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The association between supervisor mental health training and workplace mental health stigma

Viel, Christopher D.

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Christopher D. Viel

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Author's Declaration

I, Chris Viel, hereby declare that I am the sole author of this thesis. This is the true and final copy of this thesis, including supervisor, committee and external examiner revisions.

I understand that this thesis may be offered both in hard copy and electronically to the public.

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Dedication

I dedicate this thesis to one of the strongest people I've had the privilege of knowing and calling a friend, Liam Fors. During the duration of this thesis, Liam's family faced multiple challenges related to mental health. It is my hope that in the future we can more successfully face these issues, and create a better path for those impacted from mental illness.

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List of Abbreviations

CCOHST: Canadian Centre for Occupational Health and Safety Training

CMHA: Canadian Mental Health Association

DSM: Diagnostic and Statistical Manual of Mental Disorders

FSS: Forward selection strategy

ICC: Intraclass correlation coefficient

ICD: International Classification of Disease

MHD: Mental health disorder

MME: Multilevel Mixed Effects

NSCPHSW: National Standard of Canada for Psychological Health and Safety in the Workplace

OMSWA: Opening Minds Scale for Workplace Attitudes

RCT: Randomized controlled trial

Chapter 1: Introduction

Mental health disorders (MHD) are a major cause of human suffering, lost productivity, workplace disability, and economic loss throughout the industrialized world. They can affect people's thoughts, behaviours, and feelings, as well as disrupt an individual's life, and create many functional challenges. It is expected that MHD will affect every Canadian at some point in their lifetime, whether directly by personally experiencing a MHD, or indirectly through a family member, friend, or colleague.[1] One of the major factors contributing to mental health is the environment that the individual is exposed to, which can precipitate the onset or reoccurrence of a MHD. One of the environments that over 65% of the population interacts with is the workplace,[2] and although it should contribute positively to one's mental health, there are significant workplace challenges experienced by people with MHDs.[3] Specifically, stigma toward employees with MHD can increase the effects these disorders have on employees.[4] When left unaddressed, MHD can account for high unemployment rates, as well as significant financial impacts to the government, employer, and worker through unemployment benefits, disability insurance, welfare programs, and health care costs.[1,5–7] In addition to the high external costs, MHD can have a significant internal effect on productivity within the workplace through both presenteeism and absenteeism.[6]

One avenue that has been suggested to have a positive influence on workplace mental health is mental health training.[8] These courses offer a variety of topics dealing with the core principles of mental health and stigma, signs and symptoms, effective intervention, and resources and supports.[9] One specific position that may benefit most from this training is supervisors, as they are often the intermediary between the employer

and employee. However, little research has been performed on the potential association between supervisor mental health training, and its likelihood to reduce workplace stigma surrounding MHD.

A cross-sectional study was used to first inquire if the supervisor had participated in any training topics that related to mental health, followed by a list of potential courses they may have participated in if they had mental health training. If participation in training was confirmed, questions surrounding the details of the course were captured. To our knowledge, this is the first study to date that directly examines the relationship between supervisor mental health training, and workplace mental health stigma. Furthermore, an association between specific aspects of mental health training, and workplace mental health stigma can be used to drive future mental health course design and additional studies.

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Chapter 2: Background

2.1 Mental Health Disorders

2.1.1 Definition of Mental Health Disorders

Mental health can be defined as "a state of emotional and psychological well-being in which an individual is able to use his or her cognitive and emotional capabilities, function in society, and meet the ordinary demands of everyday life".[1] In contrast, according to the Canadian Mental Health Association (CMHA),[2] mental illness (or MHD) is a common health issue that affects the way people think about themselves, their relation to others, as well as their interaction with the world around them. MHD can affect people's thoughts, behaviours, and feelings, as well as disrupt an individual's life, and create many functional challenges. It is expected that MHD will affect every Canadian at some point in their lifetime, whether directly by personally experiencing a MHD, or indirectly through family members, friends, or colleagues.[3] Dewa and McDaid[4] expand upon mental disorders to include mood disorders, anxiety disorders, psychotic disorders, substance use disorders, and traumatic brain injuries (TBI). Although individuals can experience episodic feelings of isolation, loneliness, emotional distress or disconnection throughout their life, these are short-term reactions and should not be confused with long-term symptoms of a mental illness.[5] Depending on the type of MHD, the severity of illness can vary from mild to severe, and could possibly contribute to disability and/ or health care service use.[6]

While the presence or absence of MHDs are foundational components to overall mental health, it is also significant to recognize current, or day-to-day mental health, and how it can influence the recovery, relapse or even development of MHDs. Good mental

health can protect people from the onset of MHD, as well as act as a preventative mechanism for dealing with stresses and hardships.[7] For those with a MHD, regaining day-to-day mental health is a critical step for recovery and management of their condition.[8]

2.1.2 Global Prevalence of Mental Health Disorders

Traditionally, infectious diseases have been at the main stage of global health concern. More recently, however, non-communicable diseases have shifted into the spotlight, but MHDs are still not acknowledged as a topic of international proportion. It was not until 2010, when the Global Burden of Disease report outlined significant concern surrounding the state of mental and substance abuse disorders, emphasizing that they pose a significant and growing challenge for health systems worldwide.[9] In addition to the high degree of global MHD prevalence, the authors of this report also identified a substantial increase in risk and impact of mental illness on other comorbidities, including both communicable (i.e., HIV, Malaria, and Tuberculosis) and non-communicable (i.e., cardiovascular disease, chronic respiratory disease & diabetes) diseases.[10] Unfortunately, when compared to the diseases listed above, there is a significant gap in both the treatment and funding for global mental health programs.[10] Reasons for this disparity in treatment and funding vary among global regions. First, very little data regarding the global impact of MHD exist, making it difficult to determine fluctuations in MHDs or future projections. Next, very few global surveillance systems exist to examine mental health trends, and the lack of priority given to MHDs in middle to low-income countries can make monitoring even more difficult. Lastly, a standard for MHD identification has not yet been adopted globally.[11] Previous epidemiological research in high-economic

countries (North America, Europe, Australia etc.) has used both the Diagnostic and Statistical Manual of Mental Disorders (DSM) and International Classification of Disease (ICD) for classification of mental illness.[11] However, issues with case definition and measurement, as well as appropriate sampling and reporting procedures have created barriers for accurate data collection in middle to low-economic countries.[11] Currently, the best estimate of MHD prevalence from a 12-month period in 2013 is approximately 17.6% (16.3-18.9%), which includes anxiety disorders (6.7%; 6.1–7.9%), mood disorders (5.4%; 4.9–6.0%) and substance use disorders (3.8%; 3.3–4.2%).[12]

2.1.3 National Prevalence of Mental Health Disorders

Mental health in Canada has been an evolving topic over the past fifteen years through increased research, prevention, and interventions. In 2002, the first Canadian Community Health Survey that included a specific Mental Health and Well-being module was conducted, gathering data from approximately 37,000 residents. Results from this study concluded that one in five Canadians experienced a MHD during 2002.[3] Following the 2010 World Health Organization release of the Global Burden of Disease report,[9] the mental health field began to gain further traction and the importance of monitoring systems became evident. Between 2011 and 2014, several studies took place, capturing information from across the Canadian population, including a 2012 survey and interview by the Canadian Community Health Survey and a 2014 survey by Statistics Canada. Although 71.6% of Canadians rated themselves as having a very good to excellent mental health status, the prevalence of mental health disorders was between 20-25% of the population.[6,13] Over the next thirty years, the number of people living with MHDs is expected to grow, especially with Canada's aging population, where MHD prevalence

can reach up to 50% among individuals over the age of 40.[1] Within a generation, it is expected that over 8.9 million people will be living with a MHD in Canada,[6] equivalent to approximately 20% of the Canadian population.

With the expected growth in mental illness, there are significant financial implications through direct, indirect, and human costs.[14] First, direct costs are those related to treating and supporting the mental illness, which include healthcare, community services, and income support. Next, indirect costs are those associated with lost productivity. Although these costs do not involve expenditure of money, they create strain on employers and society through a lower gross domestic product. Lastly, human costs include those experienced by the individual with a MHD, such as pain, distress, anxiety, and loss of enjoyment of life. Due to the difficulty of quantifying these costs, they are often associated with 'years of life lost' and 'loss of capabilities cased by the mental illness.'[14] In 1998, MHDs were responsible for approximately $7.9 billion in healthcare related costs, with an extra $6.3 billion in non-healthcare related costs such as time off work.[15] Fast forward almost twenty years and the estimated cost of mental health in Canada is projected to be about $51 billion per year in health care costs, lost productivity, and reductions in health-related quality of life.[6,16]

2.2 Mental Health in the Workplace

2.2.1 Workplace and Mental Health

Some of the major factors contributing to mental health concerns are the complex interactions between biological, psychological, social and environmental factors. Specifically, one of the environments that much of the population interacts with is the

workplace. Although the workplace often aims to facilitate a psychologically healthy work environment, it can also contribute to the risk of developing a MHD,[17] and there are significant shortfalls being experienced by employees with MHDs.[18] According to the Government of Canada Labour Program,[19] "mental health is an issue that impacts every workplace in Canada." Specifically, those who are influenced by workplace mental health are categorized into four main groups: public sector (government and healthcare), employers (private or public), workers, and the worker's families. In addition, developed countries such as Canada contain one additional group, the insurance companies, who play a major role in covering health care costs and/or disability benefits.[20] When left unaddressed, MHDs can account for high unemployment rates, as well as significant financial impact to the government, employer, and worker through unemployment benefits, disability insurance, welfare programs, and health care costs.[20]

In addition to high external costs, MHDs can have a significant internal effect on productivity within the workplace. In 2008, Henderson, Williams, Little, and Thornicroft found that MHDs in British workplaces accounted for approximately 442,000 cases of work related illnesses annually, amounting to a loss of about 13.5 million working days.[21] Dewa and colleagues[20] expanded on this by breaking down the effect of MHDs on workplace productivity by separating the issues into two circumstances, presenteeism and absenteeism. Presenteeism is defined as "coming to work, but working with impaired functioning", whereas absenteeism is defined as "an absence from work due to the health problem."[22] In the USA alone, workers with a MHD lose an average of eight hours per week due to presenteeism and absenteeism, totalling a loss of $227 billion per year[23]. In contrast, if the workplace contributes positively to an employee's mental health through

practices such as appropriate workplace accommodation and service provision, there is the possibility of reducing the economic impact of workplace MHDs by reducing employee sick days, and increasing overall productivity within the workplace.[19]

Lastly, it is important to consider the direct effect MHD can have on the workers. Some of the main contributors to workplace disability as a result of a MHD are stress, anxiety and/or exacerbation of pre-existing issues.[24] While the Canadian Human Rights Act: section 25, classifies mental illness as a disability and prohibits discrimination during employment,[25] there are still issues being faced by workers with MHD. A major issue facing employees with MHD is barriers to disclosure and help seeking, with estimates of non-disclosure being as high as 70%.[26] Some of the sources contributing to this gap are personal barriers: individual lack of knowledge of mental illness and how to access treatment, and workplace barriers: prejudicial attitudes, and anticipated or real acts of discrimination against people who have MHD.[26] In addition, these stigmatizing barriers within the workplace may also prevent employees from receiving appropriate accommodation for their MHD.[27] Several other factors that may be associated with stigma toward MHD are education,[28] socioeconomic status[29] and unionization[30]. It has been suggested that people with higher education levels and socioeconomic status may have more knowledge of MHD, and are thus more likely to have decreased stigma.[28,29] Additionally, union membership may positively influence stigma through workplace disability management.[30] Overall, the obstacle of stigma in the workplace is a component that must be addressed in order to prevent workplace disability due to MHDs.

2.2.2 Stigma

According to Simmons, Jones and Bradley,[31] stigma can be defined as an experience or activity that is associated with prejudice and/or discrimination, formed from a judgment about a person or group that has a particular difficulty. It involves placing negative connotations on a situation or quality a person may or may not possess, such as a MHD. Unfortunately, stigmatising attitudes toward people with MHD are quite prevalent, with some of the main assumptions being:[31]

a) *that people who have a mental illnesses are dangerous*
b) *that mental health difficulties are self-inflicted*
c) *that individuals with mental health difficulties are difficult to communicate with*

Through these assumptions, people with MHD can experience multiple types of stigma including:[32]

a) ***anticipated stigma****- anticipation of personally being perceived or treated unfairly*
b) ***experienced stigma****- a personal experience of being perceived or treated unfairly*
c) ***internalized stigma****- holding stigmatizing views about oneself*
d) ***perceived stigma****- participants views about the extent to which people in general have stigmatizing attitudes/behaviour towards people with MHD*
e) ***stigma endorsement****- participants' own stigmatizing attitudes/behaviour towards other people with mental illness*
f) ***treatment stigma****- the stigma associated with seeking or receiving treatment for MHD*

Consequently, these can compound many of the primary symptoms of MHD, which could lead to difficulties in other aspects of life including personal relationships, education, and work.[33]

2.2.3 Managing Mental Health in the Workplace

There are many ways an employer can create a psychologically healthy and safe workplace. Most recently, the Government of Canada- Labour Program Department[19]

listed the top eight practices for a psychologically healthy and safe workplace, which included:

a) *Encourage employee participation and decision-making*
b) *Clearly define employees' duties and responsibilities*
c) *Promote work-life balance*
d) *Encourage respectful behaviours*
e) *Manage workloads*
f) *Provide training and learning opportunities*
g) *Have conflict resolution practices in place*
h) *Recognize employees' contributions effectively*

With Canada's labour force consisting of approximately 61% of the total population[34] and an estimated workplace prevalence of MHD around 10-12%,[35] it seems practical to focus on interventions that could take place within the location of employment. Mental health training is effective by improving recognition of MHD, changing beliefs regarding MHD to recognize the full potential of employees with MHD, decreasing social distance from people with MHD, increasing confidence in providing help, and finally increasing the amount of help provided to others.[36] However, there has been little research done on the effectiveness of these programs on stigma in the workplace. Similar to the Federal government's recommendations, the Canadian Centre for Occupational Health & Safety (CCOHS) highlights supervisor mental health training as a key foundation (along with other suggestions) for future recognition of hazards such as harassment, bullying, and other psychologically unhealthy work conditions.[37] In addition, this training can contribute to a much more positive work environment and provide the skills and knowledge to help supervisors identify and respond to hazards before they escalate.[37] In fact, many of the workplace mental health studies performed to date suggest mental health training as a possible solution to negative workplace mental health.[19,36,38–40]

LaMontagne and colleagues[38] demonstrated that mental health training protects worker mental health through reduction of work-related risk factors and promotes mental health by developing positive aspects of work, as well as worker strengths and positive capacities.

2.3 Mental Health Training

Although there has been a significant amount of research surrounding the importance of mental health in the workplace, there is still a lack of evidence on how to approach this ongoing issue. There have been a number of recommendations, but little data to support these approaches. Mental health training, on the other hand, has received more and more attention over the last ten years, and has gained credibility as a successful route to deal with MHD.[41] Kitchener and Jorm[40] recognized the importance of mental health first aid, and approached it similarly to traditional first aid training for physical ailments. Their approach to the course was simple; they constructed a strategy to help those in immediate psychological need through a five-step process. As the pioneers of Mental Health First Aid, they did a number of trials on participants from the general public. They found that individuals had positive change in opinion and understanding of MHD and decreased their stigmatizing attitudes toward people with MHD.[33] Between 2002-2004 they began rolling out their program into workplace environments, beginning with a randomized controlled trial (RCT) in a government workplace. After realizing several major limitations to their study, they decided to produce another RCT offered to the public in a rural area of Australia.[42] They found participants had an increased ability to recognize MHDs (OR=0.311, $p < 0.001$, 95% CI [0.250, 0.387]) and provide help to those with a MHD (OR=0.602, $p = 0.031$, 95% CI [0.38, 0.95]). They also found

participants were less likely to socially distance themselves from individuals with a MHD compared to the control (β-0.26 (-0.49, -0.03), P = 0.032).[42] Next, Kawakami, Kobayashi, Takao & Tsutsumi,[39] focused on workplace mental health training where they performed a single site RCT and found that web-based mental health training for supervisors (n=16) had a favourable effect (p= 0.012) on subordinates' perception of supervisor support.[34] The supervisors who received the training had improved knowledge and attitudes toward employee mental health when compared to those with no mental health training. These results were further supported when Henderson, Williams, Little and Thornicroft[21] analyzed the effectiveness of a mental health awareness program called 'Time to Challenge' through a pre and post-program phone survey (n=21). They found an increased recognition of common MHDs among executive, supervisor/ managerial and human resource departments (OR= 3.1, 95% CI [2.2–4.2]) when compared to this population prior to the 'Time To challenge' program initiative. Although these studies provide insight into the effect mental health training can have, they all include limitations. First, the Jorm et al.[36,40–42] studies only reviewed one training course (Mental Health First Aid), which makes the results less generalizable to the population; especially in Canada where there is no standard for training or courses offered. Next, follow up was performed only several months after the participants had received the training, which does not take into account the long-term effectiveness of the training. The Kawakami and colleagues[39] article was limited to one site and industrial sector, as well as a sample size of only 16 supervisors. Similarly, the Henderson and colleagues[21] study had a low participation rate in the workshop (21/405), which narrowed the organizational sectors

participating, as well as may have introduced selection bias with the small number of participants from each workplace.

Currently, there are a number of programs available across Canada to interested participants and organizations. The most established and reputable training programs include Mental Health First Aid, the Canadian Centre for Occupational Health and Safety Training (CCOHST), Canadian Mental Health Association (CMHA) and the National Standard of Canada for Psychological Health and Safety in the Workplace (NSCPHSW). Mental Health First Aid offers a variety of programs with various concentrations depending on how the training will be used. These include courses specific to working with youth, Indigenous populations, seniors and veterans. In addition, there are also generalized courses for non-specific applications. Depending on the course, each training session may last between 12-20 hours, and covers the four core principles of mental health and stigma, signs and symptoms, effective intervention and resources and supports.[43] The CCOHST offers multiple online courses and resources that focus on workplace mental health, with their main program being Healthy Minds @ Work. This program offers resources and training on a variety of topics including managing mental health and mental health awareness.[44] Both the CMHA [45] and NSCPHSW[46] offer free training through a variety of resources, which are again specific to the individual being trained (employer, supervisor and worker) and the skills looking to be obtained.

Although there are a number of mental health programs offered there is no known research documenting associations between supervisor mental health training and stigma across multiple industrial sectors. Furthermore, there are no known studies documenting what aspects of supervisor mental health training are associated with a decrease in

stigma. Despite this gap in literature, there are many organizations recommending mental health training as a way to manage workplace mental health. First, the Centre for Mental Health in the Workplace suggests an alteration in managerial approach for better workplace mental health and found that 63% of managers/supervisors wanted to received better training to deal with mentally distressed workers.[47] The Canadian Mental Health Association echoed this suggestion by proposing training to all senior staff on the signs and symptoms of mental illness.[48] Lastly, the Canadian Center for Occupational Health and Safety has placed mental health training at the forefront of workplace mental health, stating it "provides concrete ways for co-workers to recognize and talk about mental health issues in general, increasing recognition of hazards such as harassment, bullying, and psychologically unhealthy work conditions."[44] After reviewing the positive impact mental health training can provide, along with the recommendations from several of the major advocacy groups in the mental health field, mental health training has the potential to aid in the development of a psychologically healthy workplace.

2.4 Supervisors

Throughout the workplace, there are multiple parties responsible in the reduction of stigmatizing attitudes toward employees experiencing a MHD. Specifically, supervisors should demonstrate and promote positive workplace attitudes, practices and behaviours. Although reducing stigma towards employees with MHD should be the responsibility of all individuals in the workplace, supervisors have the ability to take the lead and counteract the stereotypes, myths and negative attitudes toward MHD.[25] In addition to their leadership role, supervisors are also in the primary position to act as gatekeepers for the provision of "accommodations, modified work, interpretation of corporate policies, and facilitating access to corporate and medical resources."[49] With one

of the biggest issues facing employees with MHD being disclosure of their condition, it is imperative that supervisors have the knowledge and confidence for managing these employees.[50] Furthermore, when supervisors are able to promptly enable the help seeking / disclosure process, there is a significant decline in duration of long-term sick leave among employees.[49] In summary, supervisors are responsible for the productivity of staff within an organization. Issues that may impact job performance and quality of life such as stigmatizing attitudes that can prevent workers from reaching their full potential must be managed appropriately. Removing barriers to help seeking by educating supervisors has been shown to greatly influence an employee's decision for disclosure.[51] For these reasons, supervisors are in a position where appropriate training and resources would be most impactful.

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Chapter 3: Summary of Thesis

3.1 Summary of justification for the study

After reviewing the information provided in Chapter 2, it is evident that a significant gap exists regarding the association between supervisor mental health training, and supervisor stigma toward employees with MHD. There is substantial evidence that mental health training can decrease stigmatizing attitudes and better prepare trainees to deal with MHDs. Furthermore, multiple organizations, as well as acting supervisors[1–3] have suggested mental health training as a strategy to support employees with MHD. However, to date only one study has examined the influence of mental health training on a targeted population such as supervisors, with no study directly analyzing the potential relationship between supervisor training and stigma toward employees with MHDs outside of program evaluation.[4–7] Although these evaluative studies add to the body of literature, they lacked long-term follow up with the participants, and did not focus on a specific population such as supervisors. Kawakami and colleagues authored the only RCT that focused on supervisor mental health training. Although they found an increase in supervisor awareness of MHDs, the study population was small, it was contained within a single organization, and the follow up was performed immediately following the intervention.[5] This will be the first study to our knowledge that has looked at the potential association between supervisor mental health training and stigma toward employees with MHDs.

In this study, mental health training participation was identified by supervisors indicating whether they had received training that encompassed mental health topics, followed by any specific course they may have attended. The presence or absence of

training will be used to determine potential associations with supervisor's self-reported stigma toward employees with MHD. Secondary information regarding details of the training will be collected, which may provide important information on which aspects of training are associated with stigma. This information may also direct future research on mental health training, which could lead to changes in course delivery, duration, and frequency of renewal. While this study is cross-sectional, and does not infer causality between mental health training, and stigma, it does offer an opportunity to identify if there are any associations between the exposure and outcome of interest. As the first study that we are aware of to directly examine these associations, we feel a cross-sectional design is warranted to lay the groundwork for future longitudinal research.

3.2 Objectives

The primary objective of this project is to determine if there is an association between supervisor mental health training and their beliefs and attitudes (stigma) toward workers with MHD.

A secondary objective will be to explore the association between type, length, method, and topics covered in the training program, and beliefs and attitudes (stigma) toward workers with MHD.

3.3 Hypothesis

We hypothesize that supervisors with mental health training will be more likely to have reduced stigma toward workers with MHDs than those with no mental health training. This research could potentially offer important preliminary information on methods to increase positive workplace mental health. By doing so, workers may potentially experience less stress, anxiety and/or exacerbation of pre-existing issues; thus

decreasing presenteeism / absenteeism, health care costs, as well as workplace disability and insurance claims. Furthermore, we hypothesize that findings from the second objective (details on mental health training obtained) will reveal that there will be an association at the bivariate level with longer training courses and recently received training.

3.4 Approach to thesis

This thesis employs a manuscript style approach to present the results of the research questions posed. It is our goal that conclusions made from this research be disseminated in the form of journal publications, conference presentations, and similar such events. For these reasons, we deemed a paper appearing as it would in academic journals to be the most appropriate approach. This paper will be composed of a background, methods, results, discussion, and conclusion section. Both a comprehensive literature review (Chapter 2) and discussion section (Chapter 5) to expand on the findings has been included in the body of this thesis. The purpose of this thesis is to provide a thorough understanding of the association between supervisor mental health training and stigma toward workers with MHD from Manitoba and Northwestern Ontario. This thesis will include a single manuscript, which was completed for fulfillment of the Master's of Health Science requirement at Lakehead University.

3.5 Overview of content of thesis

Throughout the previous two chapters, an extensive background and literature review to outline all relevant research that has been performed in the field was included. The relatively novel field of mental health training, and its position within the workplace to influence mental health stigma is a complex relationship, which we have attempted to bridge in the summary of the literature. The current chapter summarizes the purpose,

objectives, hypothesis, and layout of this thesis. Next, Chapter 4 presents the manuscript titled: "*The lack of association between supervisor mental health training and stigma towards employees with mental health disorders."* Following this, there is a discussion chapter that focuses on the research questions posed in the manuscript. We will also cover additional findings that may not have been discussed in the manuscript, but were deemed important for the conclusion of this thesis. Chapter 6 will cover the Ethical Considerations of the project, followed by Chapter 7, which will discuss the limitations, strengths and relevance of the study. Lastly, Chapter 8 covers the overall conclusion of the thesis, whereby future directions and implications of the thesis are discussed.

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Chapter 4: The lack of association between supervisor mental health training and workplace mental health stigma

4.1 Abstract

Background: Amongst the industrialized world, Mental Health Disorders (MHDs) are a major cause of lost productivity, workplace disability, and economic loss. Despite the growing public understanding of mental health, there remains considerable stigma towards those with MHDs. As a result, employees are less likely to disclose and seek assistance with their condition, leading to presenteeism or absenteeism, as well as potentially exacerbating current MHD symptoms. Mental health interventions implemented in the workplace have the opportunity to allow employees with MHDs the ability to perform to their full working potential. The objective of this study is to determine if there is an association between supervisor mental health training and stigma toward employees with MHDs.

Methods: We administered a cross-sectional survey to supervisors from thirty-one businesses in ten industrial sectors across Manitoba and Northwestern Ontario, Canada. We measured stigma with the Opening Minds Scale for Workplace Attitudes. Mental health training was measured as a dichotomous variable; supervisors selected whether they had completed training or not. Information regarding several potential confounding factors was also collected, including: demographic variables, experience with a MHD, experience with people who have MHDs, personal history of accommodation, experience providing accommodation, and supervisor autonomy. Data were analyzed using multilevel mixed-effects regression, accounting for appropriate confounders.

Results: Three hundred and seventy three supervisors from thirty-one organizations in Manitoba and Northwestern Ontario (Manitoba n=18, NW Ontario n=13) completed the survey, with one hundred and twenty nine supervisors having participated in mental

health training. There was no significant association between supervisor mental health training (β= -2.15, 95% CI [-5.12, 0.81]) and stigma toward employees with MHDs, while controlling for age, sex, prior provision of MHD accommodation, education level, experience supervising an employee with a MHD, Organizational Culture Profile (OCP)-Group Culture, OCP- Rational Culture, and years with company. Clustering within the employers accounted for 73% of the variation in the supervisors' response to stigma.

Conclusion: The findings from this study suggest that there is minimal difference in stigma between supervisors following participation in mental health training, when compared to those with no training. Exploratory analysis of various training details also indicated no association at the bivariate level. Further research is needed to examine a potential relationship between organizational culture and stigma.

4.2 Background

Mental health disorders (MHDs) are common health issues that affect the way people think about themselves, their relation to others, as well as their interaction with the world around them.[1] MHDs can affect people's thoughts, behaviours and feelings, as well as disrupt an individual's life and create many functional challenges. These can include but are not limited to mood disorders, anxiety disorders, psychotic disorders, substance use disorders, and traumatic brain injury (TBI).[2] It is expected that MHDs will affect every Canadian at some point in their lifetime, whether directly by personally experiencing a MHD, or indirectly through family members, friends, or colleagues.[3] Depending on the type of MHD, the severity of illness can vary from mild to severe, and could potentially contribute to disability and/or health care service use.[4] Most recently, it is estimated that the prevalence of MHDs in Canada ranges from between 20-25%.[4,5] With this large proportion of individuals experiencing MHDs, there are significant associated costs through both direct and indirect financial implications, as well as human costs.[6] Direct costs include those related to treating mental illness, while indirect costs are mainly associated with lost productivity. Human costs include those feelings experienced by the individual with a MHD, including pain, distress, anxiety, and loss of enjoyment of life.[6] It is estimated that mental illness and its associated costs account for approximately $51 billion per year.[7]

Several of the major factors contributing to mental health concerns are the complex interactions between biological, psychological, social and environmental factors. Specifically, one of the environments that much of the Canadian population interacts with is the workplace, and although it often aims to contribute positively to

one's mental health, there are significant shortfalls being experienced by people with MHDs.[8,9] One of the major issues facing employees with MHDs is the stigmatizing barriers within the workplace. Although the Canadian Human Rights Act: Section 25, classifies mental illness as a disability and prohibits discrimination under employment standards, there are still difficulties being faced by employees with MHDs. Stigma toward MHDs has created a major barrier to disclosure and help seeking, with estimates of non-disclosure reaching rates as high as 70%.[10] Factors contributing to non-disclosure include both personal and workplace barriers. Personal barriers include the individual lack of knowledge of MHDs and how to access treatment, where workplace barriers include prejudicial attitudes, and anticipated or real acts of discrimination towards those who have MHDs.[10]

With approximately 61% of the Canadian population participating in the workforce,[8] the workplace is an impactful location to introduce mental health intervention strategies. Mental health training has been shown to be effective at improving recognition and promotion of positive workplace mental health, decreasing social distance from people with MHDs, increasing confidence in providing help to those with MHDs, and increasing the amount of help provided to those with MHDs.[11] Supervisors provide a unique position within the workplace to receive the training, as they are the primary individuals who oversee employee's day-to-day operations. They have the opportunity to create a psychologically healthy workplace by counteracting the stereotypes, myths and negative attitudes toward MHDs.[12]

Although there has been research evaluating the impact of mental health training on study participants, there are no known studies directly analyzing the association

between supervisor mental health training and stigma towards employees with a MHD. Furthermore, there is very little research documenting aspects of supervisor mental health training associated with supervisor stigma levels. The primary objective of this study was to determine if there is an association between supervisor mental health training and their beliefs and attitudes (stigma) toward workers with MHD. As a secondary objective, we explored the association between type, length, method, and topics covered in the training program, and beliefs and attitudes (stigma) toward workers with MHD. We hypothesized that supervisors who received mental health training would be associated with lower stigma scores when compared with supervisors who did not participate in mental health training.

4.3 Methods

4.3.1 Study Design

This study was conducted using a cross-sectional study design. Recruitment for the study began with a search for employer organizations with 50 employees or more over the age of 18 in Manitoba and Northwestern Ontario (classified using the 807 area code) using the InfoCanada database.[13] These geographical regions were selected for study because the Workers' Compensation Board of Manitoba funded the study and Lakehead University is located in Northwestern Ontario. Both regions have similar industries. Businesses were categorized into one of ten industrial sectors (Agriculture, Forestry and Fishing; Mining; Construction; Manufacturing; Transportation; Wholesale and Distributers; Retail trade; Finance, Insurance, and Real Estate; Services; and Public Administration). Three organizations from each sector were randomly selected and invited to participate via an invitation email or letter [*See Appendix 1-Section 2 & 3*]. If participation was declined or contact was not established after six attempts, another

organization was selected. Once three companies agreed to participate in each sector, no further call-backs were made to the remaining companies who had received the initial invitation. However, if a company in a filled sector requested participation in this study, we would allow them to do so. Participating companies were offered either a paper-based or electronic survey for distribution to their supervisors. [*See Appendix 1-Section 6*] The survey took approximately 30 minutes to complete and was hosted on the Qualtrics platform[14]. All hard copies were locked in secure storage before and after the data was inputted into the online database. Ethical approval was obtained for the study from both Lakehead University (#002 17-18) and the University of Winnipeg (#GT897).

4.3.2 Participants

A sample of 183 supervisors from Manitoba and 190 supervisors from Northwestern Ontario were recruited, which resulted in a response rate of 57.8% (ON) and 47.3% (MB). To be eligible, supervisors had to supervise at least one employee. To ensure anonymity amongst participants, only the consent form contained identifiable information. Once the consent was completed the participant was redirected to a separate survey link, or in the case of the paper-based surveys, each consent and survey was returned in separate envelopes. Surveys were only offered in the English language due to many of the validated scales not being translated, nor validated, in other languages. Survey delivery method (electronic or hard copy) was dependent on whether the staff had access to a computer and personal log in, as well as if the organization monitored keystrokes or computer data.

4.3.3 Study Measure

Stigma Outcome Measure

Opening Minds Scale for Workplace Attitudes- The primary outcome of interest for this study was supervisor stigma toward employees with MHDs. Stigma was assessed using the 23-item scale that predicted general attitudes toward mental health disorders within the workplace.[15] The scale contains five subscales, which include: avoidance (6-items), perceived dangerousness (5-items), work beliefs and competencies (5-items), helping (4-items), and responsibility of people with MHDs (3-items) [*See Appendix 1-Section 6, Q17*]. Responses are captured on a 5-point Likert Scale, and scored between 23 and 115, with lower scores suggesting an absence of stigma. Subscales from the previous edition of the OMS-WA (behavioural intensions and beliefs sections) were initially validated by Stuart and colleagues [16], however, the attitudes section which was derived from various studies[15] is currently under analysis for validation. Despite the lack of psychometric evaluation of this scale, the Mental Health Commission of Canada uses it as a standard metric.[15,17,18]

Exposure Measurements

Mental Health Training: The primary exposure for this study was participation in supervisor mental health training. For the primary objective, participation in training was measured dichotomously: ever versus never have participated in training. We determined this variable through two questions. The first asked if the supervisor had ever participated in training that covered any of the mental health topics including increasing awareness of mental health, signs and symptoms of common mental health issues and crisis situations, interaction with people with mental illnesses, resources available to people with a mental illness, information about effective interventions and treatments and explanations of mental health and mental illness. The second inquired if the supervisor had ever

participated in a specific mental health training program including mental Health First Aid, the Canadian Mental Health Association Workplace Training Program, Mental Health Works and an 'other' category. If the participant selected any of these options then they were deemed to have participated in a training program. Each question also included non-participation option for those who had no previous training experience.

Details of Training: To address the secondary exploratory objective, we collected the following details of the training: a) time passed since the training, b) whether the training was offered through the employer, c) if the training was mandatory or voluntary, d) duration of the training, e) delivery format of the training and f) the supervisors perceived usefulness of the training inside and outside of the workplace.

To date, there is no validated measure to our knowledge that measures the presence or absence of mental health training, or that captures details of mental health training courses. Although neither of the exposure measures used in the study were validated, both were created with a project advisory board and preliminarily tested in a pilot study prior to commencement of the project.

Extraneous variables (confounding factors)

Several variables were considered for extraneous effects on the association between supervisor mental health training and stigma towards employees with MHDs. In addition to age and sex, we included: education level (high school or less, some trade/college/university or technical school, or completed trade/college/university or technical school), managerial level (frontline supervisor/manager, mid-level manager, or executive), years with company, years as a supervisor, personal experience with a MHD

(yes/no), personal experience with an accommodation (yes/no), experiences supervising an employee with a MHD (yes/no), supervisor autonomy, unionization (all employees, some employees, or none), and the Occupational Culture Profile (outlined below).

Occupational Culture Profile (OCP): Organizational culture was measured using the OCP, originally validated by O'Reilly et. Al.,[19] the 54-item scale has been reduced to a simplified 26-item questionnaire aimed to assess individual-organizational interaction and fit.[20] The scale consists of four sections, each measuring various aspects of workplace culture. They include: Group (internal-flexibility/change), Rational (external-stability/order/control), Hierarchal (internal- stability/order/control) and Developmental (external – flexibility/change) culture. Responses outline the extent that a participant's organization fulfills each area of organizational culture. Scoring ranges from 1 (A great extent) to 4 (Not at all), with lower overall scores equating to an organizational culture that encompasses similar attitudes, customs, and beliefs between an employee and their place of employment.

In conclusion, due to a lack of literature outlining which factors may influence supervisor stigma toward employees with MHDs, we included any variable that may have had an extraneous effect in a bivariate analysis. Further details of the questions listed above and any associated sub-items that were contained in the variables can be viewed in Table 4.

4.3.4 Analysis

All data were analyzed using Stata version 15.[21] Prior to analysis, all data were examined for missing, incomplete and/or inaccurate information, and cleaned through detecting, diagnosing, and editing faulty data. Any supervisor who did not supervise at least one employee was excluded from the analyses. Univariate descriptive statistics were

performed on all variables of interest, as well as bivariate analyses of supervisor stigma and all primary and secondary objective variables, as well as potential confounders. Any variables found to be statistically significant (p-value ≤ 0.2) were included in the model selection stage. To identify potential confounding factors and create the final regression model we used a forward-selection strategy (FSS) as outlined by Greenland et. al. (2016)[22,23]. Standard demographic information including age and sex were included in all models as potential confounders. All further potential confounders were added to the base model including age and sex until a full model was generated. During the FSS, workplace unionization and managerial level were the only variables removed from the model due to their lack of confounding effect. The primary objective was addressed using multilevel mixed-effects regression to account for the clustering and lack of sample independence within each employer.[24] Following this, the intraclass correlation coefficient (ICC) was calculated to identify the degree of clustering amongst supervisors in each organization. Secondary objectives were exploratory in nature; therefore, we did not perform any analysis on them beyond the bivariate calculations.

4.4 Results

Participants and Demographics

Three hundred and eighty one organizations were sent either a hard copy or email invitation to participate in this study. From these, 362 received a follow-up call one week later to inquire into the company's interest in joining the project. Nineteen organizations were dropped and did not receive a formal callback due to the industrial sector being filled (3 organizations/sector) prior to their callback date. From this pool, 31 employers agreed to participate in the study (8.5% participation rate), resulting in 737 surveys

distributed to supervisors. A total of 373 surveys were completed, yielding a response rate of 50.6% (See Figure 1). Demographic characteristics are shown in Table 1.

Mental health stigma

Three hundred and four of the respondents completed the OMSWA questionnaire (81.5%), with a mean score of 48.5 (sd=19.9). Of these participants, 61.1% of them scored between 25-49 indicating low-levels of stigma amongst the majority of this supervisor population.[15]

Mental health training exposure

One hundred and sixty supervisors (n=160; 52.6%) identified as having participated in specific mental health training topics (Table 2), and one hundred and forty-four (n=144; 48.4%) indicated they had never participated in any mental health training topic. Supervisors were also asked about the specific training they received, with the majority of supervisors (30.2%) having engaged with non-specific training courses that were not listed in the survey question. This included, but was not limited to Managing Mental Health Matters, Great West Life Mental Health Seminar, and company specific mental health training. From the mental health training courses listed, Mental Health First Aid had the highest participation rate (16.8%).

Additional information was gathered on the details of training from those who had completed it (See Table 3). Results from participants indicate that most of the training was offered through the workplace (77.1%) and mandated by the organization (62%). An equal distribution of supervisors had used the skills learned in this training both inside (60.7%) and outside (60.3%) the workplace.

Among the 144 supervisors who did not participate in mental health training, approximately 58% identified as not knowing mental health training existed, and 82% stated they had never been offered training.

Bivariate analysis

Several variables were found to have an association with supervisor stigma levels at the bivariate level (see Table 4). First, we found that supervisors who had completed trade school, college or university had a significant decrease in OMSWA score (β = -7.70, ρ =0.02, 95% CI [-14.21, -1.20]) and thus had decreased stigma levels compared to those who had a high school degree or less. Next, for every five-year increase that the supervisor had been with the company, there was an increase in stigma score by 1.17 points (ρ =0.03, 95% CI [0.11, 2.22]), indicating senior supervisors having increased stigma levels towards employees with MHDs. Another variable of significance was whether the supervisor had a history of providing mental health accommodations. We found that supervisors who had a history of accommodation provision were less stigmatizing toward those with MHDs (β = -4.31, ρ =0.03, 95% CI [-8.40, -0.22]). Lastly, the supervisors who had stronger memberships (higher scores) to OCP were found to have increasing stigma levels for each one step increase in Group (β = 0.85, ρ =0.008, 95% CI [0.23, 1.47]) and Rational (β = 1.46, ρ =0.002, 95% CI [0.52, 2.39]) organizational culture score (score ranges differ by group).

Mental health training and stigma

Regression was performed using a multilevel mixed-effects model accounting for clustering within each employer, and included all potential confounding variables

selected using the FSS by Greenland et. al.[22,23] (See Table 5) There was no significant association found between supervisor mental health training and stigma toward employees with a MHD, $\beta = -2.15$, $\rho = 0.154$, 95% CI [-5.12, 0.81]. (See Table 6) Additionally, the ICC was calculated at the employer level, which resulted in a 73% (ICC = 0.73, SE =0.057, 95% CI [0.60, 0.830]) similarity in responses amongst supervisors within each organization.

Secondary Objective

Descriptive analysis of all exploratory secondary objective variables was completed. Among those who had taken mental health training, there were several variables that held higher proportions of supervisors. First, over 77% of the respondents had been offered training through their employer, and 62% outlined that it was mandatory. Next, close to equal proportions of trained supervisors had used their mental health training both in (60.7%) and outside (60.3%) the workplace, with the majority of them (over 70%) reporting that the training was useful in assisting them during their specific circumstance. Both the length of time since training and the length of training course had similar distributions of supervisors in all categories. Among the secondary objective variables there was no significance with stigma toward employees with a MHD at the bivariate level.

Figure 1: *Flow-chart of participants and recruitment process*

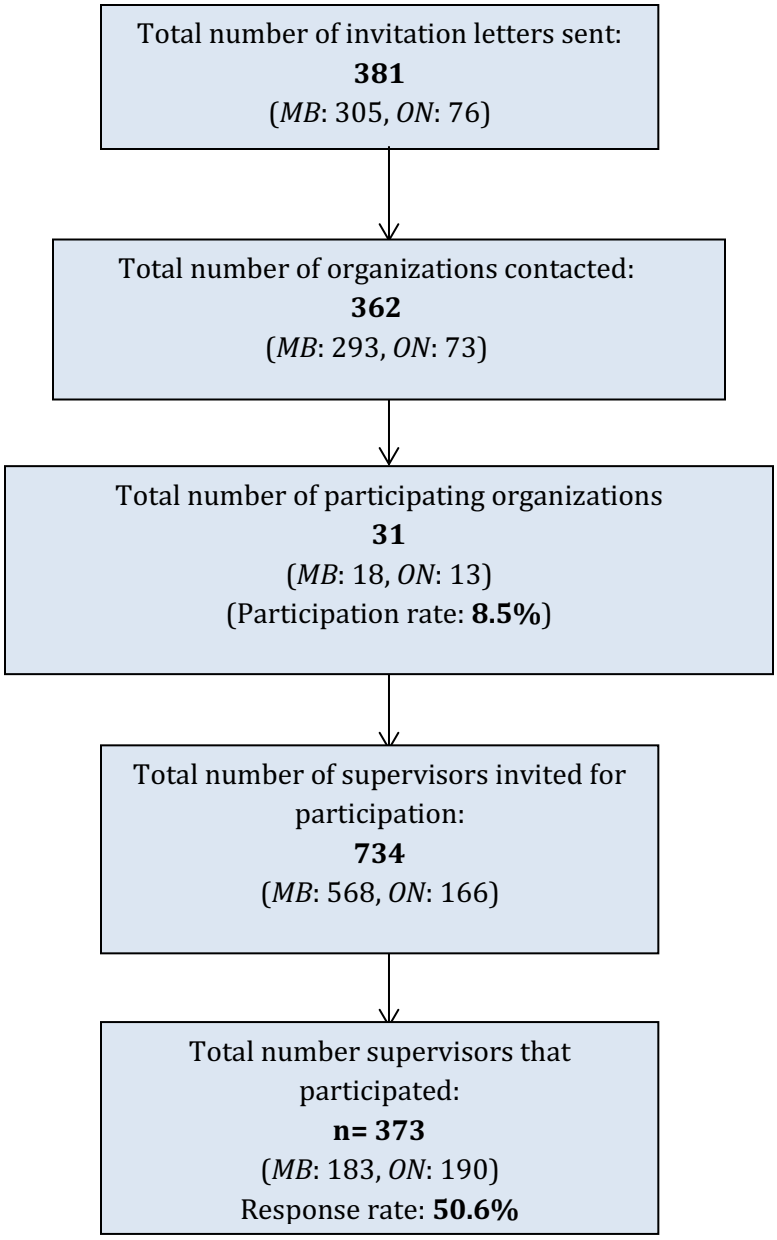

Table 1*: Characteristics of Participating Supervisors (%)*

Characteristic	Number of Supervisors n= 373	Proportion of Responses (%)
Location		
Manitoba	190	50.9%
Northwestern Ontario	183	49.1%
Sector		
Mining	69	18.5%
Finance	50	13.4%
Wholesale	20	5.3%
Public Administration	65	17.4%
Construction	30	8%
Agriculture	52	13.9%
Transportation	16	4.2%
Service	42	11.2%
Retail	11	2.9%
Manufacturing	18	4.8%
Age (mean= 45, sd=10.4)		
20-29	26	7.1%
30-39	93	25.6%
40-49	103	28.3%
50-59	110	30.3%
60-69	30	8.2%
Missing	11	--
Sex		
Male	228	70.3%
Female	93	28.7%
Chose not to answer	3	0.9%
Intersex	0	--
Missing	49	--
Gender		
Man	227	70.3%
Woman	93	28.8%
Trans Man, Trans Woman, or Two Spirit	0	--
Gender Neutral or Gender Free	0	--
Other	0	--

Chose not to answer	3	0.93%
Missing	50	--
Level of Education		
High School or less	42	13.1%
Some trade, college, university or technical school	51	15.9%
Completed trade, college, university or technical school	226	70.8%
Missing	54	--
Managerial Level		
Frontline supervisor/ manager	166	53.8%
Mid-level manager	107	34.7%
Executive	35	11.3%
Missing	65	--
Worker Unionization		
All employees	159	50.3%
Some employees	64	20.2%
None of the employees	87	27.5%
Don't know	6	1.8%
Missing	57	--
Supervisor years with company		
(Mean= 11.9, sd 10.2)		
0-4	94	29.7%
5-9	69	21.8%
10-14	42	13.2%
15-19	39	12.3%
20-24	24	7.5%
25-29	22	6.9%
30-34	14	4.4%
35-39	6	1.8%
40-44	6	1.8%
Missing	57	--
Number of years as supervisor with any employer		
(Mean= 12.5, sd= 9.0)		
0-9	138	44.2%
10-19	105	33.6%
20-29	53	16.9%
30-39	13	4.1%
40-49	2	0.6%
50-59	1	0.3%
Missing	61	--

Number of people in working group under supervisor		
I work alone	9	2.8%
1 person	14	4.4%
2-5 people	92	28.9%
6-10 people	59	18.5%
11-20 people	57	17.9%
21 or more people	87	27.3%
Missing	55	--

Table 2- *Prevalence of mental health stigma, disorders and mental health training exposure among supervisors*

Outcome and Exposure Measures	Number of Supervisors (N=373)	Proportion of supervisors (95% Confidence Interval)
OMSWA Score		
0-24	10	3.2% [1.7% to 6.0%]
25-49	186	61.1% [55.5% to 66.5%]
50-74	71	23.3% [18.9% to 28.4%]
75-99	29	9.5% [6.7% to 13.4%]
100-124	8	2.6% [1.3% to 5.1%]
Missing	79	--
Mental Health Disorder (MHD)		
No	301	82.4% [78.2% to 86.0%]
Yes	50	13.6% [10.5% to 17.6%]
Prefer not to answer	14	3.8% [2.2% to 6.3%]
Missing	8	--
Experience with people with MHD (outside of work)		
No	74	20.2% [16.4% to 24.7%]
Yes	291	79.7% [75.2% to 83.5%]
Missing	8	--
Experience with accommodation (personally) (n=50)		
Yes	14	28.5% [17.4% to 43.0%]
No, because it wasn't required	31	63.2% [48.6.2% to 75.7%]
No, because it was not provided	4	8.1% [3.0% to 20.2%]
Missing	1	--
Experience supervising employee with MHD		
Yes	250	68.8% [63.9% to 73.4%]
No	113	31.1% [26.5% to 36.0%]
Missing	10	--
Experience providing accommodation		
Yes	125	35.4% [30.5% to 40.5%]
No, because accommodation wasn't necessary	214	60.6% [55.4% to 65.6%]
No, because accommodation wasn't available	14	3.9% [2.3% to 6.5%]
Missing	20	--

Participation in mental health training		
Yes	160	58.9% [52.2% to 65.2%]
No	144	41.0% [34.7% to 47.7%]
Missing	99	--
*Participation in specific training course**		
Never completed any training	75	43.6% [36.3% to 51.1%]
Mental Health First Aid	29	16.8% [11.9% to 23.2%]
The CMHA Workplace Training Program	12	6.9% [3.9% to 11.9%]
Mental Health Works	4	2.3% [0.8% to 6.0%]
Other	52	30.2% [23.7% to 37.5%]

*These variables were a 'select all that apply', and therefore not represented as a proportion of the overall sample size.

Table 3- *Details of mental health training variables as reported by those supervisors who had completed a mental health training program*

Secondary Objective Exploratory Measures: ***Supervisors with mental health training***	**Number of Supervisors (n=160)**	**Proportion of supervisors (95% Confidence Interval)**
Duration passed since training		
Less than one year	42	39.2% [30.3% to 48.8%]
1- 3 years	29	27.1% [19.4% to 36.3%]
Greater than 3-years	36	33.6% [25.2% to 43.2%]
Missing	53	--
Was training offered through the employer?		
Yes	88	77.1% [68.5% to 84.0%]
No	26	22.8% [15.9% to 31.4%]
Missing	46	--
Was training offered through the employer mandatory?		
Mandatory	54	62.0% [51.3% to 71.7%]
Voluntary	33	37.9% [28.2% to 48.6%]
Missing	73	--
Duration of mental health training		
Less than 3 hours	37	34.9% [26.3% to 44.5%]
3-6 hours	27	25.4% [18.0% to 34.7%]
Greater than 6 hours	42	39.6% [30.6% to 49.3%]
Missing	54	--
What was the delivery format of the training?[i]		
Personal interaction with other participants and a trainer	10	9.8%[5.3% to 17.4%]
Videos (e.g., DVD, movies)	8	7.8%[3.9% to 15.0%]
Role play	1	1.0%[0.01% to 6.7%]
Small group activities (e.g., discussions, brainstorming activities)	7	6.9%[3.3% to 13.8%]
Discussions in large groups	13	12.8%[7.5% to 20.8%]
Conferences (e.g., educational presentation with relevant documentation)	4	3.9%[1.5% to 10.1%]
The use of specific case examples to illustrate concepts.	19	18.6%[12.1% to 27.5%]
Lecture style	40	39.2%[30.1% to 49.1%]
Supervisor use of MHT skills outside the workplace		
Yes	64	60.3% [50.6% to 69.3%]
No	42	39.6% [30.6% to 49.3%]

Missing	54	--
If yes, how useful was this training		
Very useful	37	36.6% [27.7% to 46.5%]
Sort of useful	36	35.6% [26.8% to 45.5%]
Unsure	16	15.8% [9.8% to 24.4%]
Of little use	8	7.9% [3.9% to 15.1%]
Not useful	4	3.9% [1.4% to 10.1%]
Missing	59	--
Supervisor use of MHT skills inside the workplace		
Yes	65	60.7% [51.1% to 69.6%]
No	42	39.2% [30.3% to 48.8%]
Missing	53	--
If yes, how useful was this training		
Very useful	35	35.0% [26.2% to 44.9%]
Sort of useful	36	36.0% [27.1% to 45.9%]
Unsure	21	21.0% [14.0% to 30.2%]
Of little use	6	6.0% [2.6% to 12.8%]
Not useful	2	2.0% [0.4% to 7.7%]
Missing	60	--
If Sort of useful, Unsure, Of little use or Not useful…		
What was missing from this training?		
Problem recognition (recognizing symptoms or other ways of identifying potential mental health problems) in employees	6	6.0%[2.6% to 12.8%]
Strategies for work accommodation to facilitate integration or return to work of an employee.	14	14.0%[8.4% to 22.4%]
The difference between problems in performance and symptoms of a disease	13	13.0%[7.6% to 21.2%]
Treating mental illness as seriously as other illnesses (e.g., physical illness)	5	5.0%[2.1% to 11.6%]
The manager`s legal obligations with respect to an employee with a mental illness	9	9.0%[4.7% to 16.5%]
The spectrum of mental health problems (symptoms and diagnosis)	10	10.0%[5.4% to 17.7%]
Information on mental health issues	6	6.0%[2.7% to 12.8%]
Government legislation and internal policies in relation to a mental illness such as depression	10	10.0%[5.4% 17.7%]

The ability to better manage the absence of employees due to a mental illness such as depression	13	13.0%[7.6% to 21.2%]
How a colleague could support an employee who received a diagnosis of depression	14	14.0%[8.4% to 22.4%]

i. Multiple responses may be selected.

Table 4- *Details of mental health training variables as reported by those supervisors who had not completed a mental health training program*

Secondary exploratory objective measures: ***Supervisors without mental health training***	**Number of Supervisors (n=144)**	**Proportion of supervisors (95% Confidence Interval)**
If no mental health training was taken…		
Were you aware such training existed?		
Yes	51	37.7% [29.9% to 46.3%]
No	84	62.2% [53.6% to 70.0%]
Missing	9	--
Was training offered to you?		
Yes	17	12.5% [6.3% to 17.1%]
No	119	87.5% [82.8% to 93.6%]
Missing	8	--

Table 5- *Bivariate analysis between supervisor stigma levels and mental health training exposure and potential extraneous variables.*

Exposure variable in bivariate analysis with stigma	Coef. (β)	Standard Error	t	P>|z|	[95% Conf.	Interval]
a) Mental health training	-1.49	2.28	-0.66	0.51	-5.99	3.00
b) Age (yrs.)	0.17	0.10	1.67	0.09	-0.03	0.38
c) Sex						
Male (ref)	-	-	-	-	-	
Female	-1.00	2.50	-0.40	0.68	-5.92	3.91
d) Supervisor autonomy	-0.86	1.03	-0.84	0.40	-2.89	1.16
e) Personal experience with a MHD	-3.63	3.38	-1.07	0.28	-10.2	3.03
f) Years as supervisor (per 5-year increase)	1.29	1.22	1.06	0.29	-1.11	3.71
g) Experience with people with MHD	-4.62	2.82	-1.64	0.10	-10.18	0.93
h) Education level						
High School or less (ref)	-	-	-	-	-	
Incomplete Trade School, College, or University	-5.93	4.06	-1.46	0.15	-13.94	2.06
Completed Trade School, College, or University	-7.70	3.30	-2.33	0.02	-14.21	-1.20
i) Years with company (per 5-year increase)	1.17	0.53	2.18	0.03	0.11	2.22
j) Managerial level						
Frontline supervisor/ manager (ref)	-	-	-	-	-	
Mid-level manager	-3.22	2.48	-1.30	0.19	-8.11	1.67
Executive	-5.53	3.77	-1.47	0.14	-12.96	1.90
k) Supervisor history of accommodation	4.03	3.72	1.08	0.28	-3.51	11.5
l) Supervisor history of providing accommodation	-4.31	2.07	-2.08	0.03	-8.40	-0.22
m) Workplace unionization	0.12	0.09	1.30	0.20	-0.06	0.30
n) OCP- Group culture	0.85	0.32	2.69	0.01	0.23	1.47
o) OCP- Hierarchal culture	0.35	0.37	0.95	0.34	-0.38	1.08
p) OCP- Developmental culture	0.22	0.41	0.53	0.60	-0.59	1.03
q) OCP- Rational culture	1.46	0.48	3.06	0.002	0.52	2.39
Secondary Objective						
r) Length of time since training						
Less than 1-year ago (ref)	-	-	-	-	-	
Between 1-3-years ago	2.95	5.37	0.55	0.59	-7.73	13.63
Over 3-years ago	-5.76	4.92	-1.17	0.24	-15.55	4.01
s) Employer offered training	1.06	5.00	0.21	0.83	-8.88	11.0
t) Voluntary/ mandatory training	-5.62	5.07	-1.11	0.27	-15.73	4.49
u) Length of training course						
Less than 3 hours (ref)	-	-	-	-	-	

Between 3-6 hours	-3.64	5.88	-0.62	0.53	-15.34	8.04
Greater than 6 hours	8.03	4.78	1.68	0.09	-1.48	17.56

Table 6. *Greenland[22,23] forward selection strategy to identify potential confounding variables and build final regression model.*

Model (*variables included in the model)*	Variables tested in the model	Beta	SE (Standard Error for coefficient)	MSE (mean standard error)
1. Base[i]	Mental Health Training Age Sex	-2.68	2.29	-
1a). Forward RMSE	Base	-2.68	2.29	-
Base	Education level	-2.01	2.32	0.57
	Managerial level	-2.29	2.33	0.33
	Years with company	-3.03	2.32	0.24
	Prior provision of MHD accom.	-3.61	2.31	0.91
	Unionization	-2.95	2.29	0.04
	Exp. with person with MHD	-2.30	2.34	0.35
	OCP- Group Culture	-2.07	2.28	0.31
	OCP- Rational Culture	-3.26	2.29	0.30
1b). Forward RMSE	Base	-3.61	2.31	-
Base	Education level	-2.84	2.33	0.66
Prior provision of MHD accom.	OCP- Group Culture	-3.11	2.29	0.18
	OCP- Rational Culture	-4.19	2.31	0.33
	Exp. with person with MHD	-3.10	2.36	0.49
	Managerial level	-3.11	2.32	0.29
	Years with company	-3.74	2.34	0.16
	~~Unionization~~[ii]	-3.78	2.29	-0.5
1c). Forward RMSE	Base	-2.84	2.33	-
Base	OCP- Group Culture	-2.46	2.31	0.06
Prior provision of MHD accom.	OCP- Rational Culture	-3.44	2.32	0.31
Education Level	Exp. with person with MHD	-2.38	2.37	0.43
	Managerial level	-2.69	2.33	0.03
	Years with company	-3.06	2.35	0.14
1d). Forward RMSE	Base	-2.38	2.37	-
Base	OCP- Group Culture	-1.72	2.35	0.36
Prior provision of MHD accom.	OCP- Rational Culture	-2.87	2.35	0.16
Education Level	~~Managerial level~~	-2.43	2.36	-0.02
Exp. with person with MHD	Years with company	-2.49	2.39	0.10
1e). Forward RMSE				
Base	Base	-1.72	2.35	-
Prior provision of MHD accom.	OCP- Rational Culture	-2.33	2.37	0.46
Education Level	Years with company	-1.86	2.37	0.11
Exp. with person with MHD				
OCP- Group Culture				

1f). Forward RMSE				
Base	Base	-2.33	2.37	-
Prior provision of MHD accom.	Years with company	-2.40	2.39	0.11
Education Level				
Exp. with person with MHD				
OCP- Group Culture				
OCP- Rational Culture				
1g). Final Model[iii]				
Base				
Prior provision of MHD accom.				
Education Level				
Exp. with person with MHD				
OCP- Group Culture				
OCP- Rational Culture				
Years with company				

i. As described by *Greenland,*[22,23]the base model includes the exposure variable with age and sex. Each regression calculation was modeled against the supervisor stigma score (OMSWA score).

ii. Any variable with a resulting negative MSE are removed from the model due to the lack of confounding effect.

iii. The final model includes the Base and all potential confounding variables that could not be eliminated following the forward selection strategy. Therefore, there is no regression calculation done to the final model.

Table 7. Multilevel mixed-effects regression model accounting for clustering within each employer (n=261)

	Coef. (β)	Standard Error	z	P>|z|	[95% Conf. Interval]	
Mental health training*	-2.15	1.51	-1.43	0.154	-5.12	0.81

* This model controlled for age, sex, prior provision of MHD accommodation, education level, exposure with a person with a MHD, Years with the company, OCP-Group culture and OCP-Rational Culture.

4.5 Discussion

The primary objective of this study was to identify whether there was an association between supervisor mental health training and supervisor stigma toward employees with MHDs. No significant relationship was found between training and stigma (β = -2.15, 95% CI: -5.12, 0.81); however, the direction of effect was in the hypothesized manner – trained supervisors reported lower levels of stigma. The limits of the 95% confidence interval suggest an important effect may be present that we were unable to detect with the sample size achieved. Previous studies have suggested that mental health training decreases certain forms of mental health stigma,[25–30] as well as overall stigmatizing attitudes.[25,27] However, our results did not replicate the findings from previous literature. With this lack of association, there are several notable points that may have contributed to this finding.

First, it is important to recognize that the supervisor population sampled had a low overall mean stigma score (m=48.5, 95% CI [46.2, 50.7]). Although supervisors are in an influential role within an organization to receive training, recently there has been evidence suggesting that management have lower overall stigma toward mental health when compared to their subordinates,[10] which may contribute to the potential influence mental health training may have. Several factors associated with lower stigma levels are education and income level.[10,31] This evidence was supported by the bivariate analysis whereby we saw a significant difference (-6.48) in OMSWA score by participants whom had completed trade school, college or university. Another important finding to note is the high ICC found amongst employers. This high correlation suggests that supervisors within each employer are responding to questions in a similar manner, and indicates that a major factor associated with workplace stigma is the environment where the supervisors

work. This was further supported by the significant bivariate organizational culture finding OCP- Group and Rational culture data. We found that for every one point decrease in group and rational culture, there was a significant increase in stigma. Specifically, this decrease in score represents a decline in flexibility, participation, cooperation, mutual trust, team spirit, cohesiveness, communication and synergy (Group culture), as well as clear/ objective task delegation and performance indication (Rational culture).[32] Also, with 73% of the overall variation of the sample accounted for from inter-employer clustering, there is limited variation amongst supervisors, which could contribute to the lack of a statistically significant association between mental health training and stigma. Lastly, self-selection bias of the participating organizations may have influenced the lack of association, as there were 362 businesses invited and contacted for follow up, but only 31 participated (8.5% participation rate). With this low participation rate, organizations that agreed to participate may have already had high mental health literacy, possibly lowering the overall stigma scores of their supervisors, and thus minimizing the influence of training. This hypothesis may be supported by the high proportion of trained supervisors that partook in the study, where we observed a nearly ten percent higher (42.8% vs. 33.3%) training prevalence than in the Canadian population[2].

An additional area under-reported in the literature has been specific details of the mental health training supervisors have received. This is the only study to our knowledge that looked at the current self-reported prevalence and details of supervisor mental health training across multiple industrial sectors. The first variable captured was the length of time since the supervisor had taken training. Although there are recommendations to

recertify the training or participate in refresher courses after two to three years, there is no formal expiry date.[33] With this ambiguity in renewal period, it is possible for trained participants to have less impact overtime in their workplace. Among the supervisors who participated in our study, there was close to an equal distribution of times since the training had been received. However, over a third of those supervisors had taken training over three years prior to taking the survey, which is over the recommended limit. Bivariate associations of this variable outlined higher stigma scores (β=2.95, 95% CI [-7.73, 13.63]) among those who had taken training between 1-3 years, and lower stigma scores (β=-5.76, 95% CI [-15.55, 4.01]) for those with training more than 3 years prior to this study; however, neither of these results were significant.

The next area we explored was whether workplaces were offering training to their employees, and whether or not it was mandatory or voluntary. Supervisors reported that over 77% of them were offered training at work, and 62% of these were mandatory participation, which may indicate greater mental health literacy from participating organizations. No significant associations were found at the bivariate level for employer offered training (β=-5.62, 95% CI [-15.73, 4.49]) or employer mandated training participation (β=1.06, 95% CI [-8.88, 11.0]). Next, one area of interest for us was the distribution and bivariate association between length of training course and stigma. Many training courses offer various lengths of programs, from short courses that focus on mental health emergencies, to longer courses that cover a range of MHDs and application of mental health strategies for various populations.[34–36] With education of MHD being a major recommendation for decreasing stigmatizing attitudes toward these disorders,[31,37–39] we expected those who had received longer training to have lower stigma scores on the

OMSWA. Contrary to what the literature suggested, those who received over six hours of training scored approximately eight points higher (β=8.03, 95% CI [-1.48, 17.56]) on the OMSWA compared to those with 3-6 hours, and less than 3 hours of training. Inquiry into course length distribution revealed that the majority of supervisors were participating in the shortest (34.9%) or longest course (39.6%) forms. Because most of the training programs are a minimum of 3 hours, these results may suggest that the supervisors participating in shorter training programs are simply receiving mental health training as a portion of their standard supervisor training.

Finally, it is relevant to note that supervisors who had a history of providing accommodation (n=125, 35.4%) scored over four points lower (β=-4.31, 95% CI [-8.40, -0.22]) on the OMSWA compared to those with no history of providing accommodation. Prior studies have found similar results, whereby companies with a history of successful accommodation are less stigmatizing towards both disabled employees and those requiring accommodation.[40] For those without a history of providing accommodation, education is cited to be the best approach to debunk the myths surrounding disabilities. Specifically, they recommend that the managers have direct experience with disabled employees to better understand their working potential,[40] which could easily be implemented into both mental health and managerial training to potentially decrease stigma. For those who had not participated in training, we found that 62.2% did not know mental health training existed. Furthermore, 89.3% of the non-participants were never offered mental health training. Overall, we did not find any specific training variables that were significantly associated at the bivariate level with stigma.

Limitations

This study had several limitations that are noteworthy. First, with the low participation rate (8.5%) we likely had self-selection bias. Although we took care in performing random selection for all organizations, we were unable to control for businesses with a higher mental health literacy participating at higher rates over those who were less literate. In total, we saw a 9.5% higher prevalence of mental health training in our sample compared to the national average among supervisors. With this over representation of trained supervisors, it is possible they contributed to a lower stigma score amongst the exposure group. Had the trained sample been closer to the nationally reported rate, we may have seen an even more homogeneous stigma score between the exposure and control populations. However, as indicated previously, this over representation was an unavoidable circumstance with voluntary participation. Next, with the low sample size we may not have had enough power to identify a difference in stigma levels between the trained and untrained supervisors, therefore potentially making a type II error. With our confidence interval including zero we cannot dismiss the null hypothesis, however the values are trending toward lower stigma scores (-5.12). We could therefore hypothesize that we may have potentially found a significant association between training and stigma with a larger sample size.

4.7 Conclusion

Despite the finding of no statistically significant relationship found between the supervisor training and stigma, this study offers a considerable amount of foundational knowledge to guide further research. Although there was a lack of association between training and stigma, we cannot rule it out as a potential strategy to decrease stigmatizing attitudes toward those with MHDs.

Future work suggested in this study includes an examination of the relationship between organizational culture and stigma toward employees with MHDs. If the workplace is a major contributor towards stigma, then intervention strategies will need to be developed and tested at the employer level, as supervisors may not be able to promote mental health within the workplace due to company policy and culture. Additionally, further research can look to identify the most influential target population for training (i.e. worker vs. supervisor), as well as alternative aspects of training associated with decreased stigma.

Stigma toward employees who have MHDs is an issue that has tremendous implications through individual suffering, loss in workplace productivity, and strain on resources both provincially and nationally through labour force and healthcare services. It is imperative that an intervention strategy such as mental health training offer solutions for these issues, and that stigmatizing barriers are removed to facilitate a healthier workforce and population on a whole.

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Chapter 5: Discussion

5.1 Overview

The objective of this study was to identify if there was an association between supervisor mental health training and stigma toward employees with MHDs. In addition, we performed exploratory analyses on the details of mental health training, as well as information from supervisors who had not received training. Prior to this, no known study has looked at the self-reported prevalence and details of supervisor mental health training, and their association with stigma across multiple industrial sectors.

No association was found between our primary objective of supervisor mental health training and stigma toward employees with MHDs. Although there was a lower overall score on the OMSWA for those who had received training, the relationship was not significant. For the secondary objective variables, we found no significant associations at the bivariate level.

5.2 Main Findings

Primary objective: Mental health disorders and stigma

The results from this study were not what we hypothesized. Previous research of mental health training concluded that it decreases certain forms of mental health stigma (internalized, perceived, etc.),[1–8] as well as overall stigmatizing attitudes. However, our study indicated that supervisors who had received mental health training only had a marginally lower score (-2.15) on their OMSWA questionnaire. This result indicated a lower stigma score, but with a non-significant (p=0.274) association when compared to the untrained supervisors.

Although our results indicated that there is no association between mental health training and stigma, there are several notable points to explore. The first factor that may have contributed to the lack of significant association was the target population we chose to examine. Supervisors have been suggested by multiple sources as the most influential population to receive a training intervention within the workplace.[4,9–14] Not only do they deal directly with mental health issues that arise amongst employees, they are also in a position to receive the training with relatively low impact to the employer through both loss of time and costs associated with training days.

Furthermore, studies suggest that employees are hesitant to approach supervisors due to concern that the supervisor would stigmatize them for their MHDs.[15] Kaye, Jans & Jones (2011) echoed these findings as they found that companies with successful accommodation experience and/or experience with disabled employees were less stigmatizing.[16] Our results mirrored these findings as supervisors who had a history of providing accommodation scored over four points lower (β=-4.31, 95% CI [-8.40, -0.22]) on the OMSWA compared to those with no provision experience. This reinforces the need for management to have higher mental health literacy, and receive interventions such as mental health training that cover this content.

While the research would conclude that supervisors are the best option for receiving the training[8,15,17,18], an overlooked piece of information would be their overall stigma levels at baseline. If supervisors were found to have less stigmatizing opinions toward mental health disorders on a whole, then there would be less room for intervention strategies to influence opinions of this population. In fact, amongst the sample we surveyed, the mean OMSWA score for those with training (mean = 46.6, sd=

20.7), was only slightly lower then those without training (mean =48.1, sd = 17.3), indicating low stigma levels amongst both sample populations. Although we saw lower stigma levels associated with supervisors who participated in mental health training, there may be alternative groups where training would be more impactful. Recently, it has been suggested that employees, rather than supervisors, would be a more influential group to target for mental health interventions.[19] One of the biggest determining factors for decreased stigma is higher education and income levels[19,20], both of which are usually seen in supervisors compared to workers. While we did not capture income level for supervisors, education level was highly associated with a lower stigma score in the bivariate analysis, and there was a significantly higher proportion (n=226) of supervisors with higher education levels (university/college or trade school). Supervisors who had completed trade school, college or university, scored 7.7 points lower on the OMSWA (β=-7.70, p=0.02, 95% CI: -14.21, -1.20) compared to those who had only completed high school or less.

Another important factor that may have influenced the lack of association between mental health training and stigma was the high ICC found amongst supervisors in each organization. With over 73% of the variance accounted for by within organization membership, it may be difficult to detect a significant change in stigma as a result from mental health training. This high ICC also suggests that the workplace may be a major factor associated with mental health stigma. Examination of the OCP (Appendix 6, question 15) also identified a significant association with Group and Rational culture in the bivariate analysis. For every one point decline on the Group and Rational culture scale, there was a significant increase in stigma (β=0.85, p=0.008, 95% CI: 0.23, 1.47).

Specifically, these results indicate a decline in flexibility, highlights participation, cooperation, mutual trust, team spirit, cohesiveness, communication and synergy profitability (Group culture), as well as clear/ objective task delegation and performance indication (Rational culture).[21] Collectively, this may suggest that organizations could be associated with increased or decreased stigma levels through their policies, procedures and overall culture.[22] If so, we may not be seeing a significant change in stigma from supervisors who partook in mental health training due to their workplace influence.

The next factor that may have contributed to the lack of association is the participating organizations. We contacted 362 organizations and had 31 agree to partake in the study, yielding a participation rate of 8.5%. With this low participation rate, it could be that organizations with higher mental health literacy were keener to join, therefore creating a self-selection bias. Although steps were taken to randomly select participants in each industrial sector, the employer representative was the individual deciding whether or not they would partake in our study. If companies with higher mental health literacy made up the majority of the participants, then the supervisors may have had lower stigma levels as they were better equipped to deal with MHDs. While we could not account for this issue directly, there are several indicator variables that support this hypothesis. First, the supervisor stigma scores were low, which was likely due to the positive policies and practices these organizations had toward mental health. This was further validated by the OCP Group Culture measure where we observed elevated staff support. In addition, amongst our participants, we saw higher proportion of supervisors who had received training (42.8%) when compared to the most recent national estimate

of 33.3%,[23] again suggesting a potentially higher mental health literacy amongst participating organizations then the rest of the general population.

Lastly, it is important to note the sample size (n=304) of participants who had participated in training (n=144), and had not (n=160). With this relatively small sample, we may not have had enough power to identify a difference in stigma levels between the trained and untrained supervisors, therefore increasing the potential for a type II error. With the confidence interval including zero, we were unable to dismiss the null hypothesis, however the values are trending toward a lower stigma score (-5.12). We could therefore hypothesize that we may have potentially found a significant association between training and stigma had we obtained a larger sample size.

Secondary objective: Details of mental health training

Although there was a lack of association in our primary objective, we were able to perform exploratory analyses of the details from both trained and untrained supervisors. With the lack of a standardized mental health-training program, it was important to examine trends amongst the population, as well as any associations with stigma at the bivariate level. This is especially prudent as not all training courses or topics are designed to address stigma, therefore some may increase it indirectly. To date, there has been no previous study that has collected exploratory details from supervisors who participated in various training courses across multiple industrial sectors to confirm what course and/or course attributes may decrease stigma, furthering the importance of this exploration.

The first notable detail of training was the time elapsed since the supervisor had taken the training. One of the questions we raised during the background research of

mental health training was how long a recipient should wait before renewing it. When compared to physical first aid, it should have a renewal of every three years, in order to account for changes in practice and refresh the skillset. However, mental health training does not have a renewal period. There are suggestions stating it should be refreshed every three years or for past participants to take part in a booster course, but the training does not expire. Amongst our population, just over a third (33.6%) of the supervisors had taken the training more than three years prior to taking the survey. However, at the bivariate level, there were no significant associations between length of time since training and stigma.

Second, a notable detail of training was the inquiry into whether the supervisor had used the skills they had learned in the training both inside and outside the workplace. One of the main motivations for looking at mental health interventions for the workplace was that much of the population interacts with the labour force.[24] By introducing this education in the workplace, there was the potential ripple effect for the learned skills to be taken outside the walls of the organization, and increase the mental health of the employee externally as well. Results from this question supported this hypothesis as over 60% of supervisors had used the skills they were taught in mental health training both inside and outside of their workplace. This is an important finding as it highlights the generalizability of mental health training to multiple settings and scenarios.

Another area of interest from the trained supervisors was whether or not the workplace was mandating mental health training. Over the last ten years, there has been a push for mental health training within specific fields of work, including the military, healthcare, and among first responders.[3,25–29] In contrast, we also found that a large

proportion (77%) of the trained supervisors were offered training at work across nearly all sectors, excluding transportation. These results may indicate that mental health training may be understudied in certain sectors, and training may be more prevalent than previous national studies have concluded.

Next, we wanted to explore the distribution of the length of training courses received, and if there was an association with course length and stigma. This variable was of particular interest as we had hypothesized that longer courses would reduce stigma. Among these programs, training is offered in various lengths, from short courses that focus on mental health emergencies, to longer courses that cover a range of MHDs and application of mental health strategies for various populations such as veterans and Indigenous populations.[30–32] Furthermore, education is a major recommendation for decreasing stigmatizing attitudes toward these disorders,[20,33–35] therefore we expected those who had received longer training to have lower stigma scores on the OMSWA. Contrary to what the literature suggested, those who received over six hours of training scored over eight points higher on the OMSWA compared to those with 3-6 hours and less than 3 hours of training. Examination into course length distribution revealed that the majority of supervisors participated in the shortest (34.9%) or longest course (39.6%) forms. Because most of the training programs are a minimum of 3 hours, these results may suggest that the supervisors participating in shorter training programs are simply receiving mental health training as a portion of their standard supervisor training. These results suggest that training course length is not associated with stigma at the bivariate level, which was not something we had hypothesized given the current body of literature on the influence of mental health education on stigma.

In conclusion, no specific aspect of training was associated with stigma toward employees with MHDs at the bivariate level. Although there was a lack of significance with the outcome measure, results from the secondary objective provide two important features. First, the lack of association may support two theories proposed in the discussion of our primary objective, which included potentially lower stigma levels amongst this supervisor population and/or the workplace being the major factor associated with supervisor stigma. Further research is needed in order to examine these theories. Second, these results provide a snapshot of the current aspects of mental health training supervisors across multiple industrial sectors are participating in, something not previously represented in the literature. These details may assist future study development, and can provide training organizations insight into what course options employers are selecting.

5.2 Epidemiological Implications

5.2.1 Internal Validity

Throughout this study, significant care was taken in order to ensure an accurate representation of any potential association between supervisor mental health training and stigma. First, due to a lack of literature on supervisor mental health training, it was difficult to choose what variables may have confounding effects. We had several elements captured that could potentially influence the association of our dependent and independent variables. For these reasons, we opted to use the Greenland method of FSS to build our model. Bivariate analyses were performed on all potential confounding variables, and those with a p-value ≥ 0.2 were considered in the modelling stage. This also included standard demographic characteristics (age and sex), which were built into the

baseline function as per the FSS modelling approach.[36] As a result, two variables were removed from the model (unionization and managerial level), leaving us with six potential confounders excluding the base model. While this is a high number of variables, we felt we took the necessary approach to create an accurate model that accounted for all factors that may have contributed to the outcome. This was especially important due to the lack of literature surrounding potential factors associated with increased supervisor stigma towards employees with MHDs.

Another area of potential concern was measurement error of the exposure and potential confounding factors. While none of these questions were validated, several steps were taken in order to negate this issue. The first step we took in designing these questions was an in depth literature review of all current training courses and their characteristics in Canada. Following this, we took the preliminary questions to an Advisory Committee for a larger study in which this project was contained, titled *Factors associated with supervisor support of job accommodations for mental health disorders in the workplace*. This committee consisted of the principle investigators and their support staff (research associate and student), a knowledge transfer and exchange specialist, a Workers Compensation Board of Manitoba representative, a worker with a MHD, and multiple stakeholders from organizations in the workplace mental health field (SAFE Work Manitoba, Canadian Mental Health Association, Great West Life Insurance, Mental Health First Aid and Manitoba Nurses Association). Once the first draft of the survey was designed, we then piloted the survey and did one hour follow up sessions with the supervisors to receive feedback and suggestions. These recommendations were then taken to the Advisory Committee a second time and the final questionnaire was formed.

Through this process we feel that the variables collected were done so accurately, and that the results for both objectives were representative of the population surveyed.

Next, an additional factor that became apparent during the data collection phase of the study was the potential for self-selection bias. In total, we contacted 362 organizations to participate, but only obtained 31 participating organizations (8.5% participation rate). With this low participation rate, there is the potential for self-selection bias due to organizations with higher mental health literacy agreeing to join because the topic is something currently incorporated into their business. This bias would mean that our results did not accurately represent the population on a whole due to those with higher mental health literacy being more likely to join. Unfortunately, controlling for this variable would be extremely difficult to account for. We took precautions during the sample selection to ensure our population was heterogeneous through random selection of organizations in each sector. All organizations were invited to participate using the same recruitment tools, follow-up procedures and incentives. Furthermore, we attempted to make the study as low impact as possible for organizations with fewer staff and less time to allot to completing the surveys at work.

Finally, the last potential threat to internal validity could have been the possibility of a type II error made due to the inadequate power from the low sample size. Prior to the study, we calculated a required sample size of 432 supervisors in order to have enough power (minimum clinical significant size of 0.17) to answer the research objective. Our study contained 373 supervisors, however, only 304 of them identified as either participating (n=144) or not participating (n=160) in mental health training. With a larger sample size it is possible that we may have detected a significant association between

training and stigma. This was further supported by the confidence intervals from the regression analysis, whereby we observed a range between -5.12 and 0.81. With the upper end being close to zero, we believe a larger sample could have resulted in a tighter confidence interval, and thus a significant association.

5.2.2 External Validity

Careful consideration was taken during study design to ensure generalizability of results. The first step we took was to make sure we had an accurate representation of the Canadian supervisor population. During the recruitment phase, a minimum number of ≥50 employees were chosen as inclusion criteria. By doing so we were able to include a wide range of company sizes, without running the risk of losing statistical power from too few supervisors in the sample. Additionally, company invitations were done by random selection in order to ensure the heterogeneity of organizations and their experience with mental health to the best of our ability. Although participating organizations did have a higher prevalence of mental health training than a most recent analysis of the Canadian population[23] (42.8% vs. 33.3%), we felt we took all necessary steps in order to establish a sample with broad generalizability.

Another area of potential concern for the generalizability of results was due to our population being restricted to Manitoba and Northwestern Ontario. While these geographic areas do incorporate businesses from rural to larger city center (705,000) environments, it does not include major urban areas found in other parts of the country. We feel that the results achieved in our study are reflective of the population from the geographical area studied, as well as other regions with similar population densities;

however, further research would need to be performed in areas with large population densities (i.e. southern Ontario) in order for results to have increased generalizability.

5.2.3 Causation

This study used a cross sectional design to examine the research question. Therefore, it is important to note that this design does not allow for causal inferences. For the purpose of our study, this means that if we had found an association between our exposure and outcome variables, we would not have been able to determine whether the mental health training was responsible for lower or higher supervisor stigma.

We feel that the cross sectional design was the most appropriate approach for our research question given the insufficient evidence surrounding the potential association between supervisor mental health training and stigma.

5.2.4 Applicability

In summary, we did not find a statistically significant association between supervisor mental health training and stigma toward employees with MHDs. Although there was a lack of statistical significance, we do not feel that mental health training should be rejected as a potential intervention strategy to reduce mental health stigma. With the high ICC amongst employers, there was little room for training or specific training variables to contribute to the variance amongst the supervisors. Additionally, it is possible that we surveyed a supervisor population with higher mental health literacy and a lower baseline stigma. Sample size may have precluded detecting a significant association.

Previous studies of mental health training on the general population and a small population of supervisors has indicated a lower stigma toward people with MHDs;[1–6] therefore it has the potential for wide range applicability across various industry sectors. Further research will need to be conducted in order to explore the association between organizational culture and stigma, as well as a comparative analysis of baseline stigma between supervisors and workers to determine the appropriate population for training interventions.

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Chapter 6: Ethical Considerations

Prior to the commencement of this project, all study tools (consent forms, surveys etc.) and procedures were reviewed by the Lakehead University Ethics Board (*See Appendix 1- Section 8*) and the University of Winnipeg- University Human Research Ethics Board (UW UHREB) (*See Appendix 1- Section 8*). Although this study did not directly expose individuals to any harm, participants may have found the questions emotionally distressing as it discusses personal MHD, as well as experience with MHD. Therefore, it was imperative that each participant understood the risks associated with the survey. We provided a comprehensive information and consent package to each participant, before beginning the survey. All supervisors acknowledged that they had read and understood the risks associated with the study, as well as consent to participate in the survey. In addition, because of the potential sensitivity of MHD, we included a list of local mental health resources for both Manitoba and Northwestern Ontario at the end of the information / consent package [*See Appendix 1-Section 2,3 & 5*]. Furthermore, any organizations that track keystrokes, monitor website activity, *et cetera*, were not offered the electronic survey, bur rather a paper survey in order to keep the participants' information confidential.

Two versions of the survey were available for the supervisors, electronic and hard copy. For electronic surveys, only the consent forms are sent to potential participants by the company liaison via email [*See Appendix 1-Section 5*]. This ensured that the supervisors agreed to participate before receiving the survey links. All electronic consent forms and surveys had a 'ballet box stuffing prevention' filter affixed so participants cannot retake either document. For these reasons, each supervisor also received an

electronic attachment of the consent and information package to ensure they have the project information throughout the entirety of their participation. For the hard copy version of the survey, each package included two prepaid envelopes (one for the consent form, and one for the survey) to ensure there was no identifying information on or with the survey.

All electronic consent and survey data was collected on Qualtrics, a secure online data collection program. Qualtrics uses high-end firewall systems and perform regular system scans and penetration tests to ensure optimal protection of information[1]. All data were downloaded and will be stored for at least 5 years on a password-protected server at Lakehead University. In addition to this protection, we ensured that there was no identifying information on the electronic surveys, thus they will not be able to be traced back to the participant. Hard copy consent forms and surveys will be kept in the principal investigator's office in a locked filing cabinet. As for the electronic surveys, no hard copy survey will have identifying information on them, keeping the participant's answers confidential. Any further project information will be held in a restricted access folder on password-protected computers.

Prior to participation we offered a $1000 incentive to the organization if they reach at least 10% participation, with a minimum of 50 employees invited to participate. In addition to this incentive, we performed a draw for an iPad for one employee in each organization who submitted a completed consent form.

References:

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Chapter 7: Limitations, Strengths and Relevance

7.1 Limitations

This study had several limitations that are noteworthy. First, the overall length of the survey likely impacted the number of respondents. Because this project was included within the survey of another study, it increased the time required to complete the questions as noted by participants during the pilot study and upon study completion via the online survey platform. In an attempt to decrease the effect of this limitation, we broke the larger questions into smaller sections and included additional scales to increase efficiency. Although this alteration addressed this problem for the online survey, we still had recommendations following study completion from participants stating the hard copy survey was too long. An additional issue that likely caused a number of missing variables was double sided printing on the hard copy surveys. Many of the questions focusing on the details of training were left blank in the hard copy. Although the length of the survey likely attributed to these missing values, creating a more user-friendly survey should be a priority in future research. Similarly, another issue of survey design may have been the reliability of measurements used. This is especially true for the secondary objective exploratory variables, where we saw a significant decline in responses compared to the number of supervisors who had acknowledged participation in mental health training. While there may have been issues with recall in remembering the details of training, this is less likely given that many of the supervisors had participated in training less than three years prior to taking this survey.

Next, with the low participation rate (8.5%) we likely had self-selection bias. Although we took care in performing random selection for all organizations, we were unable to control for businesses with a higher mental health literacy participating at

higher rates over those who were less literate. In total, we saw a 9.5% higher prevalence of mental health training in our sample compared to the national average among supervisors. With this over-representation of trained supervisors, it is possible they contributed to a lower stigma score amongst the exposure group. However, as indicated previously, this over-representation was an unavoidable circumstance with voluntary participation.

7.2 Strengths

This study has multiple strengths. First, to our knowledge, it is the only study to date to examine the association between mental health training and stigma across multiple industrial sectors. Previous studies have examined specific training courses in the general public, as well as web-based training in a smaller, single site population of supervisors, but none have looked at supervisors across various employers in multiple industrial sectors. While our findings do not suggest a significant association between training and stigma, a high ICC within each employer suggests that organizational culture may be a major predictor of supervisor stigma. This was also supported by the bivariate analysis of Group culture. Similarly, we found education levels to be highly associated with stigma at the bivariate level. These results provide a solid platform for future research into supervisor stigma, as well as confirmation of the appropriate audience to receive mental health training.

Another strength of this study is the exploratory analysis of the secondary objective variables. No associations were found between training details and stigma at the bivariate level. However, these results provide a current snapshot of various aspects of

training, including the average training course length, time since training, as well as the types of courses being attended. These data may be especially helpful for training programs to review the current trends in employer and supervisor participation, which may assist in program design. In addition to the information gathered from participants, we were also able to report on information from supervisors who did not participate in training. These data adds another layer of depth to the current details on supervisor mental health training, something previously unavailable in present literature. A major finding from these results was that over 62% of untrained supervisors were not aware training existed, which signifies a lack of awareness by either the employer or supervisor. Further analysis will identify which party is lacking exposure to this training, which may also assist in program design from training organizations.

7.3 Relevance

We feel that this study fills an important void in the literature. MHDs are on the rise across Canada[1] and with much of the population participating in the workforce, both governmental and other reputable organizations (Mental Health Commission of Canada, Canadian Mental Health Association) have recommended mental health training as a strategy to decrease stigmatizing attitudes toward employees with MHDs.[2–4] However, no research has completed a review of the association between supervisor training and stigma across multiple industrial sectors.

Prior to this study, very little information was known about overall supervisor stigma, how supervisor mental health training impacted stigma, and what details of training did participants have across multiple industrial sectors. This groundwork can

guide future studies by eliminating variables we found to have no relationships. Furthermore, these data may help drive changes in course design for providers. With the lack of standardization among mental health training courses, these data gives insight into how recipients are using their skills, and some areas where information may be lacking or needs improvement. Overall, in order for the mental health research field to grow, more studies like this will need to be performed in order to shed light on the current circumstances of workplace mental health and intervention strategies to facilitate a healthier population.

References

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Chapter 8: Conclusion

8.1 Summary of Thesis Findings

The objective for this thesis was to examine the association between supervisor mental health training and stigma toward employees with MHDs. This was the first study, to our knowledge, to analyze this association amongst supervisors across multiple industrial sectors. As a secondary objective, we captured exploratory details from those who had both participated and not participated in mental health training. The details of this analysis were also the first captured to our knowledge.

Our results indicated that there was no significant association between supervisor mental health training and stigma toward employees with MHDs. There are multiple hypotheses why these results may have occurred, however, the only theories with supportive data from this analysis were that either the sample size was too low to have the power needed to answer the research question, or that workplace culture may be a major contributor to supervisor stigma. Among our secondary exploratory variables, there were no associations with stigma at the bivariate level.

8.2 Implications of Thesis Research

Despite what had been previously suggested by the literature, we found no association between supervisor mental health training and stigma toward employees with MHDs. However, the low sample size, as well as clustering of responses among supervisors in each organization must be taken into consideration as a major contributor to the lack of association between the exposure and outcome variable. As discussed previously, much of the variance in stigma scores among supervisors was accounted for by within employer correlation. Additionally, we found that Group culture was

significantly associated with stigma at the bivariate level. One way to interpret these results could be that despite supervisors receiving intervention strategies to increase positive mental health at a workplace, they may be operating under the policies and procedures of an employer who does not prioritize mental health in the workplace. Furthermore, strategies to increase awareness of mental health may need to be directed beyond the scope of supervisors to an organizational level. In fact, a 2011 study by the Conference Board of Canada found that only 22% of employees received information on mental health from their employer.[1] Examining these workplace factors will be an important next step, and one that may be extremely impactful.

8.3 Future Directions

This study produced unique foundational knowledge for future research, which was one of the goals when designing this project. Justification for intervention strategies to combat mental health stigma in the workplace were often unsupported by primary research. We were able to take these recommendations from an extensive collection of reputable sources and analyze for potential association. While we did not find an association between training and stigma, organizational culture was highlighted as a possible factor associated with stigma towards employees, and education was found to be highly associated with stigma at the bivariate level. These results lay the groundwork for research that can explore whether the environment within an organization is associated with stigma toward MHDs.

Due to the majority of the variance among our sample accounted for by within employer correlation, it would be unwise to discount the ability of mental health training

to have a positive influence on stigma. Once the relationship between organizational culture and stigma has been better established, further research into the influence of training on stigma may be warranted. As with our primary objective, we did not find any significant associations between the secondary objective details of training and stigma. However, data from these exploratory variables highlight the wide range of training supervisors are receiving. With this broad distribution of training, it is difficult for the employer to determine which program to incorporate into their business. Standardization in the field of mental health training should be a priority amongst training organizations so that the requirements of employees with MHDs are being met.

References

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Chapter 9: Appendices

1. Invitation Letter

Dear **<<***insert name here***>>,**

My name is Dr. Vicki Kristman. I am a Professor at Lakehead University and I am leading a study on workplace accommodations for mental health disorders. The study is being conducted jointly by researchers at Lakehead University, the University of Winnipeg, the Université du Québec à Montréal, Workplace Safety & Prevention Services in Ontario, and Liberty Mutual Research Institute for Safety in the US. The study is funded by the Workers Compensation Board of Manitoba.

I am contacting you to invite your organization to participate in our research study. Your organization is one of 33 organizations from across Manitoba that have been randomly selected to participate. We have identified you as a primary contact for your organization using InfoCan, a publicly-accessible business database.

Here, I would just like to take a moment of your time to give you a brief overview of the study. Additional information is provided in the enclosed study information sheet. The purpose of this study is to understand what factors (organizational/job, supervisor, and worker) determine whether workplace accommodations for workers with mental illness are supported and received, from the perspective of supervisors and workers. If your organization decides to participate, we will ask all supervisors and workers to complete one voluntary survey that takes about 30 minutes to complete. The primary format of the survey is web-based. However, alternative formats are available if the web-based survey does not suit your organization. The research team will provide your organization with all materials required for the study.

We couldn't do this research without the participation of organizations such as yours. To recognize the valuable contribution that organizations make to our research, each participating organization will receive $1000 upon successful completion of data collection from their organization. We define successful data collection as an invitation of at least 50 employees and at least a 10% response rate. Hence, if you invited at least 50 employees and 10% of the people you invite to this study complete the survey, we will provide you with $1000.

Thank you for your time and consideration. We hope your organization will participate in this research study. However, your organization's participation is completely voluntary and the study investigators will keep your decision to participate or not confidential. My Research Assistant, Mr. Chris Viel will contact you by telephone shortly to review the study information and answer any questions you may have before your organization decides whether or not to participate.

Sincerely,

Dr. Vicki Kristman

2. Study Information Package

STUDY INFORMATION SHEET FOR EMPLOYERS

Title	Supervisor and worker perspectives on workplace accommodations for mental health disorders
Investigator	Vicki L Kristman, Associate Professor, Lakehead University (807) 343-8961
Co-Investigators	Marc Corbière, Professor, Université du Québec à Montréal
	William Shaw, Senior Research Scientist, Liberty Mutual Research Institute for Safety
	Karen Harlos, Professor, University of Winnipeg
	Margaret Cernigoj, Management Consultant, Ontario Public Services
Research Assistants	Chris Viel Joshua Armstrong Charlotte McEwen Jennifer Asselstine
Funder	Workers Compensation Board of Manitoba

Introduction

Your company is one of 33 randomly selected employers from Manitoba and Northern Ontario companies to be invited to participate in this research study. The purpose of this memorandum is to provide a brief description of the study. We hope you will be able to assist us in this endeavor.

Purpose

The purpose of this study is to understand what factors (organizational/job, supervisor, and worker) determine whether workplace accommodations for workers with mental illness are supported and received, from the perspective of supervisors and workers.

Study Procedures

If you agree to assist us, we will ask you to send two emails to your employees, one to supervisors and one to workers, which will inform supervisors and workers of the study and invite them to participate. We will provide the emails for you. The emails contain information about the study and links for participation. Potential participants will be asked to complete a confidential web-based survey that should take approximately 30 minutes to complete. The survey includes questions about mental health history, job position, organizational/job factors such as disability management, and demographics (such as age, work experience, income, and education). We will also ask about work accommodation for those with mental health disorders.

If email is not a viable communication tool for your workplace, we will discuss with you how best to reach the potential participants. We can also supply paper-based information letters, consent forms, and surveys with postage-paid envelopes.

The survey will be voluntary but we hope with your endorsement and provision of work-time to complete the survey that most will agree to participate.

Risks Related to Being in the Study

Sometimes questions about mental health or job situations may make people feel emotional or distressed. We will provide a list of support organizations that people can contact.

Benefits to Being in the Study

We will provide you with aggregate scores on the measures of accommodation and the factors being tested in your company, provided that the numbers are large enough that no particular individual can be identified. We will also provide a full summary of the study findings across the 33 participating employers. As a token of our appreciation, we will provide $1,000 to your company once we have finished successful data collection with your company. We define successful data collection as an invitation of at least 50 employees and at least a 10% response rate. Hence, if you invited at least 50 employees and 10% of the people you invite to this study complete the survey, we will provide you with $1000. Information learned from this study may, in the future, help employers, supervisors, and workers compensation boards improve efforts and policies around accommodating workers with mental illness.

Confidentiality

All information collected during this study will be kept confidential and will not be shared with anyone outside the study. Neither the company, nor any supervisor or worker from the company, will be named in any reports, publications, or presentations from this study. No identifying data will be shared with either the Workers Compensation Board of Manitoba (the study funder) or the Workplace Safety and Insurance Board of Ontario.

Expenses Associated with Participating in the Study

There are no expenses associated with participating in this study beyond the provision of work time to allow employees to complete the 30-minute questionnaire.

Questions About the Study

We will contact you by phone in the next couple of weeks to determine if you would be interested in being involved in this study. If at any time before or after this call, you have any questions, concerns or would like to speak to the study team for any reason, please call the principal investigator Dr. Vicki Kristman at 807-343-8961 or the research assistant Mr. Chris Viel at (807) 343-8010 ext. 7665. This study has been approved by the Lakehead University Research Ethics Board and the University of Winnipeg Research Ethics Board. If you have any questions or concerns about this study, contact Susan Wright from the Lakehead University Research Ethics Board at (807) 343-8283 or research@lakeheadu.ca. The Research Ethics Board is a group of people who oversee the ethical conduct of research studies. These people are not part of the study team. Everything that you discuss with them will be kept confidential.

3. Survey Invitation Email

Survey Invitation E-mail for Supervisors (Please attach Supervisor copy of information sheet & consent pdf)

Email Subject: <<*Organization Name***>>** is part of a research study on workplace accommodations for mental health

Greetings,

<<*Organization Name***>>** is pleased to be a part of an important research study on workplace accommodations for mental health. The study is led by researchers from Lakehead University, University of Winnipeg, Université du Quebec à Montreal, and the Liberty Mutual Research Institute for Safety in the US. Thirty employers from across Manitoba will be participating.

The purpose of this project is to explore factors and perspectives of both supervisors and workers regarding workplace accommodations provided by supervisors to workers coping with mental health disorders.

For both supervisors and workers, participation in the study involves responding to a web-based survey that takes approximately 30 minutes to complete. All eligible supervisors and workers from our company are invited to participate in this study. **<<***Organization Name***>>** fully supports the study and encourages you to participate. You are permitted to complete the survey on work time. However, your participation is voluntary.

If you decide to participate, the study investigators would like to thank you for your time and contribution to the study by entering your name in a draw to win an iPad when you have completed the survey. The study investigators will maintain strict confidentiality of the survey information you provide and your decision to participate or not. The study investigators will not share any individual information with your employer. If you choose not to participate, your employment status will not be affected in any way.

A study information letter and consent form is attached for you to keep. Please review the letter at your earliest convenience and click on the link below if you decide to participate. Before you can start the survey you will be asked to give the study investigators your consent to participate electronically.

A few notes on the survey… The survey does not have to be completed at one time. You may exit and resume the survey as many times as you wish. The link below will bring you to the Consent form where you will be instructed to provide an email address. If you choose to consent, a survey link will be sent to the email you provided. Please note, once you have completed the consent and/or survey you will not be able to access them again. If you have any problems with the survey, please contact the study Research Assistant at (807) 343-8010 ext. 7665 or epid.hbsc@lakeheadu.ca for assistance.

Click on this link to participate in the supervisor consent:
<<Consent Link>>

The survey closes *<<Date>>* at 11:59pm.

Sincerely,

_____

4. Survey Reminder Emails

Survey Reminder E-mail for Supervisors (No attachment)

*Weekly Survey Reminder E-mails (Please send week of **<<Week 2>>**, week of **<<Week 3>>**, & week of **<<Week 4>>**)**
Note: These will be based on survey responses and prompted by our research assistant to you.

Subject: Reminder to participate in the Workplace Accommodations for Mental Health Study

Greetings,

This is a friendly reminder about participating in the *Workplace Accommodations for Mental Health Study*. The survey closes **<<Date>> at 11:59pm.**

If you have already completed the survey, thank you!

If you have already started the survey, please complete it before the survey closes using the link that was sent to you upon consent form completion.

For those who have not started the consent and wish to participate now, click on the link below.

For technical assistance with the survey, please contact the study Research Assistant at (807) 343-8010 ext 7665 or epid.hbsc@lakeheadu.ca.

<<Insert consent link here>>

Sincerely,

_____

Final Survey Reminder E-mail for Supervisors (No attachment)

*Please send **<<Last day of survey>>.***

Subject: Reminder: Workplace Accommodations for Mental Health Study survey closes tomorrow

Greetings,

This is the final reminder for the *Workplace Accommodations for Mental Health Study*. The survey closes tomorrow, **<<Last day of survey>> at 11:59pm.**

If you have already completed the survey, thank you!

If you have already started the survey, please complete it before the survey closes using the link that was sent to you upon consent form completion.

For those who have not started the consent and wish to participate now, click on the link below.

For technical assistance with the survey, please contact the study Research Assistant at (807) 343-8010 ext 7665 or epid.hbsc@lakeheadu.ca.

<<Insert consent link here>>

Sincerely,

_____

5. Consent Form

Please see attached Supervisor Consent Form.

INFORMATION SHEET AND CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Title	Supervisor and worker perspectives on workplace accommodations for mental health disorders
Investigator	Vicki L Kristman, Associate Professor, Lakehead University (807) 343-8961
Co-Investigators	Marc Corbière, Professor, Université du Québec à Montréal William Shaw, Senior Research Scientist, Liberty Mutual Research Institute for Safety Karen Harlos, Professor, University of Winnipeg Margaret Cernigoj, Management Consultant, Workplace Safety & Prevention Services
Research Assistants	Chris Viel Charlotte McEwen Jennifer Asselstine Joshua Armstrong Shauna Fossum
Funder	Workers Compensation Board of Manitoba

Dear Potential Participant,

You are being invited to participate in this research study because your employer is one of 33 randomly selected employers from Manitoba or Northern Ontario that has agreed to participate in this study, and your employer has identified you as holding a supervisory position.

The study is being conducted jointly by researchers at Lakehead University, the University of Winnipeg, the Université du Québec à Montréal, Workplace Safety & Prevention Services in Ontario, and Liberty Mutual Research Institute for Safety in the US. Please read this explanation about the study and its risks and benefits before you decide if you would like to take part. Participation in this study is completely voluntary.

Purpose

The purpose of this study is to understand what factors (organizational/job, supervisor, and worker factors) determine whether workplace accommodations for workers with mental health conditions are supported and received, from the perspective of supervisors and workers.

Study Procedures

If you agree to participate, you will be asked to complete a confidential survey that should take approximately 30 minutes to complete. The survey includes questions about your

mental health history and current physical health, your job position, organizational/job factors such as disability management, and demographics (such as age, work experience, income, and education). If you indicate that you have experienced any mental health diagnosis or symptoms in the past 6 months, you will be asked about your perspective on work accommodation.

Risks Related to Being in the Study

We are asking you to disclose any mental health conditions you may have. With the sharing of personal health information there are possible risks of breach of confidentiality. We are taking extra precautions to ensure against this. First, the survey itself has absolutely no personal identifiers on it. Second, this informed consent letter is mailed separately from the survey. Therefore, if someone were to gain access to the information, they would be unable to connect it to you. Third, no identifying information will be shared with your employer, the Workers Compensation Board of Manitoba (the study funder), or the Workplace Safety & Insurance Board of Ontario. All study reports and summaries will include only aggregate findings. You may refuse to answer any question or stop the survey at any time.

Sometimes questions about mental health or your job situation may make you feel emotional or distressed. We have provided a list of contact information for support organizations at the end of this letter that you may print and feel free to contact.

Benefits to Being in the Study

You will not receive any direct benefit from being in this study. Information learned from this study may, in the future, help employers, supervisors, and workers compensation boards improve efforts and policies around accommodating workers with mental illness.

Voluntary Participation

Your participation in this study is completely voluntary. You may decide not to be in this study without penalty, and your employer will not be notified of whether or not you have chosen to participate. You may refuse to answer any question in the survey that you do not wish to answer or end the survey at any time.

Confidentiality

If you agree to participate, all of your personal information will be kept confidential. No identifying data will be shared with either the Workers Compensation Board of Manitoba (the study funder) or the Workplace Safety and Insurance Board of Ontario. Only the research team will have access to the data. After the survey closes, all information you have provided will be stored on a secure password protected server in the locked office of the Principle Investigator at Lakehead University. This secure server can only be accessed by the research team, and it will not be possible to identify you from the survey data.

The data will be stored on a Lakehead University server for a minimum of 5 years after the study findings are published. The research team will not share any personally identifiable information, including your decision to participate, with your employer. The research team will not share any personally identifiable information with anyone outside the study, with the following exception, and only if required:

- Lakehead University Research Ethics Board.

- University of Winnipeg Research Ethics Board.

The Research Ethics Boards may look at the study records and at your personal information to check that the information collected for the study is correct and to make sure that the study is following proper laws and guidelines. All information collected during this study, including your personal information on the consent forms, will be kept confidential, except in the specific cases described. You will not be named in any reports, publications, or presentations that may come from this study. All of the data collected will be summed together and presented as averages or as percentages.

Expenses Associated with Participating in the Study

There are no expenses associated with participating in this study. Your employer has agreed to provide you with time at work to complete the survey. If you are not comfortable completing the survey at work, you may complete it elsewhere.

Reimbursement

After we are finished collecting data from participants at your company, we will do a random draw from all participants who indicated at the end of the consent form that they would like to be included in the draw for one iPad. We have one iPad available for a randomly selected participant from each of the 30 participating companies.

You may also request to have an electronic summary of the overall study results sent to you at an email address you provide. Study findings should be available two years from now.

Conflict of Interest

Lakehead University, the Liberty Mutual Research Institute for Safety in the US, and other sponsors of this study, will pay the researchers for the costs of doing this study. All of these people have an interest in completing this study. Their interests should not influence your decision to participate in this study. You should not feel pressured to join this study.

Questions About the Study

This information letter and consent form is your copy to keep. Once you follow the link in the email, you will be asked to participate electronically. If you have any questions, concerns or would like to speak to the study team for any reason, please call the principal investigator Dr. Vicki Kristman at 807-343-8961 or the research assistant Mr. Chris Viel at (807) 343-8010 ext. 7665. This study has been approved by the Lakehead University Research Ethics Board and the University of Winnipeg Research Ethics Board. If you have any questions about your rights as a research participant or have concerns about this study, contact Susan Wright from the Lakehead University Research Ethics Board at (807) 343-8283 or research@lakeheadu.ca. The Research Ethics Board is a group of people who oversee the ethical conduct of research studies. These people are not part of the study team. Everything that you discuss with them will be kept confidential.

Consent

I have read and understood the information provided above. I have had the opportunity to discuss this study and my questions have been answered to my satisfaction. I understand the

potential risks and benefits of the study. Any data I provide will be securely stored at Lakehead University for a minimum of 5 years following the completion of the project and I will remain anonymous in any publication/presentation arising from this study. I consent to take part in the study with the understanding I may withdraw at any time. I voluntarily consent to participate in this study.

Signature of Participant _____ Name (please print) _____

Date _____

I would like to receive an e-mail summary of the research findings.

No ☐

Yes ☐ If yes, please provide an email address to mail the summary to

E-mail address _____

I would like to be entered into a draw to receive an iPad that will be given to one randomly selected participant from each participating company.

No ☐

Yes ☐

Please provide contact information so we can contact information so we may contact you if you are the participant chosen for the iPad:
Address:
Telephone #:
Organization Name:

List of Mental Health Resources for Manitoba and Northern Ontario

Employer Assistance Program (if available)

Canadian Mental Health Association (1-800-414-0471)

Manitoba

Manitoba Suicide Line Toll free: 1-877-435-7170

Mental Health Crisis Response Centre 1-204-940-1781

Klinic Crisis Line Toll free: 1-888-322-3019

Manitoba Farm and Rural Support Services 1-866-367-3276

Worker's Compensation Board Distress Line Toll free: 1-800-719-3809

Online Emotional Support www.supportonline.ca (Live Web Chat)

Ontario

Connex Ontario 1-866-531-2600 (Phone and live web chat available)

http://www.mentalhealthhelpline.ca/

Northern Ontario Distress and Crisis Centre 1-855-554-HEAL (4325) (Available in English, Cree, Ojibway, Ojibway-Cree)

http://www.talk4healing.com/

6. Survey

Please see attached Supervisor Survey.

Supervisor Survey

Thank you for participating in the Supervisor and worker perspectives on workplace accommodations for mental health study.

This information will help us to understand what factors (organizational/job, supervisor, and worker) determine whether workplace accommodations for workers with mental health conditions are supported and received, from the perspective of supervisors and workers.

We would like to remind you that **this information is confidential and will not be released to anyone**, including your employer or the Workers Compensation Board of Manitoba. You may withdraw from the study at any time. If you do not wish to answer a question please leave it blank and skip to the next question. You may exit this survey and continue later. If you exit the survey by closing the internet browser window before you have completed it, your responses will be saved. Just click on the survey link when you wish to resume and you will be able to start from where you left off.

If you have any questions or concerns about your participation in the study, please feel free to call or write:

Dr. Vicki Kristman
Lakehead University
Department of Health Sciences
955 Oliver Road
Thunder Bay, ON P7B 5E1
(807) 343-8961

Before completing this survey, please answer the following to confirm study eligibility:

Q1. What is the name of your employer? _____

Q2.1. What is your month (mm) and year (yyyy) of birth? _____

Q2.2. Do you supervise at least one working employee (i.e., a non-supervisor)?

- ❍ No
- ❍ Yes

Q2.3. Would you deal with issues of job modification/modified duties should the need arise?

- ❍ No
- ❍ Yes

EXPERIENCE WITH MENTAL HEALTH

Q3. Outside of your work, do you know anyone who has received a diagnosis of depression or other mental health disorder?

- ❍ No
- ❍ Yes

If yes (Q3), how many? _____

If yes (Q3), proceed to Q4…

If no (Q3), proceed to Q6…

Q4**.** How frequently have you had a negative experience with this person(s)?

- ❑ Very little
- ❑ Somewhat frequently
- ❑ Frequently
- ❑ Very frequently

Q5. How frequently have you had a positive experience with this person(s)?

- ❑ Very little
- ❑ Somewhat frequently
- ❑ Frequently
- ❑ Very frequently

Q6. Do you have any mental health disorders?

- ❑ Yes
- ❑ No
- ❑ Prefer not to answer

Q7. **If yes (Q6)**, have you ever had a work accommodation for a mental health disorder?

- ❑ Yes
- ❑ No, because I did not require one.
- ❑ No, because my employer did not provide one.

Q7.1. Do you think you have ever supervised a worker with a mental health disorder?

- ❑ Yes
- ❑ No

Q7.2. Have you provided accommodations to a worker who you thought might have a mental health disorder?

- ❑ Yes
- ❑ No, because there was no accommodation needed.
- ❑ No, because an accommodation was not able to be provided.

DESCRIPTION OF ROUTINELY SUPERVISED JOB POSITION

Before continuing with this survey, you must first choose one position that is typical of the jobs you supervise. Please indicate a specific job title or position that you supervise, and then respond to the questions that follow as they pertain to that job.

Q8.1. Job title/position that is typical of the jobs you supervise: _____

_____

Q8.2. **Do workers in this job/position experience any of the following at the job:**

- ❑ The treadmill syndrome. (Too much to do at once, requiring a 24-hour workday.)
- ❑ Random interruptions.
- ❑ Doubt. (Employees aren't sure what is happening, where things are headed.)
- ❑ Mistrust. (Vicious office politics disrupt positive behaviour.)
- ❑ Unclear company direction and policies.
- ❑ Career and job ambiguity. (Things happen without the employee knowing why.)
- ❑ Inconsistent performance management processes. (Employees get raises but no reviews or get positive evaluation, but are laid off afterward.)
- ❑ Being unappreciated.
- ❑ Lack of two-way communication up and down.
- ❑ Too much or too little to do. (The feeling of not contributing or having a lack of control)

Q8.3. **Do you experience any of the following in your job:**

- ❑ The treadmill syndrome. (Too much to do at once, requiring a 24-hour workday.)
- ❑ Random interruptions.
- ❑ Doubt. (Employees aren't sure what is happening, where things are headed.)
- ❑ Mistrust. (Vicious office politics disrupt positive behaviour.)
- ❑ Unclear company direction and policies.
- ❑ Career and job ambiguity. (Things happen without the employee knowing why.)
- ❑ Inconsistent performance management processes. (Employees get raises but no reviews or get positive evaluation, but are laid off afterward.)
- ❑ Being unappreciated.
- ❑ Lack of two-way communication up and down.
- ❑ Too much or too little to do. (The feeling of not contributing or having a lack of control)

SUPERVISOR AUTONOMY

The following questions require you to describe the authority you have in offering job modifications.

Q9.1. My company allows me to make my own decisions about how to alter job requirements for injured or ill workers.

- ❍ Agree
- ❍ Agree somewhat
- ❍ Neutral
- ❍ Disagree somewhat
- ❍ Disagree

Q9.2. I have no decision-making freedom when it comes to altering job requirements for injured or ill workers.

- ❍ Agree
- ❍ Agree somewhat
- ❍ Neutral
- ❍ Disagree somewhat
- ❍ Disagree

Q9.3. I have a lot of say in how to implement medical restrictions for injured or ill workers that I supervise.

- ❍ Agree
- ❍ Agree somewhat
- ❍ Neutral
- ❍ Disagree somewhat
- ❍ Disagree

Q9.4. In your workplace, how are accommodations most often developed (check all that apply)?

- ❍ Team approach involving me, the supervisor
- ❍ Team approach without involving me
- ❍ Human Resources develops the accommodations
- ❍ Occupational Health develops the accommodations
- ❍ Union develops the accommodations

PERSPECTIVES ON WORK ACCOMMODATION

Q10.1. How has your past experience with the process of providing work accommodations been?

- ❍ I have found the process satisfying
- ❍ I have found the process frustrating
- ❍ I have had no past experience

Q10.2. If you have had a past accommodation experience, how did the most recent experience go?

- ❍ Success
- ❍ Failure
- ❍ Neutral

Q10.3 How much do you agree with the following statement: "Work accommodation is a valuable endeavour."

- ❍ Agree
- ❍ Agree somewhat
- ❍ Neutral
- ❍ Disagree somewhat
- ❍ Disagree

Q10.4. How much do you agree with the following statement: "Work accommodation is a barrier to achieve a well-functioning workplace."

- ❍ Agree
- ❍ Agree somewhat
- ❍ Neutral
- ❍ Disagree somewhat
- ❍ Disagree

Please read the following case scenario and answer the next set of questions based on that scenario.

> *Your employee that you supervise, Mary/Robert, is on sick leave due to depression and is trying to come back to work. The employee has asked for accommodations.*

Q11/12. Based on the typical practices in your organization, your usual supervisory demands, and the job requirements of the position you typically supervise, how likely is it that you would be able to accommodate Robert/Mary with each of the following temporary job accommodations…?

Items	Very likely	Somewhat likely	Somewhat unlikely	Very unlikely	Not an option for this job
Arrange for others to help the worker as needed?	❍	❍	❍	❍	❍
Do not mandate worker to attend social functions?	❍	❍	❍	❍	❍
Pair the worker with a mentor?	❍	❍	❍	❍	❍
Allow the worker to exchange work tasks with others?	❍	❍	❍	❍	❍
Allow the worker to make telephone calls to healthcare providers and others for support?	❍	❍	❍	❍	❍
Modify your expectations of the worker?	❍	❍	❍	❍	❍
Allow the worker to bring his/her support animal to work?	❍	❍	❍	❍	❍
Provide extra training to the worker to learn particular skills	❍	❍	❍	❍	❍
Provide the worker with written instructions and checklists?	❍	❍	❍	❍	❍
Provide additional time for the worker to learn new responsibilities?	❍	❍	❍	❍	❍
Allow the worker time off without pay?	❍	❍	❍	❍	❍
Shorten the worker's work days?	❍	❍	❍	❍	❍

Change the time the worker came and left work?	❍	❍	❍	❍	❍
Allow the worker to take longer or more frequent breaks?	❍	❍	❍	❍	❍
Allow the worker to work from home?	❍	❍	❍	❍	❍
Provide paid time off for the worker's healthcare provider appointments?	❍	❍	❍	❍	❍
Allow the worker to make up time?	❍	❍	❍	❍	❍
Allow the worker to self-pace his/her workload?	❍	❍	❍	❍	❍
Arrange a part-time work schedule for the worker?	❍	❍	❍	❍	❍
Plan for uninterrupted work time for the worker?	❍	❍	❍	❍	❍
Provide a flexible work schedule?	❍	❍	❍	❍	❍
Replace the worker's normal job tasks with things that are easier to do?	❍	❍	❍	❍	❍
Rotate the worker between job tasks?	❍	❍	❍	❍	❍
Use special equipment or tools to make the job easier?	❍	❍	❍	❍	❍
Get the worker assigned to another job temporarily?	❍	❍	❍	❍	❍
Divide the worker's assignments into smaller tasks?	❍	❍	❍	❍	❍
Gradually introduce tasks to the worker?	❍	❍	❍	❍	❍
Rearrange the workplace to be more comfortable?	❍	❍	❍	❍	❍
Move the worker to a different site or location?	❍	❍	❍	❍	❍
Find a more comfortable place for the worker to work?	❍	❍	❍	❍	❍
Reduce distractions in the worker's work area?	❍	❍	❍	❍	❍
Provide space enclosures for the worker?	❍	❍	❍	❍	❍

Allow the worker to change noise levels or wear headphones to play music or white noise?	❍	❍	❍	❍	❍
Allow worker to change the lighting?	❍	❍	❍	❍	❍
Provide the worker with day planners or electronic/software organizers to help organize tasks?	❍	❍	❍	❍	❍
Make daily to-do lists for the worker?	❍	❍	❍	❍	❍
Remind the worker of important deadlines?	❍	❍	❍	❍	❍
Allow the worker to tape record meetings?	❍	❍	❍	❍	❍
Provide the worker with typewritten meeting minutes?	❍	❍	❍	❍	❍
Provide accommodations relating to transportation such as provisions for taxi, bus, etc.?	❍	❍	❍	❍	❍
Provide medication related accommodations such as access to water in the workspace or private space to take medication?	❍	❍	❍	❍	❍
Provide training for coworkers about mental health problems?	❍	❍	❍	❍	❍
Provide the worker with feedback from yourself?	❍	❍	❍	❍	❍
Provide the worker with emotional support? (such as offering time to talk or interaction with colleagues)	❍	❍	❍	❍	❍
Encourage interaction between coworkers?	❍	❍	❍	❍	❍
Provide the worker with rewards or recognition from you?	❍	❍	❍	❍	❍

ORGANIZATIONAL/JOB FACTORS

Disability Management

Q13. How much of the time does your organization achieve the following practices?

	Always	Most of the time	Half of the time	Sometimes	Never	Don't Know
Someone from the organization contacts the employee shortly after an injury or illness to express concern and offer assistance.	❍	❍	❍	❍	❍	❍
Someone from the organization makes a follow-up contact with employees off work due to injury or illness and assesses their progress toward return to work.	❍	❍	❍	❍	❍	❍
Treating clinicians are asked to identify employee restrictions and capacities and to specify a target return to work date.	❍	❍	❍	❍	❍	❍
Someone from the organization maintains regular communication with the injured employee's physician to facilitate return to work.	❍	❍	❍	❍	❍	❍
Claim management within the organization is well coordinated from initial injury to claim resolution.	❍	❍	❍	❍	❍	❍
Long duration claims are evaluated to determine whether more intensive services are required.	❍	❍	❍	❍	❍	❍
Ergonomic approaches are used to assist disabled workers in returning to work.	❍	❍	❍	❍	❍	❍
The organization makes job accommodations to enable employees to return to work, for example, modified job duties, flexible schedule, or special equipment.	❍	❍	❍	❍	❍	❍
The organization provides information to the treating clinician about the requirements of the injured employee's job.	❍	❍	❍	❍	❍	❍
The organization provides information to familiarize the treating clinician with modified work available to accommodate work restrictions.	❍	❍	❍	❍	❍	❍
After injured or ill employees return to work, the organization follows up to adjust work situations as needed.	❍	❍	❍	❍	❍	❍
When employees return to modified duties, the organization develops a plan to transition employees back to regular job duties.	❍	❍	❍	❍	❍	❍

Work teams within the organization cooperate in order to bring injured employees back to work in a timely manner.	❍	❍	❍	❍	❍	❍

Work Stress

Q14. This question is about your main job or business in the past 12 months. What follows is a series of statements that might describe your job situation. Please indicate whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Your job required that you learn new things.	❍	❍	❍	❍	❍
Your job required a high level of skill.	❍	❍	❍	❍	❍
Your job allowed you freedom to decide how you did your job.	❍	❍	❍	❍	❍
Your job required that you do things over and over.	❍	❍	❍	❍	❍
Your job was very hectic.	❍	❍	❍	❍	❍
You were free from conflicting demands that others made.	❍	❍	❍	❍	❍
Your job security was good.	❍	❍	❍	❍	❍
Your job required a lot of physical effort.	❍	❍	❍	❍	❍
You had a lot to say about what happened in your job.	❍	❍	❍	❍	❍
You were exposed to hostility or conflict from the people you worked with.	❍	❍	❍	❍	❍
Your supervisor was helpful in getting the job done.	❍	❍	❍	❍	❍
The people you worked with were helpful in getting the job done.	❍	❍	❍	❍	❍
You had the materials and equipment you needed to do your job.	❍	❍	❍	❍	❍

Organizational Culture

Q15. Please indicate the extent to which each of the values listed below describes your organization.

	A great extent	Somewhat	Very little	Not at all
Fairness	❍	❍	❍	❍
Respect for the individual's rights	❍	❍	❍	❍
Tolerance	❍	❍	❍	❍
Being socially responsible	❍	❍	❍	❍
Being competitive	❍	❍	❍	❍
Achievement orientation	❍	❍	❍	❍
Having high expectations for performance	❍	❍	❍	❍
Being results oriented	❍	❍	❍	❍
Being analytical	❍	❍	❍	❍
Being people oriented	❍	❍	❍	❍
Being team oriented	❍	❍	❍	❍
Working in collaboration with others	❍	❍	❍	❍
Action oriented	❍	❍	❍	❍
A willingness to experiment	❍	❍	❍	❍
Not being constrained by many rules	❍	❍	❍	❍
Being quick to take advantage of opportunities	❍	❍	❍	❍
Being innovative	❍	❍	❍	❍
Risk taking	❍	❍	❍	❍
Being careful	❍	❍	❍	❍
Paying attention to detail	❍	❍	❍	❍
Being precise	❍	❍	❍	❍
Being rule oriented	❍	❍	❍	❍
Security of employment	❍	❍	❍	❍
Stability	❍	❍	❍	❍
Being aggressive	❍	❍	❍	❍
Predictability	❍	❍	❍	❍

Workplace Social Capital

Q16. Please indicate how you feel about the following workplace characteristics:
Please respond to the questions from your own perspective, not the perspective of the workers you supervise.

	Agree	Agree somewhat	Neutral	Disagree somewhat	Disagree
We have a 'we are together' attitude.	❍	❍	❍	❍	❍
People feel understood and accepted by each other.	❍	❍	❍	❍	❍
We can trust our superiors.	❍	❍	❍	❍	❍
People at my workplace cooperate in order to help develop and apply new ideas.	❍	❍	❍	❍	❍
People at my workplace build on each other's ideas in order to achieve the best possible outcome.	❍	❍	❍	❍	❍
Our superiors treat us with kindness and consideration.	❍	❍	❍	❍	❍
Our superiors show concern for our rights as employees.	❍	❍	❍	❍	❍
People keep each other informed about work-related issues at my workplace.	❍	❍	❍	❍	❍

SUPERVISOR BELIEFS & ATTITUDES

Attitudes toward mental disorders in the workplace

Q17. Please read each of the following statements carefully and decide how much you agree or disagree with each statement. Place a check in the correct column for each statement to indicate your response.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I would be upset if a co-worker with a mental illness always sat next to me at work.	❍	❍	❍	❍	❍
Most employees with a mental illness are too disabled to work.	❍	❍	❍	❍	❍
I would not want to be supervised by someone who had been treated for a mental illness.	❍	❍	❍	❍	❍
I would not be close friends with a co-worker who I knew had a mental illness.	❍	❍	❍	❍	❍
Employees with a mental illness tend to bring it on themselves.	❍	❍	❍	❍	❍
The quality of the work performed by employees with a mental illness is unlikely to meet the expectations of the job.	❍	❍	❍	❍	❍
Jobs with tight deadlines and high demands are harmful to employees with mental illnesses.	❍	❍	❍	❍	❍
I would try to avoid a co-worker with a mental illness.	❍	❍	❍	❍	❍
Employees with a mental illness could snap out of it if they wanted to.	❍	❍	❍	❍	❍
Employees with a mental illness are often more dangerous than the average employee.	❍	❍	❍	❍	❍
It would be better for employees with mental illnesses to participate in work activities that are outside of the paid labour force.	❍	❍	❍	❍	❍
If I knew a co-worker who had a mental illness, I would not date them.	❍	❍	❍	❍	❍
Employees with a mental illness often become violent if not treated.	❍	❍	❍	❍	❍
I would not want to work with a co-worker who had been treated for a mental illness.	❍	❍	❍	❍	❍
Most violent crimes in the workplace are committed by employees with mental illness.	❍	❍	❍	❍	❍

I would tell my supervisor if a co-worker was being bullied because of their mental illness.	❍	❍	❍	❍	❍
You can't rely on an employee with a mental illness.	❍	❍	❍	❍	❍
I would stick up for a co-worker who had a mental illness if they were being teased.	❍	❍	❍	❍	❍
You can never know what an employee with a mental illness is going to do.	❍	❍	❍	❍	❍
I would help a co-worker who got behind in their work because of their mental illness.	❍	❍	❍	❍	❍
Most employees with a mental illness get what they deserve.	❍	❍	❍	❍	❍
I would volunteer my time to work in a program for a co-worker with a mental illness.	❍	❍	❍	❍	❍
Employees with serious mental illnesses need to be locked away.	❍	❍	❍	❍	❍

Leadership Style

Q18. The following is a list of items that may be used to describe how you behave as a leader. This is not a test of ability. It simply asks you to describe as accurately as you can, how you behave as a leader of the group that you supervise.

Note: The term, "group," as employed in the following items, refers to a department, division, or other unit of organization, which is supervised by the leader. The term "members," refers to all the people in the unit that you supervise.

As a Leader, I ...

	Always	Often	Occasionally	Sometimes	Never
Do personal favors for group members.	❍	❍	❍	❍	❍
Make my attitudes clear to the group.	❍	❍	❍	❍	❍
Do little things to make it pleasant to be a member of the group.	❍	❍	❍	❍	❍
Try out my new ideas with the group.	❍	❍	❍	❍	❍
Am easy to understand.	❍	❍	❍	❍	❍
Rule with an iron hand.	❍	❍	❍	❍	❍
Find time to listen to group members.	❍	❍	❍	❍	❍
Criticize poor work.	❍	❍	❍	❍	❍
Speak in a manner not to be questioned.	❍	❍	❍	❍	❍
Keep to myself.	❍	❍	❍	❍	❍
Look out for the personal welfare of individual group members.	❍	❍	❍	❍	❍
Assign group members to particular tasks.	❍	❍	❍	❍	❍
Schedule the work to be done.	❍	❍	❍	❍	❍

Maintain definite standards of performance.	❍	❍	❍	❍	❍
Refuse to explain my actions.	❍	❍	❍	❍	❍
Act without consulting the group.	❍	❍	❍	❍	❍
Back up the members in their actions.	❍	❍	❍	❍	❍
Emphasize the meeting of deadlines.	❍	❍	❍	❍	❍
Treat all group members as my equals.	❍	❍	❍	❍	❍
Encourage the use of uniform procedures.	❍	❍	❍	❍	❍
Am willing to make changes.	❍	❍	❍	❍	❍
Make sure that my part in the organization is understood by group members.	❍	❍	❍	❍	❍
Am friendly and approachable.	❍	❍	❍	❍	❍
Ask that group members follow standard rules and regulations.	❍	❍	❍	❍	❍
Make group members feel at ease when talking with them.	❍	❍	❍	❍	❍
Let group members know what is expected of them.	❍	❍	❍	❍	❍
Put suggestions made by the group into operation.	❍	❍	❍	❍	❍
See to it that group members are working up to capacity.	❍	❍	❍	❍	❍
Get group approval in important matters before going ahead.	❍	❍	❍	❍	❍
See to it that the work of group members is coordinated.	❍	❍	❍	❍	❍
Gives advance notice of changes.	❍	❍	❍	❍	❍
Keep the group informed.	❍	❍	❍	❍	❍
Fail to take necessary action.	❍	❍	❍	❍	❍

MEDICAL RESTRICTIONS & COMMUNICATION WITH HEALTHCARE PROVIDERS

Q19. Please answer the following questions regarding the input you receive from healthcare providers (i.e., physicians, chiropractors, etc.).

Q19.1. How clear are the work restrictions you receive from healthcare providers for workers who need accommodations for mental health issues (either directly or through your health and safety office)?

- ❍ I don't receive any restriction information from healthcare providers (skip to 19.3)
- ❍ Very clear
- ❍ Somewhat clear
- ❍ Somewhat unclear
- ❍ Very unclear

Q19.2. How helpful are the work restrictions you receive from healthcare providers for workers who need accommodations for mental health issues (either directly or through your health and safety office)?

- ❍ Very helpful
- ❍ Somewhat helpful
- ❍ Somewhat unhelpful
- ❍ Very unhelpful

Q19.3. How satisfied are you with the support you receive from human resources?

- ❍ Very satisfied
- ❍ Somewhat satisfied
- ❍ Somewhat dissatisfied
- ❍ Very dissatisfied

Q19.4. How satisfied are you with the quality of information from health care providers?

- ❍ Very satisfied
- ❍ Somewhat satisfied
- ❍ Somewhat dissatisfied
- ❍ Very dissatisfied

Q19.5. How often do you speak to your employer about accommodation issues when facing an accommodation?

- ❍ Never (0% of the time)
- ❍ Seldom (less than 50% of the time)
- ❍ Sometime (50% of the time or more)
- ❍ Always (100% of the time)
- ❍ Don't know

Q19.6. How often you require medical confirmation of functional limitations in order to provide an accommodation?

- ❍ Never (0% of the time)
- ❍ Seldom (less than 50% of the time)
- ❍ Sometime (50% of the time or more)
- ❍ Always (100% of the time)
- ❍ Don't know

MENTAL HEALTH TRAINING

Q20.1. Have you ever participated in any training program that specifically covered one or more of the following topics? Please indicate in the check box which topics were covered.

- ❑ Increasing awareness of mental health
- ❑ Signs and symptoms of common mental health problems and crisis situations
- ❑ Interaction with people with mental illnesses
- ❑ Resources available to people with a mental illness
- ❑ Information about effective interventions and treatments
- ❑ Explanations of mental health, mental illness and mental health problems
- ❑ Have never participated in any training

Q20.2. Have you completed any of the following training programs that focused on mental health? Please identify those completed in the check box.

- ❑ Mental Health First Aid
- ❑ The Canadian Mental Health Association Workplace Training Program
- ❑ Mental Health Works
- ❑ Other Specify:_____
- ❑ Never completed any training program focused on mental health

If you HAVE participated in a training topic (Q20.1) or program (Q20.2) continue with Q20.3, **If you have NOT participated in any training topic (Q20.1) or program (Q20.2) skip to Q20.13**,

Q20.3. How long ago did you participate in mental health training?

- ❍ Less than 1 year ago
- ❍ 1-3 years
- ❍ Greater than 3 years ago

Q20.4. Was the mental health training offered through your employer?

- ❍ Yes
- ❍ No

If yes (Q20.4),

Q20.5. Was attendance at the mental health training through your employer mandatory or voluntary?

- ❍ Mandatory
- ❍ Voluntary

Q20.6. Approximately, what was the duration of the training?

- ❍ <3 hours
- ❍ 3-6 hours
- ❍ >6 hours

Q20.7. What was the delivery format of this training (*multiple selections possible*)?

- ❑ Personal interaction with other participants and a trainer
- ❑ Videos (e.g., DVD, movies, etc.)
- ❑ Role play
- ❑ Small group activities (e.g., discussions, brainstorming activities)
- ❑ Discussions in large groups
- ❑ Conferences (e.g., educational presentation with relevant documentation)
- ❑ The use of specific case examples to illustrate concepts.
- ❑ Lecture style

Q20.8. Have you used the skills you learned in this training outside of the workplace? (e.g. at home, with a stranger etc.) Yes No

Q20.9. How useful was this training for this circumstance?

- ❍ Very useful
- ❍ Sort of useful
- ❍ Unsure
- ❍ Of little use
- ❍ Not useful

Q20.10. Have you used the skills you learned in this training inside of the workplace?
Yes No

Q20.11. How useful was this training for this circumstance?

- ❍ Very useful
- ❍ Sort of useful
- ❍ Unsure
- ❍ Of little use
- ❍ Not useful

If *Very useful* was selected, proceed to Q21.1.,
If you answered *Sort of useful, Unsure, Of little use* or *Not useful* for Q20.11, proceed to Q20.12,

Q20.12. What was missing from this training?

- ❑ Problem recognition (recognizing symptoms or other ways of identifying potential mental health problems) in employees
- ❑ Strategies for work accommodation to facilitate integration or return to work of an employee.
- ❑ The difference between problems in performance and symptoms of a disease
- ❑ Treating mental illness as seriously as other illnesses (e.g., physical illness)
- ❑ The manager`s legal obligations with respect to an employee with a mental illness
- ❑ The spectrum of mental health problems (symptoms and diagnosis)
- ❑ Information on mental health issues
- ❑ Government legislation and internal policies in relation to a mental illness such as depression
- ❑ The ability to better manage the absence of employees due to a mental illness such as depression
- ❑ How a colleague could support an employee who received a diagnosis of depression

If you have NOT participated in any training topic (Q20.1) or program (Q20.2),

Q20.13. Were you aware such training existed? Yes No

Q20.14. Was training offered or available to you? Yes No

If *yes* (Q20.14.),

Q20.15. What was your reason for not taking the training? (e.g. not interested, absent during training days, too busy at work etc.)

_____

_____

DEMOGRAPHIC QUESTIONS

Finally, please complete the following demographic information.

Q21.1. How would you describe your ethnic/racialized background? Check all that apply.

- ❑ Aboriginal/Indigenous (e.g., First Nations, Inuit, Metis, etc.)
- ❑ Arab (e.g., West Asia/ Middle East, North Africa, etc.)
- ❑ Asian (e.g., Chinese, Japanese, Korean, etc.)
- ❑ Black Caribbean (e.g., Jamaican, Bahamian, etc.)
- ❑ Black African (e.g., Nigerian, Somalian, Sudanese, etc.)
- ❑ Latin American (e.g., Central American, South America, etc.)
- ❑ South Asian (e.g., Indian, Pakistani, Sri Lankan, etc.)
- ❑ Southeast Asian (e.g., Cambodian, Filipino, Laotian, Malaysian, Thai, Vietnamese, etc.)
- ❑ White/Caucasian (e.g., Western European, Eastern European, etc.)
- ❑ Other (Please Specify) _____
- ❑ Choose not to answer

Q21.2.What was your biological sex at birth?

- ❍ Male
- ❍ Female
- ❍ Intersex
- ❍ Choose not to answer

Q21.3.What is your gender?

- ❍ Woman
- ❍ Man
- ❍ Trans Man, Trans Woman, or Two Spirit
- ❍ Gender Neutral or Gender Free
- ❍ Another Gender Identity (please specify) _____
- ❍ Choose not to answer

Q21.4.Here is a list of terms to describe sexuality or sexual orientation. Check all terms with which you identify.

- ❑ Bisexual
- ❑ Gay
- ❑ Heterosexual/Straight
- ❑ Lesbian
- ❑ Queer
- ❑ Questioning
- ❑ Another Sexual Orientation (Please Specify) _____
- ❑ Choose not to answer

Q21.5. Highest level of education achieved:
- ❍ High school or less
- ❍ Some trade, college, university, or technical school
- ❍ Completed trade, college, university, or technical school

Q21.6. Managerial level:
- ❍ Frontline supervisor/manager
- ❍ Mid-level manager
- ❍ Executive

Q21.7. Number of years with the company: _____

Q21.8. Total number of years as a supervisor (any employer): _____

Q21.9. How many people are in the working group or unit that you supervise?
- ❍ I work alone
- ❍ 1 person
- ❍ 2-5 people
- ❍ 6-10 people
- ❍ 11-20 people
- ❍ 21 or more people

Q21.10. Are the workers you supervise unionized?
- ❍ Yes, all of them
- ❍ Yes, some of them
- ❍ No
- ❍ Don't know

Q21.11. What is the gender distribution of the workers you supervise?

- ❍ 100% female
- ❍ 50-99% female
- ❍ 50% female, 50% male
- ❍ 50-99% male
- ❍ 100% male

Q21.12. What is the average age of the work unit you supervise?

- ❍ 20 to 25
- ❍ 26 to 30
- ❍ 31 to 35
- ❍ 36 to 40
- ❍ 41 to 45
- ❍ 46 to 50
- ❍ 51 to 55
- ❍ 56 to 60

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY!!

7. Regression Analysis

Beta= -2.15

```
Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = -1020.8384
Iteration 1:   log likelihood = -1020.8384

Computing standard errors:

Mixed-effects ML regression                     Number of obs     =        261
Group variable: Employer                        Number of groups  =         30

                                                Obs per group:
                                                              min =          2
                                                              avg =        8.7
                                                              max =         34

                                                Wald chi2(11)     =      27.41
Log likelihood = -1020.8384                     Prob > chi2       =     0.0040
```

total_OMSWA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
MH_Training	-2.154519	1.51153	-1.43	0.154	-5.117063	.8080258
AGE	.0783805	.0775658	1.01	0.312	-.0736458	.2304067
NEW_SEX						
1	-1.52379	1.749813	-0.87	0.384	-4.953361	1.90578
2	9.803897	6.341305	1.55	0.122	-2.624833	22.23263
Accommodation_W	-.8696113	1.283192	-0.68	0.498	-3.384621	1.645398
Education_level						
1	-4.825783	2.52628	-1.91	0.056	-9.777202	.1256352
2	-6.480325	2.215672	-2.92	0.003	-10.82296	-2.137688
Exp_MH	-.8393924	1.921037	-0.44	0.662	-4.604557	2.925772
OCP_Group	.6480483	.2555378	2.54	0.011	.1472035	1.148893
OCP_Rational	-.1662655	.3853095	-0.43	0.666	-.9214583	.5889273
Y_w_C_NEW	-.2066706	.4070644	-0.51	0.612	-1.004502	.5911611
_cons	48.41725	6.41726	7.54	0.000	35.83965	60.99484

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
Employer: Identity				
var(_cons)	283.2673	78.20064	164.8953	486.6142
var(Residual)	104.2425	9.697636	86.86766	125.0927

```
LR test vs. linear model: chibar2(01) = 198.42        Prob >= chibar2 = 0.0000
```

8. Ethics Approval

Lakehead UNIVERSITY

Research Ethics Board
t: (807) 343-8283
research@lakeheadu.ca

June 16, 2016

Principal Investigator: Dr. Vicki Kristman
Co-Investigators: M. Cernigoj, W. Shaw, K. Harlos, M. Corbiere
Student Researchers: J. Asselstine, C. Viel
Project Staff: P. Reguly
Health and Behavioural Sciences
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1

Dear Dr. Kristman and project team members:

Re: REB Project #: 002 16 -17 / Romeo File No: 1465240
Granting Agency: WCB Manitoba
Granting Agency Project #: N/A

On behalf of the Research Ethics Board, I am pleased to grant ethical approval to your research project titled, "Supervisor and worker perspectives on workplace accommodations for mental health".

Ethics approval is valid until June 16, 2017. Please submit a Request for Renewal to the Office of Research Services via the Romeo Research Portal by May 16, 2017 if your research involving human participants will continue for longer than one year. A Final Report must be submitted promptly upon completion of the project. Access the Romeo Research Portal by logging into myInfo at:

https://erpwp2.lakeheadu.ca/

During the course of the study, any modifications to the protocol or forms must not be initiated without prior written approval from the REB. You must promptly notify the REB of any adverse events that may occur.

Best wishes for a successful research project.

Sincerely,

Dr. Lori Chambers
Chair, Research Ethics Board

/scw

THE UNIVERSITY OF WINNIPEG

University Human Research Ethics Board
(UHREB)

Statement of Ethics Vetting

The following ethics proposal has been approved by the UHREB. The approval is **valid for one year** from the date stated below.

For research lasting longer than one year, it is the responsibility of the researcher to obtain Protocol Renewal. Renewal may be granted for **one year only**, after such time a new protocol must be submitted. Any changes made to the protocol should be reported to the Program Officer for UHREB review prior to implementation. See *UHREB Policies and Procedures* for more details.

Name of Investigator(s): Karen Harlos	**Department:** Business and Administration
Faculty Supervisor	
Co-investigator(s): Vicki L Kristman, Associate Professor, Lakehead University; Marc Corbière, Professor, Université du Québec à Montréal; William Shaw, Senior Research Scientist, Liberty Mutual Research Institute for Safety; Margaret Cernigoj, Management Consultant, Workplace Safety & Prevention Services	
Title of Project: **Supervisor and worker perspectives on workplace accommodations for mental health disorders**	
Research Office File #: GT897 Multi-Site Lakehead University	**Date of Approval:** July 5, 2016
Authorizing Signature: HMowat Heather Mowat Program Officer, Research Implementation, Ethics and Contracts Office of the Vice-President, Research and Innovation Telephone: (204) 786-9058 E-mail: h.mowat@uwinnipeg.ca	

9. Curriculum Vitae

Summary of Qualifications

Health sciences researcher with an interdisciplinary background in both the core and social sciences. Skilled in research design, qualitative and quantitative research methods, as well as statistical analysis. Broad leadership experiences from employment, volunteering, extracurricular and research positions. Works well independently, as well as part of a team. Excellent communication, organizational, and planning skills. Significant knowledge and experience with mental health, addictions and vulnerable populations.

Education

Masters of Health Science, ***Epidemiology*** - Lakehead University, Thunder Bay, ON (2016-Present)

Bachelor of Arts, ***Gerontology*** - Lakehead University, Thunder Bay, ON (2015-2016)

Bachelor of Science, **Honours**, ***Biology*** - Lakehead University, Thunder Bay, ON (2008-2014)

Ontario Secondary School Diploma, St. James Catholic High School, Guelph, ON (2003-2007)

Awards and Recognitions

Frederick Banting and Charles Best Canada Graduate Scholarship 2017
-Awarded to students demonstrating exceptionally high potential for future research achievement and productivity during their Master's degree.

Lakehead University Graduate Entrance Scholarship 2015
-Awarded to entering graduate students that display exceptional research potential and undergraduate academic achievement.

Summer School on Medical Imaging Research Award (3rd Place) 2013
-Awarded to a summer student at the TBRRI with an outstanding presentation on their summer research.
-Chosen by Dr. Michael Campbell, PhD (Director of Research Operations, Thunder Bay Regional Research Center) and Dr. Andrew Dean, PhD (Dean of Science and Environmental Studies, Lakehead University)

MVP Men's Heavyweight Varsity Rowing- Lakehead University 2012
-Men's rowing team member who shows exceptional leadership, academic, and sportsmanship qualities for 2011-2012 season.

Central Ontario Rowing Association National Regatta (Bronze Metal) 2011
-U23 Sr. Heavyweight cox four.

Publications/Presentations

- **Viel, C.**, Corbière, M., Bédard, M. & Kristman, V. (2018) The association between supervisor mental health training, and workplace mental health accommodation and stigma. Canadian Association for Research on Work and Health- Poster with Verbal Presentation.
- **Viel, C**. & Kristman, V. (2017) Assembling a survey for supervisor and worker perspectives on workplace accommodations for mental health disorders- A pilot study and preliminary results. Northern School of Medicine- Northern Health Research Conference.
- **Viel, C**. & Kristman, V. (2017) Assembling a survey for supervisor and worker perspectives on workplace accommodations for mental health disorders- A pilot study. St. Joseph's Care Group- Centre for Applied Health Research Conference.
- Couch, M., Fox, M., **Viel, C**., Gajawada, G., Li, T., & Albert, M. (2016) Fractional ventilation mapping using inert fluorinated gas MRI in rat models of inflammation and fibrosis. *NMR in Biomedicine*. *29(5).* 545-552
- Asker, M., Barker-Lavalle, K., Chadwick, S., Co, C., Courtney, J.,...**Viel, C.**, & Stones, M. (2015). 'Victims' Voices': Evaluation of a Video on Financial Abuse of Older People. *Senior Care Canada. 17*(4). 14-16.
- **Viel, C**., Biman, B., & Albert, M. (2014) Chronic Respiratory Disease Among Canada's Aboriginal Population. Fort William First Nation Health Fair Poster Presentation (2014)
- **Viel, C**., Fox, M., Wang, P., Ball, I., Li, T., Gajawada, G., Wang, R., & Albert, M. (2013) Hyperpolarized Helium-3 MR Functional Ventilation Imaging of Mouse Lungs utilizing Hydrogen Sulfide. Lakehead University Chemistry Department Poster Presentation

Employment

Research Associate *09/2018-Present*

Homewood Research Institute- Guelph, ON

As a Junior Research Associate with HRI, much of my work was focused on data management for the Recovery to Journey Program. This study collects baseline and post discharge outcome information on patients in the Addiction Medical Services unit at the Homewood Health Centre. In addition to this project, I also assist with data management of analysis of the Post-Traumatic Stress Recovery project.

Research Assistant

Lakehead University- Thunder Bay, ON

With the majority of my Master's degree completed, I was able to perform research tasks requiring a higher degree of responsibility. This job has required I take the lead on two projects under the supervision of the principal investigator. First, I took over *5/2018- 08/2018*

the final stage of the study evaluating the Superior Mental Wellness @ Work project in conjunction with the Thunder Bay District Health Unit. Most recently, I have been working with the Nokiiwin Tribal Council analyzing factors influencing labour force participation of six Indigenous communities in the Thunder Bay region.

Graduate Assistant
Lakehead University- Thunder Bay, ON
As a graduate assistant, I was in charge of several ongoing projects throughout the year. First, I continued as the project lead for the Workers Compensation Board of Manitoba Supervisor and Worker Perspectives on Workplace Accommodations for Mental Health project. My responsibilities included participant recruitment and follow-up, advisory board communications, survey validation, and quarterly reports to the funding organization. In addition, I also participated in the Nokiiwin Tribal Council E-Health Hack-a-thon project. During this time I attended focus groups with Nokiiwin Tribal council, interested stakeholders, as well as community liaisons and Chiefs to discuss the mental health mobile app development.

9/2016-04/2017 & 09/2017-04/2018

Research Assistant
Lakehead University- Thunder Bay, ON
As project lead, I was responsible for the start-up of the Workers Compensation Board of Manitoba Supervisor and Worker Perspectives on Workplace Accommodations for Mental Health project. This included formation of the project Advisory Board, coordination of initial board meeting, and alterations to the data collection methods based on ethics and Advisory Board recommendation.

05/2016-08/2017

Research Assistant
Thunder Bay Regional Research Institute- Thunder Bay, ON
This position involves planning and executing research experiments involving Magnetic Resonance Imaging with the use of hyperpolarized and inert fluorinated gases. I have undergone the required MRI safety training and am capable of performing experiments using the MRI scanner. I am responsible for analyzing any data collected during experiments, which requires me to be proficient in the engineering software, MATLAB. My public speaking skills have been refined by giving required weekly power-point presentations, showing my experimental progress and findings to my supervisor and colleagues. I was also required to give a presentation at the end of my summer position to all researches and students at TBRRI along with several professors of Science at Lakehead University showing the research I had done throughout the summer. With this presentation, I won third prize at the Summer School of Medical Imaging Student Presentations Award.

11/2012-05/2016

Manager
D&R Sporting Goods- Thunder Bay, ON
As a manager at one of the largest hunting and fishing stores in Northern Ontario I have many responsibilities. First, one of my main positions in the store is that of bow technician. Archery has long been a hobby of mine and over the last four years I have had the ability to learn and progress my knowledge to a level where I can comfortably sell and service bows, as well as maintain the archery department at the store. In addition to archery, I am also an extremely avid fisherman and go the extra mile to ensure my knowledge is up to date by taking courses related to the various

10/2012-08/2018

products carried by our store. This allows me to help with ordering and customer service as I have built a solid relationship and reputation throughout the industry.

Volunteer Experience

Canadian Red Cross *09/2012-08/2018*
Personal Disaster Assistant (PDA) - Thunder Bay, ON
My main role as PDA is to respond to small-scale disasters including house fires and car accidents. After an initial meeting with the clients, I decide what services are required including: reception and information; family reunification; emergency lodging; emergency food; emergency clothing; and personal services. For this role I am on call 24 hours a day for a seven-day period (once a month). During large-scale disasters such as evacuations and floods, my role changes and I become part of a larger team as we attempt to meet the basic needs of hundreds, to thousands of individuals at one time. Most recently, I've received my 5-year recognition certificate for commitment and accountability as a Red Cross volunteer.

Thunder Bay Indian Friendship Centre *05/2013-08/2018*
Court Services Circle Member- Thunder Bay, ON
My role for this position is to give Aboriginal individuals who are charged with low-level crimes, the chance to take an alternative route to the court system. It gives them the opportunity to reconnect with their traditional teachings, while creating a 'healing' plan that usually addresses the underlying reasons why the crime was committed in the first place. As a circle member I help formulate a plan, while trying to learn about the clients goals and how to direct them toward achieving those goals. Our organization offers many services and evening activities/events that usually include our clients. We also have the privilege of working with Elders in the community and attending seminars on issues that are facing our Aboriginal populations in Northern Ontario.

Extracurricular Activities

Canadian Society for Epidemiology and Biostatistics (CSEB)- Lakehead Chapter
Professional Development Director – Thunder Bay, ON (*09/2017- 06/2018*)
As the director of professional development my focus was on promoting the field, academic programs, as well as careers in epidemiology. I programmed my approach to include students at both the undergraduate, as well as graduate level. Events were held to expose students to the faculty and their research fields, as well as a crash course on applying to graduate school with the Lakehead Graduate Admissions Officer. Additionally, I created a newsletter each semester that included information on faculty, important deadlines (funding, graduate school application, etc.), and tips and tricks section. Lastly, with the CSEB Student conference held at Lakehead University in June 2018, I was in charge of recruiting moderators for the oral presentation sections.

Northern Ontario School of Medicine Medical and Health Research Interest Group
Lakehead University Representative – Thunder Bay, ON (*09/2014- 10/2016*)
This group was founded with the intention of creating a platform for undergraduate and medical students to appreciate the importance of research, the research being conducted in the community,

and how they can stay involved in research while pursuing a career in medicine. As the Lakehead representative of the group, I was responsible for assisting with planning, organizing and implementing events put on by MAHR, as well as recruiting students for group and executive members

Thunder Bay Regional Research Institute Health and Safety Committee
Committee Member & Lab Representative- Thunder Bay, ON (07/2015- 12/2015)
Attend monthly meetings regarding health and safety matters throughout the research institute. As a lab representative I also acted as a liaison between the committee and any matters directly pertaining to our lab/group.

Other Qualifications

Trained in Standard First Aid with CPR Level HCP 08/2015
Canadian Red Cross – Thunder Bay, ON

Animal Care and Use Protocol Training (Humane Endpoints for Laboratory Rodents) 07/2015
Thunder Bay Regional Research Institute – Thunder Bay, ON

Trained in MRI Safety and Operation 05/2014
Thunder Bay Regional Research Institute – Thunder Bay, ON

TCPS-2: Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans 09/2013
Thunder Bay Regional Research Institute – Thunder Bay, ON

Successfully completed Canadian Council on Animal Care Training 05/2013
Lakehead University- Thunder Bay, ON