</sup>. Although it has been indicated that marital status may be more influential than parental status when it comes to social support<sup>154,155</sup>, the primary importance of children for the provision of support has been noted in individuals later in life<sup>156-159</sup>.

### **2.6.13 Personal Contact**

Personal experiences with people who have had an emotional or mental health problem is an important potential confounder to consider when looking at the relationships between occupational prestige, perceived public stigma, experienced stigma, and professional help-seeking. Link et al. found that social distance from an individual described as having a mental illness is strongly related to the degree to which one believes that people with mental illnesses are dangerous<sup>160</sup>. Connecting symptoms of mental illnesses with negative attributes such as danger, dirtiness, and badness involves stereotyping<sup>161</sup>, however, when members of the public

have contact with individuals with a mental illness, they have more positive attitudes toward that group, including less desire for social distance and less perceived danger<sup>162</sup>. Personal experiences in the form of ever having worked with someone who has been treated for an emotional or mental health problem was assessed as a potential confounder in the studied associations.

## **2.7 Summary and Rationale for Thesis**

The primary fabric of human social interactions and relationships has formed because of how group living imposes conflict over divergent goals and resource competition<sup>14</sup>. The formation of social hierarchies presents as a solution to these conflicts. Social status has been theorized to impact individuals' identification with the innate hierarchal classification of human society through social identity theory and self-categorization. The core of an identity is the categorization of the self as an occupant of a role and the incorporation of the meanings and expectations associated with that role into the self<sup>30,31</sup>. Occupational prestige plays an important role in a structurally organized society, such as Canada, where occupations are a point of hierarchal classification for individuals and families within the social structure. Although substantive exploration of associations between occupational prestige and health-related outcomes is limited, the use of these indicators may help to form explanations and thus provide insight into aspects of social class as suggested by social identity theory and vocational habitus.

The 2010 CCHS provided me with the opportunity to be the first to examine occupational prestige and its relationships to perceived public stigma, mental health experiences of stigma, and professional help-seeking in Canada. It is hoped that the results of this investigation will help determine whether occupational prestige is a possible facilitator of perceived public stigma, mental health experiences of stigma, and professional help-seeking behaviour. Identifying occupational factors that empower stigma resistance and promote help-seeking behaviour in the

workplace is important for targeted public health interventions designed to help employers create and maintain mentally healthy workplaces.

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### Chapter 3

**Title:** Exploring perceived public stigma toward depression as a mediator in the relationship between occupational prestige and professional help-seeking in the general Canadian population.

### 3.1 Abstract

**Objective:** The objective of this study was to examine whether perceived public stigma toward depression was a mediator in the relationship between occupational prestige and professional help-seeking in the general Canadian population.

**Method:** Cross-sectional survey data on a nationally representative sample of working Canadians between the ages of 15 and 75 from Statistics Canada's 2010 Canadian Community Health Survey and rapid response stigma modules were used (N=10,389). SAS 9.4 was used to conduct complex survey data analyses, all of which incorporated Statistics Canada's recommended sampling weights and bootstrap variance estimation procedures. Multiple linear regression and logistic regression were used to examine the associations between occupational prestige, perceived public stigma toward depression, and professional help-seeking. Considered covariates included: gender, age, ethnic or cultural background, education, household income, marital status, number of dependent children, chronic physical condition, self-rated general mental health, and ever worked with someone with a mental illness.

**Results:** Occupational prestige was not associated with professional help-seeking ( $OR_{total}=0.995$ , 95% CI: 0.972-1.020) and the relationship was not attenuated after perceived public stigma toward depression was controlled ( $OR_{direct}=0.994$ , 95% CI: 0.970-1.020). The confidence interval for the indirect effect between occupational prestige and professional help-seeking crossed the null value of one ( $OR_{indirect}=0.999$ , 95% CI: 0.949-1.053), indicating that perceived public stigma toward depression was not an important mediator.

**Conclusion:** Perceived public stigma toward depression was not an important mediator in the relationship between occupational prestige and professional help-seeking.

**Key Words: occupational prestige, stigma, help-seeking**

### **Clinical Implications**

- Cultural perceptions of socioeconomic status, such as occupational prestige, may not be important predictors of perceived public stigma and professional help-seeking behaviours in the general Canadian population.
- As mental illness in the workplace is a problem facing many Canadians, investments in workplace mental health still need to be made to improve attitudes and behaviours towards mental illnesses.

### **Limitations**

- This study was cross-sectional, which limited the ability to make any conclusions on the temporal ordering of the variables in the mediation analysis.
- Some misclassification of the variables is inevitable as this is a self-reported survey and recall bias or reporting bias could have occurred.

## 3.2 Introduction

According to the Mental Health Commission of Canada (MHCC), one in five Canadians will experience a mental health problem over the course of their lifetime<sup>1</sup>. Every week, half a million Canadians miss work because of a mental health issue, which costs the Canadian economy over \$50 billion annually<sup>2</sup>. Although a recent Ipsos poll conducted in mid-April 2017 revealed that more Canadians than ever are getting help<sup>1</sup>, stigma is still prevalent and a major barrier to seeking professional mental health care.

People form expectations as to whether most people will reject an individual with a mental illness in social relationships such as a friend, employee, neighbour, or intimate partner, and whether most people will devalue a person with a mental illness as less trustworthy, intelligent, and competent<sup>3</sup>. Once someone becomes mentally ill, those beliefs become personally relevant, and the individual may self-stigmatize by internalizing public beliefs, which in turn may affect their psychological state, coping behaviours, and promote secrecy and social withdrawal<sup>4,5</sup>.

Researchers have found that treatment fearfulness due to expectations of stigma, specifically regarding image concerns, are a barrier to seeking help for mental or emotional problems<sup>6-9</sup>. A recent systematic review examining the relationship between mental health-related stigma and mental health care seeking has shown that stigma has a small to moderate (Cohen's  $d=-0.27$ ) detrimental impact on help-seeking for a mental illness<sup>10</sup>.

A central stereotype about persons with a mental illness is the belief that because of the symptoms and functional limitations associated with their illness, they are less capable members of the workforce. Workers' self-reports of stigmatizing experiences in the labour market suggest that workers often know when they are being discriminated against, which may be reflected in a deterrence from seeking help for an emotional or mental health problem<sup>11</sup>.

People are known by their work; in short, because occupational roles locate individuals in social space, thereby setting the stage for their interaction with one another and the world around them<sup>12</sup>. This hierarchy of occupational roles allows individuals to rank themselves and others with respect to the social privilege derived from occupational status. Holding a prestigious job may provide health benefits in many ways, such as enhancing self-esteem and providing opportunities for social support through expanded networks, which are both important determinants of health<sup>13-17</sup>.

Because public and self-stigma toward mental illnesses can be detrimental to individuals' help-seeking behaviours, it is important to identify other potential factors that facilitate stigma resistance and promote professional help-seeking. Though there is a lack of empirical research on the specific role of occupational status on stigma and help-seeking, researchers have shown that status-related characteristics influence health-related outcomes<sup>18-23</sup>.

### *Social Identity Theory and Self-Categorization*

One way in which social status has been theorized to impact individuals' identification with the innate hierarchal classification of human society, is through social identity theory and self-categorization. In social identity theory, a social identity is a person's knowledge that he or she belongs to a social category or group<sup>24</sup>. Individuals can categorize, classify, or name themselves in relation to other social categories or classifications in a process called *self-categorization*<sup>25</sup>.

An accentuation of the perceived similarities between the self and other in-group members and differences between the self and out-group members is a consequence of self-categorization in society<sup>26</sup>. This accentuation occurs for all the attitudes, beliefs, values, affective reactions, behavioural norms, styles of speech, and other properties believed to be correlated with the relevant intergroup categorization.

In identity theory, the core of an identity is the categorization of the self as an occupant of a role and the incorporation of the meanings and expectations associated with that role into the self<sup>27,28</sup>. Occupational identities develop through direct experiences within the workplace and vocational training<sup>29,30</sup>. Individuals are familiarized with a vocational habitus – the knowledge, skills, values, attitudes, beliefs, meanings, and norms that characterize a person for a job<sup>31</sup>. Drawing on social identity theory helps to understand the link between occupational identities and prestige<sup>32</sup>. Identities are constructed in a dialectical process of internal identification and external classification (offered by others), which is what makes occupational identities more or less valorizing for individual workers depending on the occupational prestige associated with them.

### *Occupational Prestige*

Occupational prestige plays an important role in a structurally organized society, such as Canada, where occupations are a point of hierarchal classification for individuals and families within the social structure. Prestige refers to influence that is willingly granted to individuals who are recognized and respected for their skills, success, or knowledge<sup>33</sup>. Earned respect represents a fundamental path to rank attainment in humans, which assumes hierarchal differences based on skills and abilities individuals contribute to the group<sup>34-38</sup>. Regarding an occupational hierarchal classification, prestige is the cultural perception of occupations, used as a means of tapping into psychosocial and symbolic dimensions of socioeconomic differences, that is different from objective measures derived from education or employment income<sup>39,40</sup>.

The goal of this analysis was to determine if perceived public stigma toward depression mediated the relationship between occupational prestige and professional help-seeking. Using Zhao, Lynch, and Chen's<sup>41</sup> recommended steps for mediation analysis, which is a more recent reconsideration of Baron and Kenny's<sup>42</sup> original criteria for mediation, the hypotheses are: (1)

Occupational prestige will be negatively associated with perceived public stigma toward depression (*indirect path a*); (2) Perceived public stigma toward depression will be negatively associated with help-seeking (*indirect path b*); and (3) Occupational prestige will be positively associated with professional help-seeking (*direct path c*). Partial mediation by perceived public stigma, signified by a reduction in the strength of the *total path* from occupational prestige to professional help-seeking, is expected.

### **3.3 Methods**

#### **3.3.1 Data Sources**

This is a secondary analysis of the 2010 CCHS and rapid response stigma modules.

The CCHS is a multi-stage, cross-sectional survey of about 65,000 respondents aged 12 and older. About 3% of the population (persons living on reserves, full-time members of the Canadian Forces, and the institutionalized) are excluded from the sampling frame. The CCHS has a response rate of 72.3%. Details on the data collection methods used in the CCHS can be found in Statistics Canada's 2010 CCHS User Guide<sup>43</sup>.

In 2010, Opening Minds funded a rapid response stigma survey through Statistics Canada using two newly designed and tested stigma modules to address the gap in detailed information on stigma in the Canadian population<sup>44</sup>. Rapid response surveys piggyback new content onto a two-month collection window of the annual portion of CCHS. The Devaluation-Discrimination Scale<sup>45</sup> and The Inventory of Stigma Experiences<sup>46</sup> were adapted to fit the two-minute time window allowable within the survey. Statistics Canada staff tested the modified scales extensively using qualitative and quantitative methods<sup>44</sup>. The rapid response portion that

included the stigma modules was conducted in May and June 2010. The response rate of the stigma modules was 73.5% at the Canada level.

### **3.3.2 Study Measures**

#### **3.3.2.1 Exposure – Occupational Prestige**

The 2010 CCHS uses the National Occupational Classification for Statistics (NOC-S), which is based on the National Occupational Classification (NOC) that was developed and maintained by Human Resources and Social Development Canada (HRSDC)<sup>47</sup>. Statistics Canada designed the NOC-S to classify data on occupations from the Census of Population and other Statistics Canada surveys. Occupational prestige scores were coded into the 2010 CCHS data from corresponding NOC major groups.

Occupational prestige scores were used from a national level survey of occupational prestige in Canada that was collected between January and March 2005 using computer-assisted telephone interviewing<sup>48</sup>. Fieldwork for the 2005 national survey was conducted by Jolicoeur et al., a Montreal-based firm specializing in high-quality survey fieldwork<sup>49</sup>. The sampling frame for the telephone calls was randomly selected telephone numbers, and the studied population consisted of Anglophones and Francophones 18 years of age and older, living in Canada.

Prior to the 2005 national survey, a pilot study at the urban level was undertaken to confirm that respondents could comfortably and plausibly rate NOC major groups<sup>50</sup>. Based on its success, the 26 NOC major groups were included in the 2005 national design and divided up such that each sub-sample rated four NOC major groups. The deck was electronically reshuffled for each new respondent and randomization of the sequence of titles offset the possibility of a serial response set. Respondents were asked to “imagine a ladder with nine rungs on it and rate the groups

according to their ‘social standing’,” the synonym for prestige used by previous researchers<sup>51,52</sup>. In keeping with longstanding practice in prestige research, the raw scores on a one to nine scale were transformed into a 0-100 metric, making them easier to read and interpret<sup>53</sup>. The response rate on the 2005 survey was 51%, which although is not as high as one would desire, is in line with current norms for CATI surveys. A table of the prestige scores for the 26 NOC major groups and corresponding prestige scores can be found in Table 2.

Table 2. Frequency breakdown of occupational prestige groupings, *n*=8,365.<sup>a</sup>

<b>NOC Major Groups</b>	<b>Examples of jobs</b>	<b>Prestige Score</b>	<b>%</b>
<b>Professional Occupations in Health</b>	Physicians; dentists; pharmacists	80.9	2.7
<b>Technical and Skilled Occupations in Health</b>	Medical laboratory technicians; midwives	78.0	1.4
<b>Professional Occupations in Social Science, Government Services and Religion</b>	Lawyers; teachers; social workers	77.5	6.4
<b>Senior Management Occupations</b>	Senior government managers and officials; senior managers in other sectors (finance, health, etc.)	77.1	0.1
<b>Professional Occupations in Natural and Applied Sciences</b>	Physicists; engineers	76.6	3.5
<b>Technical Occupations Related to Natural and Applied Sciences</b>	Geological technicians; conservation and fishery officers	74.8	1.9
<b>Assisting Occupations in Support of Health Services</b>	Dental assistants; nurse aids	71.8	2.0
<b>Professional Occupations in Business and Finance</b>	Accountants; specialists in human resources	71.7	4.6
<b>Paraprofessional Occupations in Law, Social Sciences, Education and Religion</b>	Community and social service workers; paralegals	69.8	1.7
<b>Professional Occupations in Art and Culture</b>	Librarians; editors; translators	69.2	1.3
<b>Skilled Administrative and Business Occupations</b>	Administrative officers; conference and event planners	66.8	6.4
<b>Skilled Occupations in Primary Industry</b>	Oil and gas well drillers; nursery and greenhouse operators	66.7	2.2
<b>Technical and Skilled Occupations in Art, Culture, Recreation, and Sport</b>	Photographers; craftspersons; athletes	66.6	1.4
<b>Middle and Other Management Occupations</b>	Financial managers; managers in health care, education, etc.	65.7	9.7
<b>Trades and Skilled Transport and Equipment Operators</b>	Electricians; plumbers; tailors	64.9	7.1
<b>Processing, Manufacturing and Utilities Supervisors and Skilled Operators</b>	Supervisors, mineral processing; supervisors, food and beverage processing	64.0	0.5
<b>Intermediate Occupations in</b>	Truck drivers; taxi drivers; pest	62.4	6.2

<b>Transport, Equipment Operators, Installation and Maintenance</b>	controllers		
<b>Skilled Sales and Service Occupations</b>	Dry cleaning and laundry supervisors; chefs/cooks	62.0	6.6
<b>Trades Helpers, Construction Labourers and Related Occupations</b>	Construction trades helpers and labourers; public works labourers	58.2	1.4
<b>Intermediate Sales and Service Occupations</b>	Retail sales clerks; flight attendants	57.8	8.6
<b>Processing and Manufacturing Machine Operators and Assemblers</b>	Sawmill machine operators; photographic and film processors	57.2	3.5
<b>Clerical Occupations</b>	General office clerks; telephone operators	56.7	8.6
<b>Intermediate Occupations in Primary Industry</b>	Underground mine service and support; trappers and hunters	54.8	0.7
<b>Labourers in Processing, Manufacturing and Utilities</b>	Labourers in mineral processing; labourers in food and beverage processing	54.1	1.2
<b>Labourers in Primary Industry</b>	Ground maintenance labourers; oil and gas drilling	52.8	0.5
<b>Elemental Sales and Service Occupations</b>	Cashiers; grocery shelf stockers	52.3	9.6

<sup>a</sup>Based on the work of Goyder and Frank<sup>47</sup>.

### 3.3.2.2 Mediator – Perceived Public Stigma Toward Depression

The rapid response stigma modules in the 2010 CCHS measure expectations of public stigma toward people with depression – one of the most frequently occurring mental illnesses and the focus of much of the mental health survey work conducted by Statistics Canada<sup>44</sup>. The modified Devaluation-Discrimination Scale asks respondents to indicate whether they think most people would devalue (think less of) or discriminate against someone who has been treated for depression in six scenario-based questions (modified from Link's<sup>45</sup> original 12) (see Appendix B). Asking respondents to report their personal biases and prejudices against individuals with a mental illness can provoke a social desirability response set, which is why indirectly asking respondents about what they think others would do has become a preferred approach in this field. This 6-item scale is scored on a 5-point agreement scale ranging from strongly agree to strongly

disagree, with higher scores reflecting higher levels of stigma. The internal consistency of the scale in the 2010 rapid response sample was high ( $\alpha=0.82$ ).

### **3.3.2.3 Outcome – Professional Help-Seeking**

To assess professional mental health care seeking, the 2010 CCHS asked respondents, ‘In the past 12 months, have you seen or talked to a health professional about your emotional or mental health?’ (see Appendix B). For this analysis, the responses were dichotomized to reflect whether the respondent sought out professional mental health care. This variable was part of the optional content that could be selected by provinces to opt-in – Newfoundland, Nova Scotia, and British Columbia opted out of collection ( $n=8365$ ).

### **3.3.2.4 Covariates**

All information on potential confounders and/or effects modifiers comes from questions in the 2010 CCHS (see Appendix B). The covariates included in the mediation models are: gender (male or female), age group (15 to 25 years, 26 to 55 years, or  $\geq 56$  years), ethnic or cultural background (white, non-white, or Indigenous person), education (< secondary, secondary, or college or university), household income group (< \$19,999, \$20,000 to \$39,999, \$40,000 to \$59,999, \$60,000 to \$79,999, \$80,000 to \$99,999, or  $\geq$  \$100,000), marital status (married or common-law, or single or separated/divorced/widowed), number of dependent children (0, 1, 2, or >2), chronic physical condition(s) (yes or no), self-rated general mental health (excellent or very good, good, fair or poor), and contact with a work colleague who has received treatment for a mental illness (yes or no).

### 3.3.3 Data Analysis

Following Statistics Canada's guidelines for quality of an estimate, all analyses were weighted and variance estimates bootstrapped ( $n=500$ ). The weighted percent and coefficient of variation (CV) are reported to determine the proportion of each parameter estimate that is attributable to sampling variation as a percentage ( $100 \times \text{standard error of the parameter estimate}/\text{parameter estimate}$ ). CVs falling below 16.5% are considered reliable by Statistics Canada's guidelines for quality of data published<sup>54</sup>. No tables with cells containing less than three respondents or zero respondents were included in accordance with Statistics Canada's guidelines for disclosing information when publishing data<sup>55</sup>.

Descriptive statistics were used to provide a summary of the exposure, mediator, and outcome in the mediation models as well as the potential confounders. The central tendency of the continuous variables is reported, while the frequency distribution of the categorical variables is reported. Bivariate analyses were used to assess the relationships between the sociodemographic variables and the outcome in the mediation models.

Mediation analysis was conducted by assessing the significance of the total (*path c*), direct (*path c'*), and indirect (*path a*  $\times$  *path b*) effect estimates of the mediation models. The total effect of the relationship between occupational prestige and professional help-seeking can be partitioned into a direct and indirect effect. The total effect is the relationship between occupational prestige and professional help-seeking without the effect of perceived public stigma, while the direct effect is the relationship between occupational prestige and professional help-seeking in relation to perceived public stigma. The indirect effect is a sequence of relationships in which occupational prestige is associated with perceived public stigma, and perceived public stigma is subsequently associated with professional help-seeking.

Using regression analyses, the following were estimated: (1) the total effect of occupational prestige (X) on help-seeking behaviour (Y), unadjusted for differences in perceived public stigma (M) – *path c*; (2) the direct effect of occupational prestige (X) on help-seeking behaviour (Y), holding the effect of perceived public stigma (M) constant – *path c'*; (3) the relationship between occupational prestige (X) and perceived public stigma (M) – *path a*; and (4) the relationship between perceived public stigma (M) and help-seeking behaviour (Y), while holding occupational prestige (X) constant – *path b*.

Logistic regression was used for modelling *path b*, *path c'*, and *path c* because professional help-seeking was a dichotomous outcome, while ordinary least-squares regression was used for modelling *path a* because perceived public stigma was continuous. The indirect effect was calculated as the product of coefficients *ab*. To test the significance of the indirect effect, 95% confidence intervals (CIs) around the indirect effect were constructed using the Sobel test<sup>56</sup>. The indirect effect is considered statistically significant if the confidence interval does not include the null value.

Potential effect modifiers were assessed by completing a chi-square test for homogeneity of the direct and indirect effect estimates across strata by using interaction terms in the mediation models<sup>57</sup>. All tests of interaction between occupational prestige and gender, age, and ethnic or cultural background were nonsignificant. Thus, no evidence of effect modification was detected. Potential confounding variables that changed the direct, indirect, and total effect estimates in the mediation models by more than 10% were retained as confounders<sup>58</sup>. However, to ensure all three models were consistent when comparing the effect estimates for mediation analysis, all covariates were included as confounders in each of the models based on a review of the

literature. Furthermore, there was no evidence of multicollinearity in any of the final multivariate models.

Assessing model fit varied depending on the type of regression model used for each path in the mediation analysis. The  $R^2$  value for the multivariate linear regression model used to explore *path a* could not be assessed as it was not provided using the SAS procedure required to use the sampling weights and bootstrapped variance estimates in the analysis. Twelve of the most influential observations with the highest leverage values ( $>0.01$ ) and studentized residual values ( $>2$ ) were deleted to assess if the parameter estimate of *path a* changed by greater than 10% or if the significance of the parameter estimate changed. There were no observations with Cook's D values greater than one, which is generally considered the cut-off for possible influential observations<sup>59</sup>. Although the parameter estimate for *path a* changed by more than 10%, it did not change from non-significant to significant in the regression model. Therefore, the decision was made to include all cases in the reported regression model.

The Hosmer-Lemeshow Goodness-of-Fit test could not be used to assess model fit for the logistic regression models used to explore *path b*, *path c'*, and *path c* as it was not provided using the SAS procedure required to use the sampling weights and bootstrapped variance estimates in the analysis. To assess the predictive accuracy of the logistic regression models, a receiver operating characteristic (ROC) curve was used. For a model with high predictive accuracy, the ROC curve rises quickly, and subsequently, the area under the curve will be closer to a maximum of 1<sup>60</sup>. Conversely, a model that has low predictive accuracy rises slowly and has a small amount of area under the curve that is closer to the minimum of 0.5. The logistic regression model used to explore *path b* and *path c'* had an ROC curve area of 0.7564 while the

logistic regression model used to explore *path c* had an ROC curve area of 0.7573, which means that both models had moderate predictive accuracy.

The examination of potentially influential observations in the logistic regression models focused on two main statistics, the confidence interval displacement diagnostic (C diagnostic) and the DFbeta diagnostic<sup>61</sup>. The C diagnostic is based on the same principle as the Cook distance where observations that have a C statistic greater than one are generally considered possible influential observations<sup>62</sup>. The underlying distribution of the DFbetas is unknown so there is no certain determination of what constitutes ‘large’, however the use of the value 2, which coincides approximately with the usual critical value of the normal distribution (1.96) was used. Seven observations had a C statistic greater than one in the logistic regression model examining *path b* and *path c*’, while six observations had a C statistic greater than one in the logistic regression model examining *path c*. None of the DFbetas for any of the coefficients in either of the logistic regression models were larger than 2. When the observations with C statistics greater than one were deleted in each of the logistic regression models, the parameter estimates for *path b*, *path c*’, and *path c* did not change by more than 10% nor did their significance. Therefore, the decision was made to include all cases in the reported regression models.

### *Sensitivity Analyses*

Three sensitivity analyses were also assessed: (1) to determine if healthcare professionals were driving the effect estimates due to their complex and paradoxical experiences with mental health problems by removing them from the mediation analysis<sup>63,64</sup>; (2) to determine if the relationships would change depending on whether occupational prestige was continuous or categorical; and (3) to determine if potential associations were hidden because of objective social status (i.e. education and income). Occupational prestige was converted into a categorical variable with

three levels: low, moderate, and high. The weight-adjusted 25<sup>th</sup> and 75<sup>th</sup> percentile scores were used to define the boundaries (58.2 and 69.8, respectively); as the weighted spline curves did not suggest any clear cut-off points (see Appendix C). The Nam-Powers-Boyd scale was applied to the 2001 census of occupations to construct occupational status scores for the major occupational groups found in Statistics Canada's National Occupational Classification for Statistics<sup>47</sup> using the principles outlined in Nam and Powers<sup>65</sup>, Nam<sup>66</sup>, and Nam and Boyd<sup>67</sup>. The results of the sensitivity analyses were consistent with the original mediation analysis in terms of direction and statistical significance for the *indirect*, *direct*, and *total* effects (Table 4).

### *Missing Data*

In all covariates, except for household income, less than 10% of the data was missing due to participants indicating they 'don't know', refusing to answer, or not stating a response. To assess any potential bias due to missing data, the missing data was coded as a separate category and associations between the exposure, mediator, and outcome were explored separately for each covariate category. The ORs between the exposure, mediator, and outcome for the missing data category in each covariate were not significantly different from the ORs of the other covariate categories.

All statistical analyses were conducted on SAS V.9.4 (SAS Institute, Cary, North Carolina).

## **3.4 Results**

### *Descriptive Statistics*

Table 3 shows the descriptive statistics for all study variables included in the mediation analysis.

All the estimates had a coefficient of variation less than 16.6%, meaning that none were unreliable. The average occupational prestige score of the sample on a scale of 0-100 was 64,

with the largest proportions of the sample having either middle and other management occupations, or elemental sales and service occupations (Table 2). The average score on the Devaluation-Discrimination Scale, which ranges from 6 (less perceived public stigma toward depression) to 30 (more perceived public stigma toward depression) was 12. This is also evident in Figure 3 when looking at the frequency distribution of the modified Devaluation-Discrimination Scale in the sample. Most of the sample (90%) had not consulted a health professional about an emotional or mental health problem in the past 12 months. Just over half of the sample was female (51%) and one-half of the sample was between the ages of 26 and 55 years. Most of the sample was white (79%) and had a college- or university-level education (70%). Household income categories ranged from less than \$20,000 to over \$100,000 per year, with over half of the sample making less than \$80,000 as a household (60%). Over half of the sample was married or common-law (57%) and had no children (61%). One-half of the sample reported having a chronic physical condition diagnosed by a health professional. Three-quarters of the sample self-reported their general mental health as excellent or very good. Most of the sample reported not having prior contact with a work colleague who had received treatment for a mental illness (62%).

Table 3. Descriptive statistics for model covariates, weighted percent (CV), and logistic regression of each covariate on professional help-seeking, n=8,365

Characteristic	Total Weighted % (CV)	Bivariate Models	
		OR	95% CI
<b>Gender</b>			
Female	51.3 (1.8)	-----	-----
Male	48.7 (1.9)	0.435*	0.324-0.584
<b>Age, years</b>			
15-25	21.7 (3.4)	-----	-----
26-55	50.4 (1.9)	1.888*	1.362-2.619
56-75	27.9 (2.9)	0.927	0.667-1.287
<b>Ethnic or Cultural background</b>			
White	79.2 (1.3)	-----	-----
Non-White	17.8 (5.8)	0.435*	0.272-0.696
Indigenous person that is North American Indian, Métis, or Inuit	3.0 (10.6)	1.773	0.995-3.159
<b>Highest education received</b>			
Primary	22.2 (3.5)	-----	-----
Secondary	17.0 (5.0)	1.252	0.835-1.878
College or university	60.9 (1.7)	2.058*	1.537-2.756
<b>Household yearly income, \$</b>			
≤19,999	8.5 (7.8)	-----	-----
20,000 to 39,999	16.6 (4.5)	1.127	0.825-1.540
40,000 to 59,999	17.7 (5.4)	0.765	0.536-1.093
60,000 to 79,999	16.7 (5.7)	0.754	0.520-1.094
80,000 to 99,999	11.3 (6.2)	1.790*	1.140-2.811
≥100,000	29.2 (3.8)	1.113	0.743-1.667
<b>Marital status</b>			
Single, Separated/divorced/widowed	42.6 (2.2)	-----	-----
Married or common-law	57.4 (1.6)	1.088	0.867-1.366
<b>Dependent children</b>			
0	60.6 (1.8)	-----	-----
1	16.2 (4.7)	0.952	0.675-1.343
2	16.4 (5.6)	0.963	0.653-1.343
≥3	6.9 (7.4)	1.259	0.571-2.774
<b>Chronic physical condition</b>			
No	49.3 (2.0)	-----	-----
Yes	50.7 (1.9)	1.677*	1.310-2.145
<b>Self-rated general mental health</b>			
Fair or poor	5.3 (7.2)	-----	-----
Good	20.9 (4.3)	0.229*	0.157-0.335
Excellent or very good	73.9 (1.3)	0.089*	0.062-0.128
<b>Contact with a work colleague who has received treatment for a mental illness</b>			
No	61.8 (1.6)	-----	-----
Yes	38.2 (2.6)	1.966*	1.564-2.470

<sup>a</sup>Interpret with caution owing to a large coefficient of variation.

\* p-value<0.05

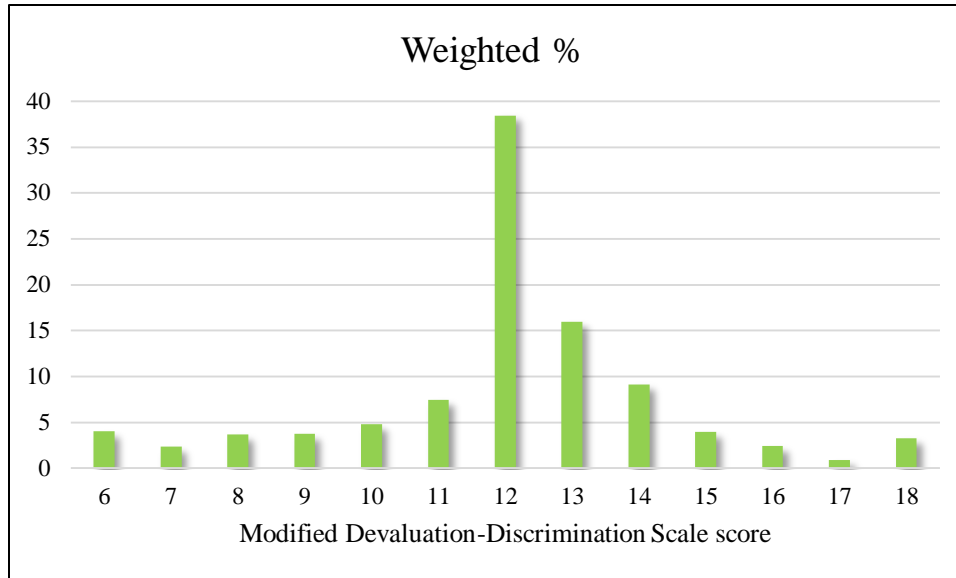


Figure 3. Weighted frequency distribution of the modified Devaluation-Discrimination scale ( $n=8,354$ ).

### *Mediation Analysis*

Table 4 presents the results of the mediation analysis between occupational prestige, perceived public stigma, and professional help-seeking, while controlling for gender, age, ethnic or cultural background, education, household income, marital status, number of dependent children, chronic physical condition, self-rated general mental health, and contact with a work colleague who has received treatment for a mental illness. Occupational prestige was not significantly associated to perceived public stigma (*path a*, parameter estimate=0.0126, 95% CI: -0.0077-0.0329). After controlling for occupational prestige, perceived public stigma was not significantly associated with seeking professional mental health care (*path b*; OR=0.958, 95% CI: 0.881-1.043). Controlling for perceived public stigma did not attenuate the association between occupational prestige and professional help-seeking (*path c'*; OR<sub>direct</sub>=0.994, 95% CI: 0.970-1.020). The confidence interval for the indirect effect of perceived public stigma on the association between occupational prestige and professional help-seeking crossed the null value of one (*path a*×*b*;

OR<sub>indirect</sub>=0.999, 95% CI: 0.949-1.053), indicating that perceived public stigma is not an important mediator.

Table 4. Mediation analysis of the relationship between occupational prestige, perceived public stigma, and professional help-seeking, n=8,365.

	Unadjusted OR (95% CI)	Adjusted OR (95% CI) <sup>a</sup>
<i>Path a</i>	-----	-----
<i>Path b</i>	0.943 (0.882-1.008)	0.958 (0.881-1.043)
<i>Indirect effect – Path a×b</i>	1.000 (0.956-1.046)	0.999 (0.949-1.053)
<i>Direct Effect – Path c'</i>	1.012 (0.993-1.032)	0.994 (0.970-1.020)
<i>Total Effect – Path c</i>	1.013 (0.995-1.032)	0.995 (0.972-1.020)
<b>Healthcare professionals removed from sample, n=8,231</b>		
<i>Path a</i>	-----	-----
<i>Path b</i>	0.935 (0.873-1.000)	0.949 (0.870-1.034)
<i>Indirect effect – Path a×b</i>	1.000 (0.950-1.052)	0.999 (0.946-1.056)
<i>Direct Effect – Path c'</i>	1.013 (0.993-1.034)	0.993 (0.968-1.019)
<i>Total Effect – Path c</i>	1.014 (0.994-1.034)	0.995 (0.970-1.020)
<b>Occupational prestige as a categorical variable</b>		
<i>Path a</i>	-----	-----
<i>Path b</i>	0.942 (0.882-1.007)	0.958 (0.880-1.042)
<i>Indirect effect – Path a×b</i>	0.997 (0.865-1.150)	0.995 (0.847-1.169)
<i>Direct Effect – Path c'</i>	1.188 (0.969-1.456)	1.003 (0.786-1.281)
<i>Total Effect – Path c</i>	1.206 (0.989-1.470)	1.016 (0.802-1.286)
<b>Occupational socioeconomic status as exposure</b>		
<i>Path a</i>	-----	-----
<i>Path b</i>	0.943 (0.882-1.009)	0.945 (0.997-1.011)
<i>Indirect effect – Path a×b</i>	1.000 (0.977-1.024)	1.000 (0.974-1.026)
<i>Direct Effect – Path c'</i>	1.005 (0.999-1.011)	1.004 (0.997-1.011)
<i>Total Effect – Path c</i>	1.005 (0.999-1.011)	1.005 (0.999-1.012)

<sup>a</sup>Adjusted for gender, age, ethnic or cultural background, education, household income, marital status, number of dependent children, chronic physical condition, self-rated general mental health, and contact with a work colleague who has received treatment for a mental illness.

\*p-value<0.05

### 3.5 Discussion

This study demonstrated that perceived public stigma does not mediate the relationship between occupational prestige and professional help-seeking, and that there was no evidence to reject the null hypothesis in order to show a relationship between occupational prestige and professional help-seeking. Neither the indirect effect (*path a × b*) nor the direct effect (*path c*) were significant, meaning that the relationship is classified as no effect non-mediation. The null relationship between public expectations of stigma and professional help-seeking is not in line

with the negative relationship between stigma and help-seeking seen in previous studies<sup>6-10</sup>. Likewise, the null relationship between occupational prestige and help-seeking was not as expected when compared to other Canadian studies examining the role of objective socioeconomic status on the differential use of specific, publicly-insured, primary and specialist care services<sup>68</sup>.

The impact of occupational prestige and perceived public stigma on help-seeking behaviours may be hidden by competing factors. Although Canada's national health insurance system has done much to overcome the financial barriers to health service utilization, it has long been recognized that barriers to the use of health care by the poor persist<sup>69-72</sup>. Conversely, societal pressures may influence those with greater occupational prestige to uphold a positive state of mental health to effectively complete the skills and tasks required of highly-esteemed positions. Consequently, the fear of losing high-esteem in society may act as a barrier to seeking professional help for those with more prestigious occupational roles.

Alternatively, while insured residents may self-refer for primary services, specialty and non-primary health services usually require referral from a GP<sup>73,74</sup>. Many of these services, such as psychiatrists, are necessary to restore function or to enhance health status. Utilization of referred services is comprised of two components<sup>75</sup>: (1) the patient initiates self-referral to a primary care provider; and (2) referral to subsequent specialty care often depends on the primary care practitioner. Consultations with a mental health care professional were not separated by actions initiated by the patient and actions that require a general practitioner referral, which could be done in future studies to greater understand the role of SES on health care utilization.

Finally, the survey did not differentiate between respondents who did not seek professional help when they truly needed it for an emotional or mental health problem and those who may not

have sought help because they do not have an emotional or mental health problem. Thus, there is a possibility that no evidence to reject the null hypotheses were seen because individuals who responded saying that they did not seek help, truly did not need to seek help for an emotional or mental health problem. However, in Canada, almost one half (49%) of those who feel they have suffered from depression or anxiety have never gone to see a doctor about this problem<sup>76</sup>, which could be due to diagnosis- and treatment-seeking barriers created by the stigma or discrimination attached to mental illnesses. This statistic does not even include Canadians with other mental illnesses who may also not be seeking professional help, which could indicate that the true frequency is even greater.

### *Limitations*

There are some limitations to this study. Firstly, mediation analysis should ideally be conducted using longitudinal studies. Using cross-sectional data for a mediation analysis limits the ability to examine whether there is evidence for one of the important conditions of causality, temporal precedence<sup>77</sup>. For this analysis, the mediation models assumed a temporal ordering of variables, however, reverse causation is still a possibility that cannot be ruled out. To provide more evidence of causality, this analysis should be replicated in cohort studies. Secondly, some misclassification of the variables is inevitable as this is a survey and recall bias or reporting bias could have occurred. Respondents may have selectively revealed or suppressed certain information for social desirability reasons, specifically for: perceived public stigma, professional help-seeking, household income, and self-rated general mental health. Respondents may have also had difficulty recalling past events or experiences, specifically for: professional help-seeking and contact with a work colleague who has received treatment for a mental illness.

However, misclassification was likely non-differential and would attenuate the measure of associations towards the null value.

Another limitation of this study is that the modified Devaluation-Discrimination Scale only deals with how people feel toward those who have had depression. Although it can be argued that perceptions of public stigma toward mental illnesses may differ based on what mental illness is being referred to<sup>78</sup>, it is important to note that depression is the most common mental illness in Canada with 11.3% of Canadians having symptoms that met the criteria for depression at some point during their lifetime<sup>79</sup>. Thus, depression is the mental illness Canadians most likely would be exposed to personally, professionally, or socially that would allow them to draw on how they think most people would feel towards mental illnesses.

The Sobel test was used to determine the *indirect effect*, which relies on the assumption of normality for the *path a* and *path b* regression coefficients. To avoid having to assume normality, bootstrapping procedures have been developed and become more popular in the literature. Bootstrapping is a non-parametric resampling procedure that can build an empirical approximation of the sampling distribution of *path a* and *path b* by repeatedly sampling the dataset<sup>80</sup>. Statistics Canada provides bootstrapping weights for each dataset; thus, a bootstrapping procedure for mediation analysis developed for SAS<sup>81</sup> would be redundant. Concurrently, this mediation analysis was conducted on the 2010 CCHS with  $n=8,365$ , as such, it wouldn't be incorrect to assume normality.

### **3.6 Public Health Implications**

Although there were no significant relationships found between occupational prestige, perceived public stigma, and professional help-seeking, Canadians still experience mental illness in the

workplace, which, at times, can be exacerbated by the stress experienced at work. Employees who considered most of their days to be quite a bit or extremely stressful were over 3 times more likely to suffer a major depressive episode, compared with those who reported low levels of general stress<sup>82</sup>. It was also found that workers had higher odds of being stressed if they described their physical or mental health as not very good; if they had management, professional or clerical jobs; if they were living common-law or were divorced; or if they were immigrants who had arrived in Canada between 1980 and 1995.

Education is key in helping employers understand what mental and psychological illnesses mean, which may encourage more employees to see a health professional if they aren't feeling right in the workplace<sup>83</sup>. This investment in workplace mental health can result in dollar returns in the form of reduced absenteeism, improved productivity, and a lower number of compensation claims. An evaluation of *Take care of your health!*, a comprehensive health promotion program delivered to a financial organization based mainly in Quebec, reported a significant reduction in stress levels, signs of stress, and feelings of depression at the end of a three-year study period<sup>84</sup>. Staff turnover and absenteeism also decreased substantially over the course of the program, showing that workplace anti-stigma interventions can help reduce the economic burden of mental illnesses for Canadian employers.

Partners for Mental Health runs an initiative called *Not Myself Today*, which offers workshops and activities for employers using evidence-informed practical solutions focusing on building greater awareness and understanding of mental health among the workforce, reducing stigma, and fostering safe and supportive work cultures<sup>85</sup>. The Mental Health Commission of Canada has set forth *The National Standard of Canada for Psychological Health and Safety in the Workplace*, a voluntary set of guidelines, tools, and resources to guide organizations in

promoting mental health and preventing psychological harm at work<sup>86</sup>. Moving forward, there is a need for more education about the tools and resources, such as the ones mentioned above, that exist to support workplace mental health as well as organizational cultural shifts that exemplify acceptance of mental health concerns as a legitimate health issue<sup>87</sup>. Evaluation of these programs and tools on a variety of occupational roles can help to assess stigma- and professional help-seeking- related outcomes in the workplace. This could help tailor workplace policy that could include improved attitudes towards mental illnesses and reduced stigma around mental illnesses.

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## Chapter 4

**Title:** Exploring the relationship between occupational prestige and mental health experiences of stigma in the general Canadian population.

## 4.1 Abstract

**Objective:** The objective of this study was to examine the relationship between occupational prestige and mental health experiences of stigma during the past 12 months because of a past or current emotional or mental health problem, in the general Canadian population.

**Methods:** Data was collected by Statistics Canada using a rapid response format on a representative sample of Canadians (N=10,389) during May and June of 2010. Occupational prestige and mental health experiences of stigma were measured in a nationally representative subsample of working Canadians between the ages of 15 and 75 receiving treatment for an emotional or mental health problem during the previous 12 months.

**Results:** Higher occupational prestige scores significantly reduced the odds of mental health experiences of stigma during the past 12 months because of a past or current emotional or mental health problem (OR=0.954, 95% CI: 0.913-0.998). However, there was no association between occupational prestige and mental health experiences of stigma affecting work-life during the past 12 months because of a past or current emotional or mental health problem (OR=0.945, 95% CI: 0.762-1.173).

**Conclusion:** Occupying an occupational role of higher prestige might facilitate resistance against mental health experiences of stigma for a past or current emotional or mental health problem. However, longitudinal studies are needed to clarify and confirm the directionality of the observed correlations and determine whether having an occupation of higher social status helps facilitate stigma resistance.

**Key Words:** occupational prestige, stigma, mental health experiences

## **Public Health Implications**

- Cultural perceptions of social status, such as occupational prestige, may be an important predictor of mental health experiences of stigma in the general Canadian population.
- An emphasis on the understanding that there is a negative relationship between occupational prestige and mental health experiences of stigma may be important when developing and implementing workplace anti-stigma programs.

## **Limitations**

- This study was cross-sectional, making reverse causation a possibility.
- Some misclassification of the variables is inevitable as this is a self-reported survey and recall bias or reporting bias could have occurred.

## 4.2 Introduction

According to the Mental Health Commission of Canada (MHCC), one in five Canadians will experience a mental health problem over the course of their lifetime<sup>1</sup>. Every week, half a million Canadians are missing work because of a mental health issue, which costs the Canadian economy over \$50 billion annually<sup>2</sup>. Although a recent Ipsos poll conducted in mid-April 2017 revealed that more Canadians than ever are getting help<sup>1</sup>, stigma is still prevalent and a major barrier to seeking professional mental health care. Because public and self-stigma toward mental illnesses can be detrimental to help-seeking behaviours, efforts should be made to identify potential factors that facilitate stigma resistance.

Over the past decade, short-term disability (SDIS) claims related to mental disorders have garnered the most attention among employers because of their steady growth<sup>3</sup>. In addition, the length of a SDIS claim for a mental illness can be double that for a physical condition, resulting in twice the cost<sup>4</sup>. As organizations seek solutions to cope with the rise in SDIS claims related to mental illnesses, they have also been confronted with the fact that treatment alone is not the answer. The most difficult aspects of addressing mental disorders in the workplace are the negative attitudes and behaviours associated with mental illness<sup>5</sup>. Stigma is still prevalent in the workplace – with a major misconception being that taking time away for treatment is a weakness. Addressing the stigma of mental disorders is one-way employers may decrease the burden of mental illnesses in the workplace<sup>6</sup>.

People form expectations as to whether most people will reject an individual with a mental illness in social relationships such as a friend, employee, neighbour, or intimate partner, and whether most people will devalue a person with a mental illness as less trustworthy, intelligent, and competent<sup>7</sup>. Once someone becomes mentally ill, those beliefs become personally relevant,

and the individual may self-stigmatize by internalizing public beliefs, which in turn may affect their psychological state, coping behaviours, and promote secrecy and social withdrawal<sup>8,9</sup>. A central stereotype about persons with a mental illness is the belief that because of the symptoms and functional limitations associated with their illness, they are less capable members of the workforce. Workers self-reports of stigmatizing experiences in the labour market suggest that workers often know when they are being discriminated against, which may be reflected in a deterrence from seeking help for an emotional or mental health problem<sup>10</sup>.

People are known by their work, in short, because occupational roles locate individuals in social space, thereby setting the stage for their interaction with one another and the world around them<sup>11</sup>. This hierarchy of occupational roles allows individuals to rank oneself and others with respect to the social privilege derived from occupational status. Holding a prestigious job may provide health benefits in many ways, such as enhancing self-esteem and providing opportunities for social support through expanded networks, which are both important determinants of health<sup>12-16</sup>.

### *Social Identity Theory and Self-Categorization*

One way in which social status has been theorized to impact individuals' identification with the innate hierarchal classification of human society, is through social identity theory and self-categorization. In social identity theory, a social identity is a person's knowledge that he or she belongs to a social category or group<sup>17</sup>. Individuals can categorize, classify, or name themselves in relation to other social categories or classifications in a process called *self-categorization*<sup>18</sup>. An accentuation of the perceived similarities between the self and other in-group members and differences between the self and out-group members is a consequence of self-categorization in society<sup>19</sup>. This accentuation occurs for all the attitudes, beliefs, values, affective reactions,

behavioural norms, styles of speech, and other properties believed to be correlated with the relevant intergroup categorization.

In identity theory, the core of an identity is the categorization of the self as an occupant of a role and the incorporation of the meanings and expectations associated with that role into the self<sup>20,21</sup>.

Occupational identities develop through direct experiences within the workplace and vocational training<sup>22,23</sup>. Individuals are familiarized with a vocational habitus – the knowledge, skills, values, attitudes, beliefs, meanings, and norms that characterize a person for a job<sup>24</sup>. Drawing on social identity theory helps to understand the link between occupational identities and prestige<sup>25</sup>.

Identities are constructed in a dialectical process of internal identification and external classification (offered by others), which is what makes occupational identities more or less valorizing for individual workers depending on the occupational prestige associated with them.

### *Occupational Prestige*

Occupational prestige plays an important role in a structurally organized society, such as Canada, where occupations are a point of hierarchal classification for individuals and families within the social structure. Prestige refers to influence that is willingly granted to individuals who are recognized and respected for their skills, success, or knowledge<sup>26</sup>. Earned respect represents a fundamental path to rank attainment in humans, which assumes hierarchal differences based on skills and abilities individuals contribute to the group<sup>27-31</sup>. Regarding an occupational hierarchal classification, prestige is the cultural perception of occupations, used as a means of tapping into psychosocial and symbolic dimensions of socioeconomic differences, that is different from objective measures derived from education or employment income (see Table 1)<sup>32,33</sup>.

The hypothesis for this study is that occupational prestige will be negatively associated with mental health experiences of stigma and mental health experiences of stigma affecting work-life.

## **4.3 Methods**

### **4.3.1 Data Sources**

This is a secondary analysis of the 2010 CCHS and rapid response stigma modules.

The CCHS is a multi-stage, cross-sectional survey of about 65,000 respondents aged 12 and older. About 3% of the population (persons living on reserves and other Aboriginal settlements, full-time members of the Canadian Forces, and the institutionalized population) are excluded from the sampling frame. At the Canada level, this yielded a combined response rate of 72.3%. Details on the data collection methods can be found in Statistics Canada's 2010 CCHS User Guide<sup>34</sup>.

In 2010, Opening Minds funded a rapid response stigma survey through Statistics Canada using two newly designed and tested stigma modules (N=10,389) to address the gap in detailed information on stigma in the Canadian population<sup>35</sup>. Rapid response surveys piggyback new content onto a two-month collection window of the annual portion of CCHS. The Devaluation-Discrimination Scale<sup>36</sup> and The Inventory of Stigma Experiences<sup>37</sup> were adapted to fit the two-minute time window allowable within the survey. Statistics Canada staff tested the modified scales extensively using qualitative and quantitative methods<sup>35</sup>. The rapid response portion that included the stigma modules was conducted in May and June 2010. The response rate of the stigma modules was 73.5%.

## **4.3.2 Study Measures**

### **4.3.2.1 Exposure – Occupational Prestige**

The 2010 CCHS uses the National Occupational Classification for Statistics (NOC-S), which is based on the National Occupational Classification (NOC) that was developed and maintained by Human Resources and Social Development Canada (HRSDC)<sup>38</sup>. Statistics Canada designed the NOC-S to classify data on occupations from the Census of Population and other Statistics Canada surveys. Occupational prestige scores were coded into the 2010 CCHS data from corresponding NOC major groups.

Occupational prestige scores will be used from a national level survey of occupational prestige in Canada that was collected between January and March 2005 using computer-assisted telephone interviewing<sup>39</sup>. Fieldwork for the 2005 national survey was conducted by Jolicoeur et al., a Montreal-based firm specializing in high-quality survey fieldwork<sup>40</sup>. The sampling frame for the telephone calls was randomly selected telephone numbers, and the studied population consisted of Anglophones and Francophones 18 years of age and older, living in Canada.

Prior to the 2005 national survey, a pilot study at the urban level was undertaken to confirm that respondents could comfortably and plausibly rate NOC major groups<sup>41</sup>. Based on its success, the 26 NOC major groups were included in the 2005 national design and divided up such that each sub-sample rated four NOC major groups. The deck was electronically reshuffled for each new respondent and randomization of the sequence of titles offset the possibility of a serial response set. Respondents were asked to “imagine a ladder with nine rungs on it and rate the groups according to their ‘social standing’,” the synonym for prestige used by past researchers<sup>42,43</sup>. In keeping with longstanding practice in prestige research, the raw scores on a one to nine scale

were transformed into a 0-100 metric, making them easier to read and interpret<sup>44</sup>. The response on the 2005 survey was 51%, which although is not as high as one would desire, is in line with current norms for CATI surveys. A table of the prestige scores for the 26 NOC major groups and corresponding prestige scores can be found in Table 5.

Table 5. Frequency breakdown of occupational prestige groupings,  $n=10,389$ .<sup>a</sup>

<b>NOC Major Groups</b>	<b>Examples of jobs</b>	<b>Prestige Score</b>	<b>%</b>
<b>Professional Occupations in Health</b>	Physicians; dentists; pharmacists	80.9	2.8
<b>Technical and Skilled Occupations in Health</b>	Medical laboratory technicians; midwives	78.0	1.4
<b>Professional Occupations in Social Science, Government Services and Religion</b>	Lawyers; teachers; social workers	77.5	6.3
<b>Senior Management Occupations</b>	Senior government managers and officials; senior managers in other sectors (finance, health, etc.)	77.1	0.2
<b>Professional Occupations in Natural and Applied Sciences</b>	Physicists; engineers	76.6	3.8
<b>Technical Occupations Related to Natural and Applied Sciences</b>	Geological technicians; conservation and fishery officers	74.8	2.0
<b>Assisting Occupations in Support of Health Services</b>	Dental assistants; nurse aids	71.8	1.8
<b>Professional Occupations in Business and Finance</b>	Accountants; specialists in human resources	71.7	4.4
<b>Paraprofessional Occupations in Law, Social Sciences, Education and Religion</b>	Community and social service workers; paralegals	69.8	1.8
<b>Professional Occupations in Art and Culture</b>	Librarians; editors; translators	69.2	1.4
<b>Skilled Administrative and Business Occupations</b>	Administrative officers; conference and event planners	66.8	5.9
<b>Skilled Occupations in Primary Industry</b>	Oil and gas well drillers; nursery and greenhouse operators	66.7	2.1
<b>Technical and Skilled Occupations in Art, Culture, Recreation, and Sport</b>	Photographers; craftspersons; athletes	66.6	1.6
<b>Middle and Other Management Occupations</b>	Financial managers; managers in health care, education, etc.	65.7	9.1
<b>Trades and Skilled Transport and Equipment Operators</b>	Electricians; plumbers; tailors	64.9	7.6
<b>Processing, Manufacturing and Utilities Supervisors and Skilled Operators</b>	Supervisors, mineral processing; supervisors, food and beverage processing	64.0	0.4
<b>Intermediate Occupations in Transport, Equipment Operators, Installation and Maintenance</b>	Truck drivers; taxi drivers; pest controllers	62.4	5.6
<b>Skilled Sales and Service Occupations</b>	Dry cleaning and laundry supervisors; chefs/cooks	62.0	6.9
<b>Trades Helpers, Construction</b>	Construction trades helpers and	58.2	1.4

<b>Labourers and Related Occupations</b>	labourers; public works labourers		
<b>Intermediate Sales and Service Occupations</b>	Retail sales clerks; flight attendants	57.8	9.1
<b>Processing and Manufacturing Machine Operators and Assemblers</b>	Sawmill machine operators; photographic and film processors	57.2	3.3
<b>Clerical Occupations</b>	General office clerks; telephone operators	56.7	8.8
<b>Intermediate Occupations in Primary Industry</b>	Underground mine service and support; trappers and hunters	54.8	0.7
<b>Labourers in Processing, Manufacturing and Utilities</b>	Labourers in mineral processing; labourers in food and beverage processing	54.1	1.0
<b>Labourers in Primary Industry</b>	Ground maintenance labourers; oil and gas drilling	52.8	0.6
<b>Elemental Sales and Service Occupations</b>	Cashiers; grocery shelf stockers	52.3	10.1

<sup>a</sup>Based on the work of Goyder and Frank<sup>39</sup>.

#### 4.3.2.2 Outcome – Mental Health Experiences of Stigma

The Inventory of Stigma Experiences Scale<sup>37</sup> includes a subscale to assess the frequency of occurrence and psychosocial impact of stigma across key life domains. People with a mental illness who have received community-based treatment are targeted as respondents for this scale.

The adapted scale, termed the Mental Health Experiences Scale, assesses levels of stigma experienced by people who have been treated for a mental illness in the year prior to the survey ( $n=767$ ). This period of time was chosen to enable successive CCHS surveys to monitor change over time. If participants responded ‘yes’ ( $n=241$ ), they were then asked to rate how this affected them on a scale of 0 (not affected) to 10 (severely affected) across 5 life domains, one of them being work life, with higher scores reflecting higher personal impact. The internal consistency of this scale in the rapid response sample was high ( $\alpha=0.90$ ).

### **4.3.2.3 Covariates**

All information on potential confounders and/or effect modifiers comes from questions in the 2010 CCHS (see Appendix B). The covariates included in the mediation models are: gender (male or female), age group (15 to 25 years, 26 to 55 years, or  $\geq 56$  years), ethnic or cultural background (white, non-white, or Indigenous person), education (< secondary, secondary, or college or university), household income group (< \$19,999, \$20,000 to \$39,999, \$40,000 to \$59,999, \$60,000 to \$79,999, \$80,000 to \$99,999, or  $\geq$  \$100,000), marital status (married or common-law, or single or separated/divorced/widowed), number of dependent children (0, 1, 2, or >2), chronic physical condition(s) (yes or no), self-rated general mental health (excellent or very good, good, fair or poor), and contact with a work colleague who has received treatment for a mental illness (yes or no).

### **4.3.3 Data Analysis**

Following Statistics Canada's guidelines for quality of an estimate, all analyses were weighted and variance estimates bootstrapped ( $n=500$ ). The weighted percent and coefficient of variation (CV) are reported to determine the proportion of each parameter estimate that is attributable to sampling variation as a percentage ( $100 \times \text{standard error of the parameter estimate}/\text{parameter estimate}$ ). CVs falling below 16.5% are considered reliable by Statistics Canada's guidelines for quality of data published<sup>45</sup>. No tables with cells containing less than three respondents or zero respondents if the total frequencies are being published were included in accordance with Statistics Canada's guidelines for disclosing information when publishing data<sup>46</sup>.

Descriptive statistics were used to provide a summary of the exposure, outcome, and covariates in the regression models. The central tendency of the continuous variables is reported, while the

frequency distribution of the categorical variables is reported. Bivariate analyses were used to assess the relationships between the sociodemographic variables and the outcome. The psychosocial impact of stigma affecting work life, although not definitively bimodally distributed, was dichotomized to reflect the presence or absence of stigma affecting work life to make the understanding of the outcome more easily interpretable (Figure 4). Logistic regression was used to explore the relationships between occupational prestige and mental health experiences of stigma.

Potential effect modifiers were assessed by completing a chi-square test for homogeneity of the effect estimates across strata by using interaction terms in the regression models<sup>47</sup>. All tests of interaction between occupational prestige and gender, age, and ethnic or cultural background were nonsignificant. Thus, no evidence of effect modification was detected in either of the logistic regression models. Potential confounding variables that changed the effect estimates in the regression models by more than 10% were confirmed as confounders<sup>48</sup>. The same subset of covariates was assessed in both regression models to determine their inclusion as confounders. Furthermore, there was no evidence of multicollinearity in any of the final multivariate models.

The Hosmer-Lemeshow Goodness-of-Fit test could not be used to assess model fit for the logistic regression models as it was not provided using the SAS procedure required to use the sampling weights and bootstrapped variance estimates in the analysis. The ROC curve was used to assess the predictive accuracy of the logistic regression models. The logistic regression model used to explore the relationship between occupational prestige and mental health experiences of stigma had an ROC curve area of 0.6132 while the logistic regression model used to explore the relationship between occupational prestige and mental health experiences of stigma affecting

work-life had an ROC curve area of 0.7706. Both models had predictive accuracy above the minimum of 0.5, with the second model having greater predictive accuracy than the first.

The examination of potentially influential observations focused on two main statistics – the confidence interval displacement diagnostic (C diagnostic) and DFbeta diagnostic<sup>49</sup>. Two observations had a C statistic greater than one in the logistic regression model exploring the relationship between occupational prestige and mental health experiences of stigma, while seven observations had a C statistic greater than one in the logistic regression model examining the relationship between occupational prestige and mental health experiences of stigma affecting work-life. None of the DFbetas for any of the coefficients in either of the logistic regression models were larger than 2. When the observations with C statistics greater than one were deleted in each of the logistic regression models, the main parameter estimates in each model did not change by more than 10% nor did their significance. Therefore, the decision was made to include all cases in the reported regression models.

### *Sensitivity Analyses*

Two sensitivity analyses were assessed: (1) to determine if the relationships would change depending on whether occupational prestige was continuous or categorical; and (2) to determine if potential associations were hidden because of objective social status (i.e. education and income). Occupational prestige was converted into a categorical variable with three levels: low, moderate, and high. The weight-adjusted 25<sup>th</sup> and 75<sup>th</sup> percentile scores were used to define the boundaries (58.2 and 69.8, respectively); as the weighted spline curves did not suggest any clear cut-off points (see Appendix C). The Nam-Powers-Boyd scale was applied to the 2001 census of occupations to construct occupational status scores for the major occupational groups found in Statistics Canada's National Occupational Classification for Statistics<sup>38</sup> using the principles

outlined in Nam and Powers<sup>50</sup>, Nam<sup>51</sup>, and Nam and Boyd<sup>52</sup>. The results of the sensitivity analyses were consistent with the original mediation analysis in terms of direction and statistical significance for the *indirect*, *direct*, and *total* effects (Table 7).

### *Missing Data*

In all covariates, except for household income, less than 10% of the data was missing due to participants indicating they ‘don’t know’, refusing to answer, or not stating a response. To assess any potential bias due to missing data, the missing data was coded as a separate category and associations between the exposure and outcome were explored separately for each covariate category. The ORs between the exposure and outcome for the missing data category in each covariate were not significantly different from the ORs of the other categories.

All statistical analyses were conducted on SAS V.9.4 (SAS Institute, Cary, North Carolina).

## **4.4 Results**

### *Descriptive Statistics*

Table 6 shows the descriptive statistics for all study variables included in the regression analyses. All the estimates had a coefficient of variation less than 16.6%, meaning that none were unreliable. The average occupational prestige score of the sample on a scale of 0-100 was 64, with the largest proportion of the sample having elemental sales and service occupations (Table 5). Almost 40% of respondents experienced stigma during the past 12 months for an emotional or mental health problem. The average score on the Mental Health Experiences scale for work-life was 5.4, and ranges from 0 (not affected) to 10 (severely affected). Figure 4 shows the frequency distribution of the Mental Health Experiences scale affecting work life. Just over half of the sample was female (51%) and one-half of the sample was between the ages of 26 and 55

years. Most of the sample was white (78%) and had a college- or university-level education (61%). Household income categories ranged from less than \$20,000 to over \$100,000 per year, with over half of the sample making less than \$80,000 as a household (60%). Over half of the sample is married or common-law (57%) and have no children (61%). One-half of the sample reported having a chronic physical condition diagnosed by a health professional. Three-quarters of the sample self-reported their general mental health as excellent or very good. Most of the sample reported not having prior contact with a work colleague who had received treatment for a mental illness (62%).

Table 6. Descriptive statistics for study covariate, weighted percent (CV), and logistic regression of each covariate on mental health experiences of stigma,  $n=10,389$

Characteristic	Total Weighted % (CV)	Bivariate Models	
		OR	95% CI
<b>Gender</b>			
Female	51.3 (1.6)	-----	-----
Male	48.7 (1.7)	1.461	0.836-2.554
<b>Age, years</b>			
15-25	21.9 (2.9)	-----	-----
26-55	50.3 (1.7)	0.521	0.267-1.017
56-75	27.8 (2.6)	0.291*	0.137-0.616
<b>Ethnic or Cultural background</b>			
White	78.0 (1.2)	-----	-----
Non-White	18.8 (5.2)	3.745*	1.396-10.045
Indigenous person that is North American Indian, Métis, or Inuit	3.2 (9.0)	4.304*	1.817-10.192
<b>Highest education received</b>			
Primary	22.4 (3.1)	-----	-----
Secondary	16.8 (4.5)	1.082	0.458-2.557
College or university	60.7 (1.6)	0.697	0.354-1.374
<b>Household yearly income, \$</b>			
≤19,999	9.0 (6.8)	-----	-----
20,000 to 39,999	16.7 (4.0)	0.694	0.341-1.411
40,000 to 59,999	17.9 (4.7)	0.601	0.276-1.308
60,000 to 79,999	16.6 (5.0)	1.221	0.485-3.071
80,000 to 99,999	11.3 (5.5)	0.546	0.208-1.428
≥100,000	28.6 (3.5)	0.388*	0.174-0.868
<b>Marital status</b>			
Single, Separated/divorced/widowed	42.6 (1.9)	-----	-----
Married or common-law	57.4 (1.4)	0.998	0.618-1.612
<b>Dependent children</b>			
0	60.8 (1.6)	-----	-----
1	16.7 (4.2)	0.901	0.409-1.981
2	15.8 (5.1)	1.490	0.737-3.009
≥3	6.6 (6.7)	1.078	0.277-4.188
<b>Chronic physical condition</b>			
No	49.3 (1.7)	-----	-----
Yes	50.7 (1.7)	1.489	0.833-2.659
<b>Self-rated general mental health</b>			
Fair or poor	5.5 (6.4)	-----	-----
Good	21.2 (3.8)	0.330*	0.182-0.599
Excellent or very good	73.2 (1.2)	0.492*	0.251-0.965
<b>Contact with a work colleague who has received treatment for a mental illness</b>			
No	61.5 (1.4)	-----	-----
Yes	38.5 (2.3)	1.320	0.798-2.185

<sup>a</sup>Interpret with caution owing to a large coefficient of variation.

\*p-value<0.05

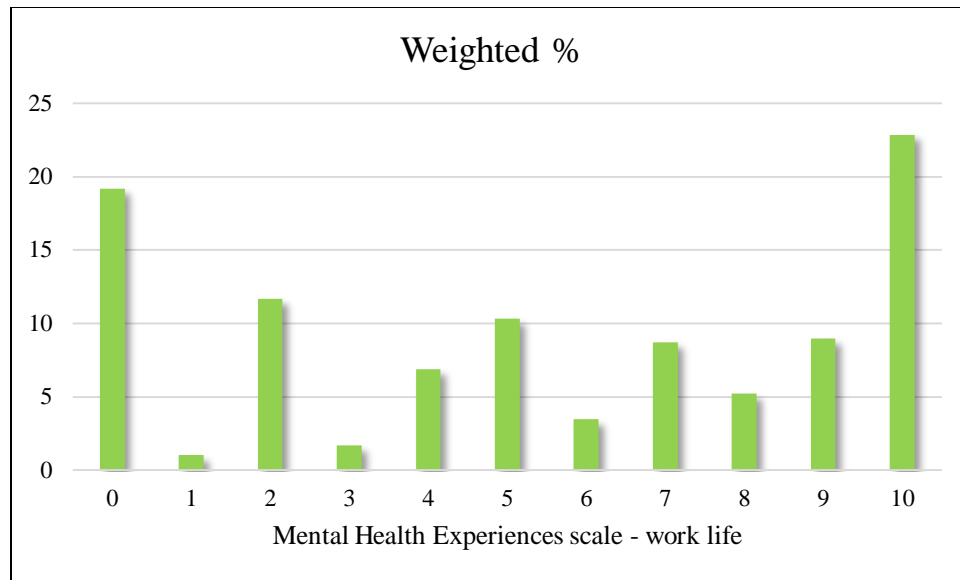


Figure 4. Weighted frequency distribution of the psychosocial impact of stigma affecting work life (n=10,389).

### *Regression Analyses*

Table 7 presents the unadjusted and adjusted odds ratio estimates from the logistic regression for mental health experiences of stigma in the past 12 months reported by survey respondents who received treatment for an emotional or mental health problem. The logistic regression showed that there was a statistically significant association between occupational prestige and mental health experiences of stigma. The unadjusted odds ratio estimate was OR=0.953 (95% CI: 0.914-0.994). When adjusted for the effects of gender, age, and ethnic or cultural background, the OR attenuated slightly (OR=0.954, 95% CI: 0.913-0.998), indicating an inverse association between occupational prestige and mental health experiences of stigma. More specifically, the adjusted OR estimate for the association between occupational prestige and mental health experiences of stigma suggests that the odds of experienced stigma decreases by 0.046 (4.6%) for every unit increase in the occupational prestige scale, after controlling for gender, age, and ethnic or cultural background. This can also be interpreted as a 46% reduction in the odds of experienced

stigma for a 10 unit increase in the occupational prestige scale, after controlling for gender, age, and ethnic or cultural background.

There was not a statistically significant association between occupational prestige and mental health experiences of stigma affecting work-life. The unadjusted odds ratio estimate was OR=0.991 (95% CI: 0.902-1.088). When adjusted for the effects of gender, age, ethnic or cultural background, education, household income, number of dependent children, chronic physical condition, and self-rated general mental health, the OR=0.945 (95% CI: 0.762-1.173), indicating that the association between occupational prestige and mental health experiences of stigma affecting work-life was not significant.

Table 7. Logistic regression of occupational prestige and objective SES on mental health experiences of stigma and mental health experiences of stigma affecting on work-life.

Mental health experiences of stigma, <i>n</i> =767				
	Unadjusted		Adjusted	
	OR	95% CI	OR <sup>a</sup>	95% CI
<b>Occupational prestige</b>	0.953*	0.914 – 0.994	0.954*	0.913 – 0.998
Mental health experiences of stigma affecting work-life, <i>n</i> =241				
	Unadjusted		Adjusted	
	OR	95% CI	OR <sup>b</sup>	95% CI
<b>Occupational prestige</b>	0.991	0.902 – 1.088	0.945	0.762 – 1.173
Mental health experiences of stigma, <i>n</i> =767				
	Unadjusted		Adjusted	
	OR	95% CI	OR <sup>c</sup>	95% CI
<b>Occupational prestige</b>				
Low	–	–	–	–
Moderate	0.612	0.291-1.289	0.647	0.273-1.532
High	0.443*	0.225-0.874	0.447	0.198-1.009
Mental health experiences of stigma affecting work-life, <i>n</i> =241				
	Unadjusted		Adjusted	
	OR	95% CI	OR <sup>d</sup>	95% CI
<b>Occupational prestige</b>				
Low	–	–	–	–
Moderate	3.123	0.642-15.183	2.277	0.247-20.956
High	1.1019	0.298-3.480	1.153	0.145-9.152
Mental health experiences of stigma, <i>n</i> =767				
	Unadjusted		Adjusted	
	OR	95% CI	OR <sup>e</sup>	95% CI
<b>Objective SES</b>	0.987*	0.975-0.999	0.982*	0.969-0.994
Mental health experiences of stigma affecting work-life, <i>n</i> =241				
	Unadjusted		Adjusted	
	OR	95% CI	OR <sup>f</sup>	95% CI
<b>Objective SES</b>	1.004	0.997-1.031	0.995	0.948-1.044

<sup>a</sup> Adjusted for gender, age, ethnic or cultural background.

<sup>b</sup> Adjusted for gender, age, ethnic or cultural background, education, household income, number of dependent children, chronic physical condition, and self-rated general mental health.

<sup>c</sup> Adjusted for age, ethnicity, education, household income, chronic physical condition, and contact with a work colleague who has received treatment for a mental illness.

<sup>d</sup> Adjusted for age, education, household income, number of dependent children, and chronic physical condition.

<sup>e</sup> Adjusted for ethnicity and contact with a work colleague who has received treatment for a mental illness.

<sup>f</sup> Adjusted for gender, age, ethnic or cultural background, marital status, number of dependent children, chronic physical condition, self-rated general mental health, and contact with a work colleague who has received treatment for a mental illness.

\* p-value<0.05.

## 4.5 Discussion

This paper presents the results of a rapid response survey examining occupational prestige and the extent to which people who have been treated for a mental illness in the previous year have experienced stigma and its effect on their work-life. This is the first population-based study

assessing occupational prestige and personal stigma experienced among people treated for a mental illness in Canada. Over one-third of people who had received treatment in the year prior to the survey reported experiencing stigma, and of those people, majority (81%) reported that this experienced stigma affected their work-life.

People with higher occupational prestige scores were less likely to experience stigma in the past 12 months due to an emotional or mental health problem. The negative association between occupational prestige and stigma experiences was expected as social privilege, enhanced self-esteem, and expanded social support networks are residual effects of having a higher social status, which may contribute to stigma resistance amongst those of higher occupational prestige. There was no evidence to reject the null hypothesis in order to show a relationship between occupational prestige scores and mental health experiences of stigma affecting work-life, suggesting that the odds of stigmatizing experiences affecting work-life are similar, regardless of people's occupational prestige status. The null association may be due to other factors impacting how experienced stigma affects work-life across various occupational positions, such as individual coping mechanisms, workplace mental health policies, or executive and human resource supports that are in place at specific workplaces.

### *Limitations*

There are some limitations to this study. Firstly, using cross-sectional data for regression analyses limits the ability to examine whether there is evidence for one of the important conditions of casualty, temporal precedence. For this analysis, the regression models assume a temporal ordering of variables, however, reverse causation is still a possibility that cannot be ruled out. To provide more evidence of causality, this analysis should be replicated in cohort studies. Secondly, some misclassification of the variables is inevitable as this is a self-reported

survey and recall bias or reporting bias could have occurred. Respondents may have selectively revealed or suppressed certain information for social desirability reasons, specifically for: household income, and self-rated general mental health. Respondents may have also had difficulty recalling past events or experiences, specifically for: mental health experiences of stigma for an emotional or mental health problem and contact with a work colleague who has received treatment for a mental illness. However, misclassification was likely non-differential and would attenuate the measure of associations towards the null value.

#### **4.6 Public Health Implications**

As mentioned above, SDIS claims related to mental disorders have steadily grown over the past decade, which has recently garnered the attention of employers<sup>3</sup>. Because the length of a SDIS claim for a mental illness can be double that for a physical condition, they can result in twice the cost for employers<sup>4</sup>. As organizations seek solutions to cope with the rise in SDIS claims related to mental illnesses, they have also been confronted with the fact that stigma is still prevalent in the workplace and that addressing the stigma of mental illnesses is one way employers may decrease the burden of mental illnesses in the workplace<sup>6</sup>.

Unfortunately, research on the effectiveness of workplace anti-stigma interventions is scarce and presents inconclusive evidence in the field<sup>53,54</sup>. Although seven systematic reviews investigating anti-stigma reduction programs have been conducted, only one focused specifically on workplace interventions<sup>55-61</sup>. This recent systematic review examined the effectiveness of interventions targeting stigma towards mental illnesses at the workplace and found that anti-stigma interventions can have a positive impact on employees' knowledge, attitudes, and supportive behaviour towards people with mental illness<sup>61</sup>. Similarly, an evaluation of *Take care of your health!*, a comprehensive mental health promotion program delivered to a financial

organization based mainly in Quebec, reported a significant reduction in stress levels, signs of stress, and feelings of depression at the end of a three-year study period<sup>62</sup>. Staff turnover and absenteeism also decreased substantially over the course of the program, showing that workplace anti-stigma interventions can help reduce the economic burden of mental illnesses for Canadian employers. Two other non-systematic reviews of current workplace anti-stigma programs were published but mainly focused on the conceptual frameworks rather than evaluating the effectiveness of the programs<sup>53,54</sup>.

A study on the economic costs and benefits of a workplace anti-stigma intervention found that it is possible for a stigma program to break even depending on the program cost, SDIS claim cost, and stigma program performance metrics, such as reduction in the number of employees going on SDIS leave and SDIS duration<sup>6</sup>. Workplace anti-stigma programs need to be evaluated in a variety of occupational roles and workplaces to truly measure the costs and benefits of these programs in different settings. The Mental Health Commission of Canada has led this charge by recently examining the implementation of the National Standard for Psychological Health and Safety in the Workplace (the Standard) in 41 Canadian organizations – most falling within the healthcare sector<sup>63</sup>. An emphasis on the understanding that there is a relationship between lower occupational status and greater experiences of stigma due to an emotional or mental health problem may be important when developing and implementing such workplace anti-stigma programs. However, a greater understanding of the underlying mechanisms in this relationship is needed using qualitative research methods, such as focus groups and/or interviews, and longitudinal studies before formally implementing this knowledge into a workplace anti-stigma program.

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## Chapter 5

### General Discussion and Conclusion

#### 5.1 Summary of Findings

The purpose of this thesis was to examine occupational prestige and its relationship to perceived public stigma, professional help-seeking behaviour, and mental health experiences of stigma in the general Canadian population. This thesis is the first population-based study to examine these associations and one of the few studies to describe both perceived public stigma and mental health experiences of stigma by Canadians who received treatment for an emotional or mental health problem. Each objective was assessed using cross-sectional survey data from the nationally representative 2010 Canadian Community Health Survey (CCHS) and rapid response stigma modules.

##### 5.1.1 Occupational prestige, perceived public stigma towards depression, and professional help-seeking.

The first objective was to examine perceived public stigma toward depression as a potential mediator in the relationship between occupational prestige and professional help-seeking in the general Canadian population. Gender, age, ethnic or cultural background, education, household income, marital status, number of dependent children, chronic physical condition, self-rated general mental health, and contact with a work colleague who has received treatment for a mental illness were controlled for in each model of the mediation analysis. Occupational prestige was not significantly associated to perceived public stigma (*path a*, OR= 0.958, 95% CI: 0.881-1.043). After controlling for occupational prestige, perceived public stigma was not significantly associated with seeking professional mental health care (*path b*; OR=0.958, 95% CI: 0.881-

1.043). Controlling for perceived public stigma did not attenuate the association between occupational prestige and professional help-seeking (*path c'*;  $OR_{direct}=0.994$ , 95% CI: 0.970-1.020). The confidence interval for the indirect effect of perceived public stigma on the association between occupational prestige and professional help-seeking crossed the null value of one (*path a* $\times$ *b*;  $OR_{indirect}=0.999$ , 95% CI: 0.949-1.053), indicating that perceived public stigma is not an important mediator. Because neither the indirect effect (*path a*  $\times$  *b*) nor the direct effect (*path c'*) were significant, the relationship between occupational prestige, perceived public stigma towards depression, and professional help-seeking is classified as no effect non-mediation.

### **5.1.2 Occupational prestige and mental health experiences of stigma.**

The second objective was to explore the relationship between occupational prestige and mental health experiences of stigma during the past 12 months because of a past or current emotional or mental health problem in the general Canadian population, and whether occupational prestige was related to how these negative opinions or unfair treatment affect work-life. The logistic regression showed that there was a statistically significant association between occupational prestige and mental health experiences of stigma. When adjusting for the effects of gender, age, and ethnic or cultural background, the  $OR=0.954$  (95% CI: 0.913-0.998), indicating an inverse association between occupational prestige and mental health experiences of stigma. More specifically, the adjusted OR estimate for the association between occupational prestige and mental health experiences of stigma suggests that the odds of experienced stigma decreases by 0.046 for every unit increase in the occupational prestige scale, after controlling for gender, age, and ethnic or cultural background.

There was not a statistically significant association between occupational prestige and mental health experiences of stigma affecting work-life. When adjusting for the effects of gender, age, ethnic or cultural background, education, household income, number of dependent children, chronic physical condition, and self-rated general mental health, the OR=0.945 (95% CI: 0.762-1.173).

The negative association between occupational prestige and stigma experiences was expected as social privilege, enhanced self-esteem, and expanded social support networks are residual effects of having a higher social status, which may contribute to stigma resistance amongst those of higher occupational prestige. The findings from this study indicate that the odds of stigmatizing experiences affecting work-life are similar, regardless of people's occupational prestige status. The null association may be due to other factors impacting how experienced stigma affects work-life across various occupational positions, such as individual coping mechanisms, workplace mental health policies, or executive and human resource supports that are in place at specific workplaces.

The results of this thesis provide mixed support for the theory that social status, such as occupational prestige, might help with different types of stigma resistance, which has been shown to benefit professional help-seeking behaviours. The following sections use epidemiological concepts to evaluate the completeness and validity of the data used to produce the results on which the conclusions are based. This process assists with the interpretation of results, the determination of their impact, and the identification of future research directions.

## 5.2 Internal Validity

Internal validity refers to the extent to which the results of a study are true for a given study sample<sup>1</sup>. When internal validity is compromised, an observed association may overestimate or underestimate the true association between an exposure and outcome due to three possible sources of error or bias: (1) chance, (2) bias, and/or (3) confounding.

### 5.2.1 Chance

Chance refers to a random error associated with precision that causes an association to falsely appear between an exposure and outcome of interest<sup>1</sup>. This is also known as a type 1 error and is denoted by  $\alpha$  – a statistical test's probability of incorrectly rejecting a true null hypothesis (i.e. concluding that a significant relationship exists, when in fact it doesn't). When observations are based on a sample instead of the entire population from which the sample is being drawn, there is always a chance that the observed association is due to the random variations between a selected sample and the source population. As random error can never be eliminated completely, a cutoff of 5% ( $\alpha$ ) is chosen as the standard for most epidemiological statistical tests and was used throughout this thesis. However, random error can be reduced by increasing the sample and using robust sampling procedures – both of which Statistics Canada's 2010 CCHS and rapid response stigma modules do. The statistical methods used for this complex survey design analysis, such as survey weights and variance bootstrapping, helped to reduce the chance that the effect estimates were overestimated or underestimated, and that the CIs were artificially widened or narrowed. Furthermore, the 95% CIs for the reported associations are narrow, which indicates good precision with little random error.

Narrow CIs also indicate less chance of a type II error ( $\beta$ ) – the probability of failing to reject a null hypothesis (i.e. concluding that a relationship does not exist when it truly does), and sufficient statistical power ( $1-\beta$ ) – the ability to detect statistically significant effect estimates when an actual effect exists. The large sample sizes provided by the 2010 CCHS and rapid response stigma modules most likely contributed to the narrow CIs, which suggest that this thesis had sufficient statistical power and that the effect estimates were likely not due to random error. This is important to note because power could not be estimated a priori due to accessibility barriers prior to data analysis.

Researchers strongly suggest that confidence intervals should be used instead of post hoc power calculations to interpret the significance of observed results, since the possibility of having an insufficient sample size and low power is expressed by the width of a given confidence interval<sup>2,3</sup>. While power calculations are recommended for determining the feasibility and resource-demands of longitudinal studies, researchers have called the use of post hoc power calculations inappropriate and fundamentally flawed<sup>2-4</sup> for the following reasons: (1) it adds no new information, and (2) it is often used to exaggerate the importance of significant results or to explain insignificant ones<sup>5</sup>. For these reasons, a post hoc power calculation was not done.

### **5.2.2 Bias**

Bias refers to sources of systematic error in a study that causes relationships between exposures and outcomes to systematically differ from the truth due to either: (1) selection bias, or (2) misclassification bias, which will be explored below.

Selection bias occurs when the sample is systematically different from the target population<sup>5</sup>.

Selection bias is related to the selection procedure and response rate of eligible participants from

the target population. Statistics Canada utilized complex and robust multi-stage sampling procedures with associated sampling and bootstrapping weights for the 2010 CCHS and rapid response stigma modules that were not associated with the exposures or outcomes of interest. Thus, although the dataset did not represent 3% of the population (those living on reserves, institutionalized, or full-time members of the Canadian Forces) and the territories due to the two-month collection window chosen by Statistics Canada, sampling procedures did not bias the results of this thesis.

The 2010 CCHS and rapid response stigma modules were however, susceptible to non-response bias and volunteer bias. The overall response rate of the 2010 CCHS was 72.3% and 73.5% for the rapid response stigma modules. Non-response bias occurs if eligible respondents who refuse to participate in a study differ systematically from those who give their consent with respect to the exposure or outcome variables of interest<sup>1</sup>. The impact of total non-response was minimized by the survey weights provided by Statistics Canada for responding participants.

Although there is no evidence of systematic non-response in the 2010 CCHS, it is possible that individuals with mental illnesses (particularly serious mental illnesses such as major depression), concerns about stigmatization, or receiving professional mental health care may have been less likely to participate in a time-consuming survey involving questions about mental illnesses and stigma. If this was the case, the under-representation might have biased the true effects between occupational prestige, perceived public stigma, mental health experiences of stigma, and professional help-seeking towards the null as this was most likely non-differential. The degree and impact of this under-representation may be magnified by volunteer bias and the ‘healthy worker effect’. Firstly, the inclusion criteria of the 2010 CCHS did not encompass individuals in hospital or other healthcare institutions during survey recruitment, which means that the sample

is already healthier than the general population. Secondly, those who volunteered to participate in the survey may be healthier than the general population due to their interest in participating in a health-related survey. Thirdly, this study only includes individuals in the population who had a job at the time of survey, which means respondents are likely healthier than the general population due to their ability to maintain and perform work-related tasks (i.e. this is also known as the 'healthy worker effect').

Misclassification bias occurs when respondents are systematically misclassified with respect to their exposure and/or outcome status<sup>1</sup>. Despite the use of valid and reliable measures in the 2010 CCHS and rapid response stigma modules, random misclassification may have occurred because of recall bias or reporting bias. Recall bias refers to the inability or inaccuracy of self-reporting when participants are asked to recall events or experiences of the past. Given that the 2010 CCHS and rapid response stigma modules asked respondents to recall their mental health experiences of stigma and their professional mental health care seeking behaviour over a 12-month period, it's likely that some participants, regardless of occupational prestige status, recalled this information inaccurately due to the inability to remember the events correctly. Respondents may have also had difficulty recalling whether they ever knew of a work colleague who received treatment for a mental illness. This non-differential misclassification may have biased the relationships between the exposures and outcomes towards the null.

The self-reporting of sensitive information in a cross-sectional survey is always subject to the threat of social desirability bias<sup>1</sup>. Social desirability bias is a type of response bias where respondents answer survey questions in a manner that is expected to be viewed favourably by others. Random misclassification may have occurred if respondents were less likely to report perceived public stigma towards depression and professional help-seeking behaviour for a mental health problem

to mitigate judgement from others. Household income and self-rated general mental health are also at risk of having been over-reported by respondents to appear more favourably. If these forms of systematic underreporting and over reporting are present, non-differential misclassification will bias the true relationships between exposures and outcomes towards the null value.

### **5.2.3 Confounding**

Confounding is a type of bias that can lead to spurious conclusions if potential confounders are not identified and addressed in an analysis<sup>6</sup>. Confounding occurs when a third factor that is independently related to both the exposure and outcome without being an intermediate in the causal pathway explains the correlation between the exposure and outcome<sup>7</sup>. Possible confounders were identified by reviewing the literature and using a change-in-estimate approach with a 10% cut-off criterion. For each objective, confounders were assessed by determining whether the unadjusted and adjusted effect estimate for the main association of interest differed by at least 10% when the covariate was and wasn't included in the overall model. If confounding was present, the covariate was included in the multivariate model to adjust the main effect estimate between the exposure and outcome by these confounders.

In the first objective, potential confounders previously found to be associated with the exposure, mediator, and outcome of interest were included to ensure comparability between the models. In the second objective, gender, age, and ethnic or cultural background were found to be significant confounders using the change-in-estimate approach for the association between occupational prestige and mental health experiences of stigma; while gender, age, ethnic or cultural background, education, household income, number of dependent children, chronic physical condition, and self-rated general mental health were found to be significant confounders using

the change-in-estimate approach for the association between occupational prestige and mental health experiences of stigma affecting work-life.

Although many potential confounders were identified and measured in the analyses for each objective, residual confounding could have occurred because of confounders being unknown, unmeasured, or partially measured. Urban/rural residency and prior mental health care seeking behaviours were not measured by the 2010 CCHS and rapid response stigma modules so were unable to be assessed as confounders. Mental illness diagnosis was not provided for a broad range of mental disorders when participants were asked about chronic conditions, which is why it was excluded as an assessed confounder to avoid potential selection or misclassification bias. Social support was part of the optional content that provinces had the ability to opt-into, which is why the decision was made to exclude it in the analyses to avoid further reducing the sample size.

### **5.3 External Validity**

External validity refers to the extent to which the results of a study may be reliably generalized to the source population and other populations of similar characteristics<sup>1</sup>. Generalizability depends on the degree to which the survey sample represents the population of interest. As previously described, the results of this thesis are based on data derived from a large-scale, nationally representative survey, which used a complex selection procedure and survey weights to ensure that the sample was representative of the general Canadian population. Therefore, if the sources of error or bias impacting the internal validity of the study are kept to a minimal then the results of this study are likely generalizable to the general Canadian population with occupations, aged 15 to 75, residing in the nation's provinces.

Although generalizable to the general Canadian population, the results of this study may not be applicable to certain sub-populations within Canada or general populations from other countries around the world. Firstly, the direction and significance of the studied relationships might be different between the study sample and the groups excluded from the 2010 CCHS and rapid response stigma modules: (1) institutionalized persons, (2) full-time members of the Canadian Armed Forces, and (3) individuals living on reserves or other Aboriginal settlements. Secondly, occupational prestige status, stigmatization, and professional help-seeking behaviours in other countries may be based on the social, cultural, and political ideologies and constructs in place. The reason a Canadian occupational prestige scale was chosen over others was to ensure the scores were in-line with how Canadians view occupational prestige, which reflects the large and robust middle class in Canada compared to other countries around the world. Perceived public stigma towards depression and mental health experiences of stigma are likely impacted by cultural norms regarding mental health. Finally, professional help-seeking behaviours are likely to vary between countries due to difference with respect to insurance coverage, mental health literacy, cultural help-seeking norms, and the availability and accessibility of mental health care services.

#### **5.4 Causation**

In 1965, Sir Austin Bradford Hill gave the first President's Address to the newly formed Section on Occupational Medicine, which was published within the Proceedings of the Royal Society of Medicine<sup>8</sup>. Hill began his address by pointing out a fundamental problem: how could they effectively practice preventative occupational medicine without a basis for determining which occupational hazards ultimately cause sickness and injury? Namely, Hill asked, "In what circumstances can [one] pass from [an] observed association to a verdict of causation?". Nine

“aspects of association” were discussed in this address and have been used to evaluate countless hypothesized relationships between occupational and environmental exposures and disease outcomes: (1) strength of association, (2) consistency, (3) specificity, (4) temporality, (5) biological gradient, (6) plausibility, (7) coherence, (8) experiment, and (9) analogy. Hill’s nine criteria will be touched upon briefly regarding this thesis project, with a larger emphasis on temporality as it is the only criterion epidemiologists universally agree is essential to causal inference<sup>9</sup>.

For an exposure to cause an outcome, it must precede the occurrence of the outcome. The issue of *temporality* could not be established because the results of this thesis were cross-sectional and correlational. More precisely, the temporality and directionality of the observed associations could not be determined because the exposure and outcomes of interest were measured at a single point in time using a cross-section of the target population. The exposure of interest was measured based on respondents’ job or business in the last 7 days. On the other hand, the occurrences of the outcomes of interest (professional help-seeking and mental health experiences of stigma) were assessed over the entire year prior to the survey. Perceived public stigma towards depression asked respondents about these feelings without a specified time-period. Thus, the outcomes of interest, when reported, may have occurred before the period in which the exposure of interest was assessed. This inability to ascertain temporality means that the observed associations between the exposure and outcomes of interest may reflect bidirectional relationships. For example, it is possible that professional help-seeking behaviours and mental health experiences of stigma influence occupational prestige attainment. Thus, without the establishment of temporality or directionality, the interpretation of the measured associations should be done so without the use of directional or causal language.

Hill explained *strength of association* as the larger an association between exposure and outcome, the more likely it is to be causal. However, statistical significance has also become an accepted benchmark for judging the strength of an observed association due to advances in statistical theory and the computational processing power. The associations were not particularly strong nor were they significant in the first objective (Table 4), and although a significant association was found between occupational prestige and mental health experiences of stigma, it was not particularly strong (Table 7).

Hill's *consistency* criterion is upheld when multiple epidemiologic studies using a variety of locations, populations, and methods show a consistent association between two variables with respect to the null hypothesis. Many studies, including systematic reviews, have looked at the relationship between stigma and help-seeking behaviours and found significant results<sup>10-14</sup>, which is consistent with the direction but not the significance of *path b* in this research project (Table 4). However, these studies have samples that are either general population-based (as with this study) or university student-based. As this is the first study to assess the relationships between occupational prestige and perceived public stigma, mental health experiences of stigma, and professional help-seeking, *consistency* has yet to be upheld.

Hill suggested that associations are more likely to be causal when they are *specific*, meaning the exposure causes only one outcome. Today, instead of attempting to specifically define single exposures, research centers around complex combinations and doses of exposures complicated by a variety of risk factors. This data integration can help elucidate some mechanistic specificity among these varied exposure combinations and outcome endpoints. Perceived public stigma towards depression and mental health experiences of stigma are likely specific to mental health care seeking as they are indicative of ideologies surrounding mental illness. The specificity

between occupational prestige, stigma, and professional help-seeking is difficult to elucidate as occupational prestige is associated with other health-related outcomes<sup>15-19</sup>. Similarly, measures of subjective social status, referring to individuals' sense of their place in the social ladder, have been shown to be negatively related to self-rated health<sup>20</sup>, mental illness<sup>21-31</sup>, tobacco use<sup>32-34</sup>, and several biological risk factors for disease<sup>28,35-46</sup>. This is evidence for Hill's ninth criterion, *analogy*, however, modern epidemiologists have argued that enough knowledge exists and is accessible today to identify an analogy for every situation.

Hill wrote that "if a dose response is seen, it is more likely that the association is causal", which refers to his fifth causal criterion – *biological gradient*. Although the direction of the associations between categorized occupational prestige and mental health experiences of stigma elude to a dose-response, they are not significant, therefore, a biological gradient was not present between the exposure and outcomes of interest (Table 7).

Hill's sixth and seventh criteria, *biological plausibility* and *coherence*, are viewed as being similar in that the cause-and-effect between an exposure and outcome should make biological sense. Molecular-based studies have been used to demonstrate plausibility and coherence by creating a comprehensible story regarding various aspects of the exposure-to-disease paradigm. As this thesis project is focused on the social aspects of mental illnesses, there are no existing biological models to help explain the associations of interest. However, social theories, such as social identity theory and modified labelling theory discussed above, have demonstrated plausibility and coherence between the exposure and outcomes of interest.

Hill explained that evidence drawn from *experimental* manipulation – particularly epidemiologic studies in disease risk following an intervention or cessation of exposure – may lead to the strongest support for casual inference. However, in modern contexts, experimentation must

consider that many outcomes result from multifaceted exposures and follow complex progression pathways. A randomized controlled trial involving the manipulation of social issues influencing the diagnosis of a mental illness would be extremely difficult to conduct due to unknown (but likely long) timelines, high costs and human resource requirements, and the ethical ramifications of such a study would make it next to impossible.

## **5.5 Contributions and Future Research Directions**

Studies such as this one can help researchers determine whether occupational social status deserves to be further investigated as a potential facilitator of stigma resistance and professional help-seeking behaviour using more powerful, resource-intensive, and time-consuming longitudinal study designs. Using the 2010 CCHS and rapid response stigma modules, this thesis conducted the first population-based study of occupational prestige and its relationship to perceived public stigma, mental health experiences of stigma, and professional help-seeking behaviour in the Canada. As the first attempt to identify occupational factors that might protect against personal experiences of mental illness-related stigma in the Canadian general population, the results from this thesis contributed new epidemiological information to help address a lack of evidence regarding workplace factors that might protect against stigma and promote help-seeking behaviour.

The results of this thesis tentatively suggest that occupational prestige might facilitate resistance against personal experiences of mental illness-related stigma. Consistent with the hypothesis that higher social status protects against stigma, findings from the second objective showed an inverse association between occupational prestige and mental health experiences of stigma amongst Canadians who received treatment for an emotional or mental health problem in the year prior to the survey. There was not a significant relationship between occupational prestige

and mental health experiences of stigma affecting work-life. In contrast, the results of the first objective were inconsistent with the hypothesis that occupational prestige protects against stigma and promotes professional help-seeking. The *indirect*, *direct*, and *total effects* of the mediation model were not significant; meaning the relationship between the exposure, mediator, and outcome was no-effect non-mediation.

As mentioned above, the results of this thesis are cross-sectional and as such can only be interpreted as correlational – not causal. Despite the limitations, this thesis demonstrates through the second objective that future longitudinal studies should consider occupational roles as a potential factor that may impact stigma resistance. Thus, this thesis can inform prospective studies focused on identifying vulnerable populations as targets for workplace public health interventions aimed at empowering individuals against possible mental illness-related experiences of stigma. By empowering stigma resistance in the workplace, employers can create positive work environments that improve access to care and help employees continue working, which offers economic benefits in the form of reduced absenteeism, improved productivity, and a lower number of SDIS claims.

## **5.6 Conclusion**

The stigmatization of mental illnesses is a public health concern that can cause emotional and physical harm to the individual, and can interfere with professional help-seeking behaviours. Efforts should be made to identify factors that empower individuals with mental illnesses to counteract experiences of stigmatization. The results of this thesis, while mixed, tentatively suggest that an inverse relationship between occupational prestige and mental health experiences of stigma may be present. Longitudinal studies assessing the impact of workplace anti-stigma interventions in different workplaces and occupational roles are needed to clarify the true

relationship between occupational prestige and the outcomes of interests, and to determine whether occupational prestige facilitates stigma resistance in the workforce context.

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## Appendices

### Appendix A: HSREB Ethic Certificate



#### QUEEN'S UNIVERSITY HEALTH SCIENCES & AFFILIATED TEACHING HOSPITALS RESEARCH ETHICS BOARD (HSREB)

##### HSREB Initial Ethics Clearance

August 25, 2016

Miss Lyndsey Telega  
Department of Public Health Sciences  
Queen's University

ROMEO/TRAQ: #6019028  
Department Code: EPID-551-16  
Study Title: Occupational prestige, stigma, and mental health care seeking.  
Co-Investigators: Dr. H. Stuart  
Review Type: Delegated  
Date Ethics Clearance Issued: August 25, 2016  
Ethics Clearance Expiry Date: August 25, 2017

Dear Miss Telega,

The Queen's University Health Sciences & Affiliated Teaching Hospitals Research Ethics Board (HSREB) has reviewed the application and granted ethics clearance for the documents listed below. Ethics clearance is granted until the expiration date noted above.

- Protocol

##### Documents Acknowledged:

- CORE Certificate – L. Telega
- CCHS – 2010 Questionnaire

**Amendments:** No deviations from, or changes to the protocol should be initiated without prior written clearance of an appropriate amendment from the HSREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

**Renewals:** Prior to the expiration of your ethics clearance you will be reminded to submit your renewal report through ROMEO. Any lapses in ethical clearance will be documented on the renewal form.

**Completion/Termination:** The HSREB must be notified of the completion or termination of this study through the completion of a renewal report in ROMEO.

**Reporting of Serious Adverse Events:** Any unexpected serious adverse event occurring locally must be reported within 2 working days or earlier if required by the study sponsor. All other serious adverse events

must be reported within 15 days after becoming aware of the information.

**Reporting of Complaints:** Any complaints made by participants or persons acting on behalf of participants must be reported to the Research Ethics Board within 7 days of becoming aware of the complaint. Note: All documents supplied to participants must have the contact information for the Research Ethics Board.

Investigators please note that if your trial is registered by the sponsor, you must take responsibility to ensure that the registration information is accurate and complete.

Yours sincerely,

*Albert J. Clark.*

Chair, Health Sciences Research Ethics Board

*The HSREB operates in compliance with, and is constituted in accordance with, the requirements of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2); the International Conference on Harmonisation Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; Part 3 of the Medical Devices Regulations, Canadian General Standards Board, and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The HSREB is qualified through the CTO REB Qualification Program and is registered with the U.S. Department of Health and Human Services (DHHS) Office for Human Research Protection (OHRP). Federalwide Assurance Number: FWA#:00004184, IRB#:00001173*

*HSREB members involved in the research project do not participate in the review, discussion or decision.*

## Appendix B: Survey Items on the 2010 CCHS and Rapid Response Stigma Modules

LF2\_Q35      **What kind of work ^ARE ^YOU1 doing? (For example: babysitting in own home, factory worker, forestry technician)**

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(50 spaces)

DK, RF

STG\_Q01      **Most people you know would not willingly accept someone who has had depression as a close friend. Do you:**

INTERVIEWER: Read categories to respondent. Most people you know includes for example family, friends, colleagues.

- 1    ...strongly agree?
  - 2    ...agree?
  - 3    ...neither agree nor disagree?
  - 4    ...disagree?
  - 5    ...strongly disagree?
- DK, RF

STG\_Q02      **Most people you know would believe that someone who has had depression is not trustworthy. (Do you:)**

INTERVIEWER: If necessary, read categories to respondent. Most people you know includes for example family, friends, colleagues.

- 1 ...strongly agree?
  - 2 ...agree?
  - 3 ...neither agree nor disagree?
  - 4 ...disagree?
  - 5 ...strongly disagree?
- DK, RF

STG\_Q03 **Most people you know think less of a person who has had depression. (Do you:)**

INTERVIEWER: If necessary, read categories to respondent. Most people you know includes for example family, friends, colleagues.

- 1 ...strongly agree?
  - 2 ...agree?
  - 3 ...neither agree nor disagree?
  - 4 ...disagree?
  - 5 ...strongly disagree?
- DK, RF

STG\_Q04 **Most employers would not consider an application from someone who has had depression. Do you:**

INTERVIEWER: Read categories to respondent. Most people you know includes for example family, friends, colleagues.

- 1 ...strongly agree?
  - 2 ...agree?
  - 3 ...neither agree nor disagree?
  - 4 ...disagree?
  - 5 ...strongly disagree?
- DK, RF

STG\_Q05 **Most people you know would be reluctant to date someone who has had depression. (Do you:)**

INTERVIEWER: If necessary, read categories to respondent. Most people you know includes for example family, friends, colleagues.

- 1 ...strongly agree?
  - 2 ...agree?
  - 3 ...neither agree nor disagree?
  - 4 ...disagree?
  - 5 ...strongly disagree?
- DK, RF

STG\_Q06 **Once they know a person who has had depression, most people you know would take their opinions less seriously. (Do you:)**

INTERVIEWER: If necessary, read categories to respondent. Most people you know includes for example family, friends, colleagues.

- 1 ...strongly agree?
  - 2 ...agree?
  - 3 ...neither agree nor disagree?
  - 4 ...disagree?
  - 5 ...strongly disagree?
- DK, RF

CMH\_Q01K **In the past 12 months, that is, from [date one year ago] to yesterday, have you seen or talked to a health professional about your emotional or mental health?**

INTERVIEWER: Include both face to face and telephone contacts.

- 1 Yes
  - 2 No
- DK, RF

MHE\_Q06 **During the past 12 months, did you feel that anyone held negative opinions about you or treated you unfairly because of your past or current emotional or mental health problem?**

- 1 Yes
- 2 No

DK, RF

MHE\_Q06A **During the past 12 months, on a scale of 0 to 10, how much did these negative opinions or unfair treatment affect:**

**...your work or school life?**

INTERVIEWER: If necessary, enter "11" to indicate "Not applicable".  
If necessary, please clarify that the question is intended to focus on the impact of the negative opinions expressed by others or unfair treatment received, not the impact of the emotional or mental health problem itself.

0 means has not been affected while 10 means has been severely affected.

\_\_ \_\_ (MIN: 0) (MAX: 11)

DF, RF

ANDB\_Q01 **What is [respondent name]'s age?**

\_\_ \_\_ \_\_ Age in years  
(MIN: 0) (MAX: 130)

(DK, RF are not allowed)

SEX\_Q01 INTERVIEWER: Enter [respondent name]'s sex.  
If necessary, ask: (Is [respondent name] male or female?)

- 1 Male
- 2 Female

SDC\_Q4\_3 **People living in Canada come from many different cultural and racial backgrounds. ^ARE\_C ^YOU1:**

INTERVIEWER: Read categories to respondent. Mark all that apply.

- 01 ...White?
- 02 ...Chinese?
- 03 ...South Asian (e.g. East Indian, Pakistani, Sri Lankan)?
- 04 ...Black?
- 05 ...Filipino?
- 06 ...Latin American?
- 07 ...Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese)?
- 08 ...Arab?
- 09 ...West Asian (Iranian, Afghan)?
- 10 ...Japanese?
- 11 ...Korean?
- 12 Other – Specify (Go to SDC\_S07)

DK, RF

INC\_Q5B **Please stop me when I have read the category which applies to ^YOUR1 household.**

INTERVIEWER: Read categories to respondent.

- 1 Less than \$5,000
- 2 \$5,000 or more but less than \$10,000
- 3 \$10,000 or more but less than \$15,000
- 4 \$15,000 or more but less than \$20,000
- 5 \$20,000 or more but less than \$25,000
- 6 \$25,000 or more but less than \$30,000
- 7 \$30,000 or more but less than \$40,000
- 8 \$40,000 or more but less than \$50,000
- 9 \$50,000 or more but less than \$60,000
- 10 \$60,000 or more but less than \$70,000
- 11 \$70,000 or more but less than \$80,000
- 12 \$80,000 or more but less than \$90,000
- 13 \$90,000 or more but less than \$100,000
- 14 \$100,000 or more but less than \$150,000
- 15 \$150,000 and over

DK, RF

EDU\_Q02 **Did ^YOU1 graduate from high school (secondary school)?**

- 1 Yes
- 2 No
- DK, RF

EDU\_Q03 **^HAVE\_C ^YOU1 received any other education that could be counted towards a degree, certificate, or diploma from an educational institution?**

- 1 Yes
- 2 No
- DK, RF

EDU1\_Q04 **What is the highest degree, certificate, or diploma ^YOU1 ^HAVE obtained?**

- 1 No post-secondary degree, certificate or diploma
- 2 Trade certificate or diploma from a vocational school or apprenticeship
- 3 Non-university certificate or diploma from a community college, CEGEP, school of nursing, etc.
- 4 University certificate below bachelor's level
- 5 Bachelor's degree
- 6 University degree or certificate above bachelor's degree
- DK, RF

MSNC\_Q01 **What is [respondent name]'s marital status? Is [he/she]:**

INTERVIEWER: Read categories to respondent.

- 1 ... married?
- 2 ... living common-law?
- 3 ... widowed?
- 4 ... separated?
- 5 ... divorced?
- 6 ... single, never married?

DHHDYKD **Number of persons 15 years old or less in household.**

DHHDOKD **Number of dependents 16 or 17 years old in household.**

CCC\_R011 **Now I'd like to ask about certain long-term health conditions which ^YOU2 may have. We are interested in "long-term conditions" which are expected to last or have already lasted 6 months or more and that have been diagnosed by a health professional.**

**^DOVERB\_C ^YOU1 have asthma, arthritis (excluding fibromyalgia), back problems (excluding fibromyalgia and arthritis), high blood pressure, migraine headaches, chronic bronchitis, emphysema or COPD, diabetes, heart disease, cancer, intestinal or stomach ulcers, stroke, urinary incontinence, bowel disorder such as Crohn's Disease, ulcerative colitis, Irritable Bowel Syndrome or bowel incontinence?**

- 1 Yes

- 2 No  
DK, RF

GEN\_Q02B **In general, would you say your mental health is:**

INTERVIEWER: Read categories to respondent.

- 1 ...excellent?
- 2 ...very good?
- 3 ...good?
- 4 ...fair?
- 5 ...poor?  
DK, RF

MHE\_Q02A **To your knowledge, have you ever worked with someone who has been treated for an emotional or mental health problem?**

INTERVIEWER: This question refers to working as colleagues. If the respondent worked or volunteered in a program that provides mental health treatment services, those clients should not be counted again in this question.

- 1 Yes
- 2 No  
DK, RF

**Appendix C: Spline Curves for Occupational Prestige on: (1) Professional Help-Seeking, (2) Mental Health Experiences of Stigma, and (3) Mental Health Experiences of Stigma Affecting Work-Life. (4) Spline curve for Stigma on Professional Help-Seeking.**

