Knowledge and Beliefs About Mental Health and Their Impact on Attitudes and Help-Seeking Behaviour

Elizabeth I. Cawley-Fiset

Department of Psychiatry

McGill University, Montreal

August 2016

A thesis submitted to

McGill University in partial fulfillment

of the requirements of the degree of Doctor of Philosophy

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Abstract

A significant number of post-secondary students who struggle with mental health problems elect not to seek professional help. Increasing mental health literacy has been proposed as a method to potentially facilitate help-seeking behaviour via enhanced problem recognition, but this assertion has yet to be examined empirically. In the present study, 165 university students were recruited to take part in an online mental health study. Participants were randomly assigned to either a stigma reduction or mental health literacy condition. In addition, half of the participants within each group were assigned to complete a mental health symptom self-assessment. Pre-intervention data on symptomatology, barriers to treatment, and attitudes about mental health were collected pre- and post- intervention. Overall, students reported generally low levels of stigma about mental health and positive beliefs about treatment efficacy. However, participants reported a number of treatment barriers including: questioning the seriousness of their symptoms and a desire to handle the problem on their own. Post-intervention analysis found that those participants with an untreated mental illness reported significantly poorer attitudes about seeking treatment compared to those who were treated. Amongst untreated participants, the mental health literacy condition, but not stigma reduction condition increased positive attitudes about seeking mental health services. In addition, support was found for an explanatory model such that those in the mental health literacy condition with an affirmative mental health self-assessment reported increased problem identification, which in turn, was positively associated with greater help-seeking attitudes and intentions. These results add to the evidence that mental health literacy should be considered a critical barrier to help-seeking amongst post-secondary students, at least for those with low levels of stigma.

Résumé

Un nombre important d'étudiants universitaires, particulièrement ceux avec une présentation atypique, n'ont pas recours aux services d'aide de santé mentale. Même si une connaissance accrue de ce sujet aurait pu mener à une augmentation du nombre de consultation, la preuve empirique de cette assertion manquait. Cette étude a recruté 165 étudiants pour un sondage internet sur la santé mentale. Les participants ont été randomisés soi à une intervention de déstigmatisation soi à une intervention centrée sur l'enseignement. De plus, la moitié des participants dans chaque groupe ont rempli une auto-évaluation complète sur leur santé mentale. Les données relatives à leur symptomatologie, leur attitude et les obstacles perçus comme allant à l'encontre d'une recherche d'aide ont été récupérées avant et après l'intervention. En somme, les participants signalaient peu de préjugés envers les stigmas de la santé mentale et une opinion positive quant à l'efficacité des traitements disponibles. Par contre, les participants signalaient plusieurs obstacles quant à la recherche à l'aide, tels que des doutes quant à la gravité de leurs symptômes et une volonté d'affronter leurs symptômes par eux-mêmes. L'analyse post intervention a démontré que les participants ayant recherché les services de santé mentaux avaient une attitude plus favorable envers ces services que ceux ne les ayant pas recherchés. L'intervention quant aux connaissances reliées à la santé mentale a mené à des perceptions plus positives, ce qui n'a pas été le cas avec l'intervention de déstigmatisation. De plus, l'intervention touchant autant l'enseignement que l'auto-évalutation avec rétroaction a mené à une identification accrue de problème et à une augmentation des consultations. Ces résultats contribuent à étayer l'hypothèse que les connaissances quant à la santé mentale sont un obstacle majeur à la consultation, particulièrement chez ceux ayant un niveau faible de stigmatisation.

Acknowledgments

The completion of this research, and ultimately my degree, would not have been possible without the support, guidance, and direction of several influential people. Therefore, I would like to thank my supervisor Nancy Low for her supervision and assistance. In addition, I would like to thank my committee members Lila Amirali, Nancy Heath, Guillaume Galbaud Du Fort, and Pino Alfonsi for their feedback. I would like to thank, with tremendous respect and appreciation, Marco Leyton for his years of previous supervision, encouragement, and rigorous training that shaped me into the researcher I am today. Thank you to Lina Di Genova and the Office of Planning and Institutional Analysis for the tremendous assistance with obtaining this sample of students. Thank you to the McGill Writing Centre for the writing space, workshops and encouragement that was incredibly beneficial in my final year. Thank you to James Harvey for your impeccable copy editing. Thank you to the Bell Enterprises' Let's Talk Campaign for their generous donation to McGill University, which supported this project. Thank you to Debra and Gary Meger for your financial contribution to this research; without your support, both financial and otherwise, this dissertation would not have been possible. Thank you to Brighita Lungu for the tremendous assistance with participant recruitment, and for lending me your impeccable graphic skills. Finally, to John Fiset, thank you for collaborating, contributing, and ultimately providing unwavering guidance and encouragement at every stage.

Funding

This research was generously funded by Debra and Gary Meger and a donation from Bell Enterprises' Let's Talk Campaign. The Bell Let's Talk initiative is a multi-year charitable program dedicated mental health which focuses on raising awareness and encouraging dialogue about mental health.

Statement of Originality

- This study was the first to experimentally assess whether increasing the perception of need for mental health professional services and knowledge of these same services using an online mental health literacy intervention would alter problem identification in a sample of post-secondary students.

- The quantitative approach employed by this study offers unique findings in that it directly compares two distinct interventions: stigma reduction and mental health literacy. No previous work, to my knowledge, has directly assessed these two types of help-seeking interventions and measured real-time changes to help-seeking intention.

- In contrast to most existing studies, pre-intervention data on self-reported barriers and attitudes about mental health were collected and changes post-intervention were empirically assessed.

- A mental health literacy intervention that removed the element of stigma reduction was developed and allowed for the assessment of these two barriers independently of one another.

- This dissertation posits an adapted model of help-seeking behaviour, which combines elements of two previous models and adds to these for a more extensive model of adolescent help-seeking.

Contribution of Authors

This thesis comprises a single experiment. Each component of this thesis was authored by the primary author, Elizabeth Cawley-Fiset. Elizabeth was solely responsible for conception of the project, production of ethics documents, conducting the experiment, and writing the dissertation.

CHAPTER 1. INTRODUCTION AND OVERVIEW

Young people, aged 15 to 24 years, are more likely than any other age group to struggle with mental health problems (Pearson, Janz, & Ali, 2013). Undergraduate university students, who are typically in this age range, are at-risk for the development, relapse, or exacerbation of a variety of psychological challenges. Universities across North America are facing a surge in mental health problems, and are striving to develop a systemic and evidence-based approach to what has been designated a mental health epidemic (Henriques, 2014; Schwartz & Kay, 2009).

1. 1 Problem Statement

Despite the large number of post-secondary students facing mental illness, many choose not to seek professional help. Rates of treatment seeking and demographic predictors of treatment seeking have been studied using data from the Healthy Minds Study (Eisenberg, Gollust, Golberstein, & Hefner, 2007), an annual web-based survey of mental health status, treatment utilization, and related mental health issues amongst post-secondary students in the United States. The Healthy Minds Study was first launched in 2007 and has been used at over 100 post-secondary institutions with over 100,000 participants. Rates of treatment-seeking among students vary, but in general fewer than 50% who are struggling with mental or emotional problems receive professional treatment (Blanco et al., 2008; Eisenberg, Golberstein, & Gollust, 2007; Eisenberg, Hunt, Speer, & Zivin, 2011). Some characteristics predictive of even lower treatment-seeking amongst post-secondary students have also been identified. These include: academic discipline

(Lipson, Zhou, Wagner III, Beck, & Eisenberg, 2016), gender-identity (Pedrelli, Borsari, Lipson, Heinze, & Eisenberg, 2016), sociodemographic background (Eisenberg, Golberstein, et al., 2007), and the race/ethnicity of the focal student (Hunt, Eisenberg, Lu, & Gathright, 2015). For some mental health problems, such as substance abuse, post-secondary students are even less likely to receive treatment than their non-post-secondary attending peers (Blanco et al., 2008). This lack of treatment is not attributable to unavailability of services; post-secondary students, in most cases, have greater access to mental health services on campus than what is available in the community. For example, almost every university and college across Canada provides some form of on-campus crisis intervention, individual counselling, or other mental health support service (Jaworska, De Somma, Fonseka, Heck, & MacQueen, 2016). These services are usually offered for free or are highly subsidized (Hunt & Eisenberg, 2010). Research into interventions to increase help-seeking behaviour in post-secondary students is crucial, as untreated mental illness often results in a poor illness trajectory, poorer long-term outcomes (Altamura et al., 2008, 2010), increased absenteeism from courses, and an increased risk for attrition (Gruttadaro & Crudo, 2012; Storrie, Ahern, & Tuckett, 2010). A greater overview of the growing problem of mental illness, and the individual and social consequences of untreated mental illness in the general population and post-secondary students will be discussed more thoroughly in Sections 2. 2 and 2. 3, respectively.

1. 2 Mental Health Help-Seeking Models

The act of seeking help for a mental or emotional problem is not a one step process; Rickwood et al. (2005) posit that help-seeking should be conceptualized as a process or a pathway involving multiple cognitive stages. Their model of adolescent help-seeking begins with the

awareness of symptoms and the beginning of problem appraisal, wherein the individual determines whether or not they are experiencing a mental health problem. This awareness and appraisal must then be articulated to others. Once it has been established that a problem exists and has been articulated, sources of support must be available and accessible for an individual to get treatment. Finally, the individual must be willing to seek support. Figure 1 outlines the proposed help-seeking model described by Rickwood et al. (2005).

A complementary model of help-seeking for adolescents, termed the Cycle of Avoidance (Figure 2) was proposed by Biddle et al. (2007). This model focuses exclusively on the process of problem recognition and the realization that the symptoms and distress experienced are 'real' and warrant help. This model explains non-treatment-seeking through a process in which adolescents are aware of the distress and symptoms they are experiencing, but continually negotiate the meaning of their symptoms to normalize them. Consequently, as they have normalized their experience, they do not believe they need treatment. The final stage of the Biddle et al. (2007) model is a crisis stage, the point when the distress has escalated to a degree where it can no longer be denied that help is warranted. A more in-depth description of each of these adolescent help-seeking models, as well as a new model that combines the elements of each to offer a more detailed understanding of the help-seeking process, can be found in Section 2. 4.

In both models of adolescent help-seeking there are several points along the pathway where barriers stop a young person from deciding to get help. Two barriers that contribute to low help-seeking behaviour among students are a) stigma surrounding mental illness, stemming from a fear of discrimination (Room, 2005; Cook, 2007), and b) low rates of mental health literacy (i.e., an inability to recognize psychological distress/symptoms or how to access mental health services), leading to a failure to perceive early signs and symptoms as problematic behaviour warranting

professional help (Jorm, 2000). Stigma, which includes feelings of embarrassment about seeking help or fear of discrimination due to mental illness, is significantly associated with decreased readiness to consult professional mental health services (Barney et al., 2006). Stigma presents as a barrier, however, only once an individual has recognized that a problem exists, as fear of negative consequences does not become relevant until there is fear that they can be the target. Once this awareness has occurred, the fear of being stigmatized because of mental illness can be a significant deterrent to help-seeking (Clement et al., 2015; Lally, O'Conghaile, Quigley, Bainbridge, & McDonald, 2013). Here it is proposed that along the help-seeking pathway, stigma has the biggest impact *after* the availability stage in Rickwood's model (2005; Figure 3), as this is when the willingness to seek out help and disclose the issue can be prevented due to fear.

The second possible barrier to help-seeking is low mental health literacy, which comprises many elements. Mental health literacy includes the ability to recognize psychological stress as well as specific disorders, attitudes that facilitate recognition, and knowledge and beliefs about a) self-help interventions, b) risk factors and causes of mental illness, c) professional help services, and d) how to seek mental health information (Jorm et al., 1997). In a large North American study, students who had untreated mental health problems most commonly reported low perceived need (i.e., "the problem isn't that serious", "the problem will get better by itself", "stress is normal in college or graduate school") as the predominant reason for not seeking help (Eisenberg et al., 2007).

Despite this, few mental health interventions have focused on tackling mental health literacy as a barrier. Along the help-seeking pathway, it is proposed that mental health literacy acts as the biggest barrier between symptom awareness and expression of need (Figure 3); prior to the emergence of stigma as a significant barrier. The barriers to help-seeking, particularly stigma and

mental health literacy and how they impact post-secondary students, will be explored further in Section 2. 5.

1. 3 Interventions to Improve Help-Seeking

To date there has been a noticeable lack of evidence supporting campus interventions to improve help-seeking via mental health literacy, with the exception of some preliminary evidence supporting a symptom screening and referral program. In brief, this type of program identifies students in distress (typically using an online screening tool) and points them towards professional mental health services (referral). In a study of this type of intervention at the University of Washington, over a 17-month period there were over 2700 visits to the website and 1003 screening sessions. Of the students who used the referral component of the website, 78.9% did so after completing the self-screening, and 75.4% of students reported that the screening tool was helpful in making their decision to seek help from a mental health professional (Kim et al., 2011). Moreover, during the first 12 months after the screening and referral program was implemented, the mental health centre on campus saw a 13% increase in student patient volume (Kim et al., 2011). The study posits that the increase in referral use of mental health services on campus was the result of increased perception of need for psychological services via feedback from the self-screening. However, this was not empirically tested and can only be hypothesized.

1. 4 Research Objectives

The present study set out to empirically investigate an online campus intervention to increase help-seeking behaviour for mental health problems. Specifically, this study used a pre- and post-test randomized control group experimental design. With this design, we examined the impact of a mental health literacy intervention versus a stigma reduction intervention on mental health treatment-seeking intentions in a sample of post-secondary students.

1. 5 Proposed Outcomes

The primary hypothesis was that students assigned to the condition designed to increase mental health literacy would have increased intention to seek mental health services than students exposed to the stigma reduction condition. It was further hypothesized that students within the mental health literacy condition who also completed a self-assessment of mental health symptoms would have the largest increase in mental health help-seeking intentions. A full description of the experimental design including, the conditions and measures, will be described in Chapter 3.

CHAPTER 2. REVIEW OF THE LITERATURE

2. 1 Post-Secondary Student Mental Health: Prevalence

Mental health problems such as depression, anxiety, and substance abuse are common amongst post-secondary students. Eisenberg and colleagues (2007) conducted the first assessment of post-secondary student mental health in 30 years (since Greenley & Mechanic, 1976), using a sample of 2,843 students at a large Midwestern American university with a similar demographic profile to that of the national population of post-secondary students. This study used a web based survey method to assess self-reported symptoms of depression, anxiety, and suicidality within a sample of university students. mental health symptoms. Depression was measured using the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001; Spitzer, Kroenke, & Williams, 1999) and, using the standard PHQ algorithm, was classified as screening positive for major depression, other depressive disorder (e.g., dysthymia), or nothing. Anxiety was also measured using the PHQ and assessed symptoms of anxiety in the previous 4 weeks (Spitzer et al., 1999). Participants were categorized as screening positive for panic disorder, generalized anxiety disorder, both, or neither. Finally, three questions for the National Comorbidity Survey Replication (Kessler, Berglund, Borges, Nock, & Wang, 2005) were used to assess participant's suicidality in the previous 4 weeks. The three questions asked whether the student has thought about committing suicide, made a plan for committing suicide, or made a suicide attempt. In the sample of almost 3000 students, 13.8% of undergraduate students screened positive for depression, 4.2% for an anxiety disorder, and 2.5% reported suicidal ideation in the past four weeks (Eisenberg, Gollust, et al., 2007). These findings are in alignment with the widely accepted rate of diagnosable mental

illness of young people in Canada, with approximately 20% affected (American College Health Association, 2013a).

While people of all ages can have their psychological health impacted by stress, post-secondary students, in particular, may be at risk. Issues such as financial pressure, flux in personal relationships, romantic relationships, and academic pressures may all be exacerbated by stress (Kadison & DiGeronimo, 2004). In a large national survey of American undergraduate students, 85.7% reported feeling overwhelmed by their workload, and 49.6% reported feelings of hopelessness (American College Health Association, 2016). In an identical survey of Ontario undergraduate students, 89.7% reported feeling overwhelmed by their workload, and 58% reported their stress levels as 'more than average' or 'tremendous' (American College Health Association, 2013b). Of note, while high levels of stress have been frequently reported for young people in general (American Psychological Association, 2016), it appears to be particularly pronounced amongst post-secondary students and is elevated when compared to non-post-secondary attending young adults (Adlaf, Gliksman, Demers, & Newton-Taylor, 2001). Despite the high rates of distress and mental illness, fewer than 50% of students who require mental health services are receiving the treatment they need (Blanco et al., 2008). The issue of help-seeking and the consequences of non-help-seeking will now be discussed.

2. 2 Help-Seeking

2. 2. 1 Definition

Help-seeking in the context of mental health can be multifaceted including everything from seeking understanding and support from others to obtaining concrete advice and information. In

addition, help in its many forms can come from a variety of sources including informal support (i.e., social relationships, such as friends and family) and formal support (i.e., professional sources such as psychologists; Rickwood, Deane, Wilson, & Ciarrochi, 2005). Seeking professional help for mental health issues, particularly in its early onset, is widely recognized as beneficial to reduced rates of relapse and shortening the duration of illness, while contributing to overall well-being (Bergin & Garfield, 1971; Ryan, 2003). The duration of untreated mental illness – the interval between the onset of the illness and first contact with treatment – has also been consistently associated with negative clinical outcomes (Dell'Osso, Buoli, Hollander, & Altamura, 2010; Medeiros, Senço, Lafer, & Almeida, 2016; Qin et al., 2014). Early help-seeking has also been shown to reduce the risk for suicide attempts (Martin, 2002), in addition to reducing the likelihood of suicide completion (Portzky, Audenaert, & van Heeringen, 2009). Despite the growing number of people living with mental illness around the world, many choose not to, or are unable to seek professional help (Kessler et al., 2005; Wang, & Aguilar-Gaxiola et al., 2007).

2. 2. 2 Help-Seeking Trends

An international review by the World Health Organization (WHO) assessed the prevalence of mental illness and rates of mental health treatment in the general population of 17 countries. The WHO reported that the number of people untreated for mental illness ranged from a low of 37% for schizophrenia to a high of 78% for alcohol abuse and dependence (Wang, Aguilar-Gaxiola, et al., 2007). This finding of high rates of untreated illness has been replicated in a number of national studies, with mental illness treatment rates ranging from ~1% to 60% (Bijl et al., 2003; Demyttenaere et al., 2004; Kessler, Demler, et al., 2005; Wang, Aguilar-Gaxiola, et al., 2007;

Wang, Lane, et al., 2005), underlining that between 40% and 99% of mental illness around the world is currently untreated. The varying rates of treatment depend on a number of factors. These include the country being examined, the assessment tool(s) used, the disorders in question, and the sub-population surveyed (Bijl et al., 2003; Demyttenaere et al., 2004; Kessler et al., 2005; Wang, Aguilar-Gaxiola, et al., 2007; Wang, Lane, et al., 2005). Regardless of methodological differences, an average of one to two-thirds of severe mental illness remains untreated every year (Bijl et al., 2003; Demyttenaere et al., 2004).

A number of factors contribute to the low rates of treatment-seeking. One factor is the availability of treatment services (Wang, Angermeyer, et al., 2007; Wang, Berglund, et al., 2005). For example, within the WHO sample, researchers identified significant variability in treatment rates depending on the country under study, with lower service availability in developing countries (e.g., Mexico, Columbia) than in developed countries (e.g., France, The United States of America). Furthermore, the number of individuals with mental illness who received services generally corresponded to the countries' overall spending on health care (Wang, Aguilar-Gaxiola, et al., 2007). Other factors associated with failure or delays in treatment-seeking include being male, earlier illness onset (i.e., the younger the individual when they first experienced symptoms the lower the likelihood of making treatment contact), and age (i.e., the older the individual, the lower the likelihood of making treatment contact). With respect to the age barrier in treatment-seeking, it has been proposed that younger people are more likely to contact mental health services before their mental illness progresses and becomes more severe. This is due to widespread efforts to increase awareness of mental illness and treatment options (Jacobs, 1995; Regier et al., 1988). Unfortunately, in contrast to what we know about the benefits of early treatment seeking, one of the most significant predictors of actually seeking treatment remains the severity of illness (Bijl et

al., 2003; Demyttenaere et al., 2004; Wang, Aguilar-Gaxiola, et al., 2007), highlighting that it is only once an individual begins to experience significant symptoms or disability that they initiate the process of seeking help. This relationship is concerning because, as discussed earlier, receiving help at the onset of a mental illness is widely acknowledged to be the best predictor of positive clinical outcomes for the individual (Bergin & Garfield, 1971; Ryan, 2003).

Given the benefits of early intervention and treatment to both individuals and society, it is advantageous to encourage early help-seeking for mental illness. A first, critical step in this process is garnering a deeper understanding of help-seeking behaviour in general, then determining the factors that either facilitate or hinder getting care. It is imperative in developing this understanding of help-seeking to recognize that some facilitators and barriers cannot be generalized. Some are more pertinent to certain groups (e.g., ethnic or racial minorities) than others, and as such, different barriers and facilitators can have differential contributions to these individuals being more or less likely to seek treatment. For instance, being unmarried, male, having low socioeconomic status, and being a member of a racial or ethnic minority group have all been identified as factors contributing to reduced mental health help-seeking behaviour (Alegria et al., 2008; Steele, Dewa, & Lee, 2007; Wang, Lane, et al., 2005).

Young people (aged 16-24) have been repeatedly identified as less likely to seek mental health treatment compared to other age groups (Andrews, Issakidis, & Carter, 2001; Biddle, Donovan, Sharp, & Gunnell, 2007; Olfson & Klerman, 1992; Wang, Lane, et al., 2005), with fewer than half of young people with a mental illness seeking care (Aalto-Setala, Marttunen, Tuulio-Henriksson, Poikolainen, & Lonnqvist, 2002; Kessler et al., 2001). The prevalence of unmet mental health needs for adolescents and young adults is particularly concerning, as people below the age of 25 are more likely than any other age group to struggle with mental health problems

(Pearson, Janz, & Ali, 2013). A subpopulation of young adults with a higher socioeconomic status are post-secondary students, though they have a similarly low rate of treatment-seeking, with fewer than 50% of students who need mental health services actually receiving help (Blanco et al., 2008; Eisenberg, Golberstein, & Gollust, 2007; Eisenberg et al., 2011). Moreover, for mental health problems such as substance abuse, post-secondary students are even less likely to receive treatment than their non-post-secondary attending peers (Blanco et al., 2008). Given the combination of mental and emotional problems paired with low help-seeking behaviour, this sub-population is the focus of the present study. In addition, post-secondary students are a population which may be particularly well-suited to interventions that aim to increase help-seeking for a number of reasons. First, universities have a number of unique channels and communication media through which students can be reached. Secondly, more than 65% of American (Kena et al., 2015) and over 70% of Canadian high school graduates (Shaienks & Gluszynski, 2007) attend a post-secondary institution, indicating that a significant portion of North American young adults can be reached via post-secondary-based interventions. Finally, given the average age of undergraduate students (18-22 years), most students will have their first experience with mental illness at university or college, at which point they generally experience less severe disorders that can often be treated quickly and cost-effectively (Eisenberg, Golberstein, & Hunt, 2009). For these reasons, universities offer an advantageous venue to study help-seeking behaviour and the impact of new interventions. As such, in the following sections, after discussing each issue in relation to the general population this dissertation will then focus specifically on post-secondary students.

2. 3 Consequences of Unmet Need

2. 3. 1 Personal Consequences of Unmet Need

There are a number of significant costs to an individual with untreated mental illness. Clinical studies have repeatedly found that untreated mental health problems or problems only treated following extended delay have poorer treatment outcomes including poorer responses to pharmacological treatment, low remission rates, and higher rates of relapse (Altamura et al., 2010; Altamura et al., 2008; Barrett et al., 2010; Clarke et al., 2006; Craig et al., 2000; Jibson, Glick, & Tandon, 2004; Lappin et al., 2007; Melle et al., 2008; Okuda et al., 2010). Untreated mental illness is also more likely to develop complex symptomatology and/or comorbidity, which early treatment can often prevent (Dell'Osso, Glick, Baldwin, & Altamura, 2013; Kessler & Price, 1993).

The impact of mental illness is felt most significantly by young people, which contributes to it being such a considerable source of years lost to disability. This is the period in most people's lives (age 15-25) when they become educated, begin careers, find romantic partners, and start families, all of which can be detrimentally impacted by the presence of untreated mental illness (Insel, Collins, & Hyman, 2015). Furthermore, for post-secondary students, mental health is negatively associated with academic success. Students have continually reported that they consider the stress of their academic requirements to be 'traumatic' or 'very difficult to handle' (44% of respondents; American College Health Association, 2016). Eisenberg, Golberstein, et al. (2009), conducted the first assessment of mental health and academic outcomes during university and looked at associations between the two variables in a sample of students from an academically competitive American university. An initial survey was completed by 2,798 students in Fall 2005 and 747 completed a follow-up two years later, in 2007. Researchers found that depression was a

significant predictor of lower GPA and that depression severity was associated with lower GPA. A 15-point increase on the depression scale, which represents an increase from mild to severe depression, corresponded to a 0.17 drop in GPA and a 0.40 drop in GPA if depression was co-occurring with anxiety (Eisenberg, Golberstein, et al., 2009). This negative association was not specific to depression: panic, generalized anxiety, and eating disorders also had negative associations with GPA. Amongst students with a GPA under 3.0, those who had a mental health problem had an attrition rate of 25%, compared to 9% for those with a GPA under 3.0 but without a mental health problem. For depression specifically, each point on the depression screening scale was associated with a 0.31% increase in the probability of attrition when measured at follow-up (Eisenberg, Golberstein, et al., 2009). Given this, interventions to promote early treatment for mental illness are critical to mitigate the negative and potentially lasting consequences for young people.

2. 3. 2 Social Consequences of Unmet Need

Mental illness is a leading indicator of the Global Burden of Disease (GBD). GBD is a quantified measure developed by the WHO, which includes the prevalence of a given illness, as well as the relative harm attributable to that illness. GBD reflects the impact of an illness at a population level and helps policy makers to prioritize the delivery of health services. Two components of GBD are 1) Years of Life Lost (YLL) due to premature mortality in the population and 2) Years Lost due to Disability (YLD) for people living with the health condition or its consequences (World Health Organization, 2016). Of the top 20 causes of YLD, mental illnesses accounted for five, including major depression, anxiety disorders, schizophrenia, dysthymia, and

bipolar disorder (Global Burden of Disease Study, 2015). A recent paper reviewing the impact of mental illness on YLD found that it was the most significant predictor, highlighting the substantial and pervasive impact of mental illness (Vigo, Thornicroft, & Atun, 2016). Increasing early help-seeking for mental illness would reduce its prevalence and severity, and could result in significant economic gains. A Canadian study recently reported that if incidences of mental illness could be reduced by 10%, an annual reduction of $1.7 billion CDN in total economic costs would be achieved after 10 years (Smetanin et al., 2011). The economic impact of mental illness is considerable, and as such every effort to reduce this burden by encouraging early help-seeking behaviour should be made.

The economic cost of mental illness has been estimated at 3 - 4% of global Gross Domestic Product (GDP), two-thirds of which is derived from lost productivity and disability payments, with the final third attributed to treatment costs (Schofield et al., 2011). Within the United States alone, yearly estimates of severe mental illness-related cost has reached $200 billion USD (Kessler et al., 2008). This figure was calculated by extrapolating lost individual income (mean loss of $16,306 in annual earnings) for citizens of the United States aged 18-64, while accounting for the prevalence of severe mental illness (Kessler et al., 2008). Gustavsson et al. (2011) conducted a similar study in Europe and estimated the economic cost attributable to mental illness to be €461 billion. Of those illness categories included in the analysis, the most costly was mood disorders which incurred both high direct health care costs (treatment), but even higher indirect costs (Gustavsson et al., 2011).

Unemployment is also pervasive in persons with mental illness (Schofield et al., 2011). For example, an Australian study cited the unemployment rate for individuals with schizophrenia at 83.7%, a rate 10.6 times higher than that of the general Australian population (Waghorn, Chant,

& Whiteford, 2002). Mental illness can also force individuals to retire early from the workforce, which has negative repercussions for both the individual and society at large. Individuals who retire early due to a mental illness have ~78% lower income than their full-time employed, healthy counterparts (Schofield et al., 2011). In addition to the lost income at the individual level, when aggregated the national impact of early retirement due to mental illness is $278 million USD in lost income tax revenue and $407 million USD in additional government transfer payments per year (Schofield et al., 2011). While these economic consequences are not specific to post-secondary students, young adulthood is a critical period, and if this developmental stage is derailed there can be significant long term consequences, such as reduced earnings and significant lost tax revenues.

A California study from 2015 sought out to examine this relationship, performing a cost-benefit analysis that accounted for the cost of mental health intervention programs versus the benefit of increased lifetime earnings from higher graduation rates from post-secondary institutions in the state (Ashwood et al., 2015). The study only considered increased lifetime earnings from those students who they estimated would graduate as a result of their mental health treatment interventions versus those who would drop out. They also considered the benefit to the state of California through increased income tax revenue. Students from all three systems (California University, California State University, and California Community Colleges) completed the surveys. A total of 29,134 students completed the first wave of the study, and 14,071 completed the second wave one year later. The authors found a 13.2% increase in students using mental health services in one year, which they estimated led to an additional 329 students graduating annually and attributed this to their mental health programming. The net societal benefit resulting from these 329 graduates per year was estimated to be $56.1 million USD of additional

lifetime earnings for these graduates; of which the state government alone would receive $8.5 million USD in increased tax revenue (Ashwood et al., 2015). While post-secondary students are not typically full-time active members of the workforce, the forthcoming economic impact of mental illness in this population due to unattained earning potential has now been demonstrated.

2. 4 Models of Adolescent Help-Seeking

An acknowledged limitation within the literature is the lack of a unifying theory of adolescent help-seeking which has resulted in diverse and at times, inconsistent findings. Additionally, the lack of a unifying theory has prevented integration of findings on the various stages of the help-seeking process, as well as a systematic analysis of the factors that determine the initiation of help-seeking or progression from symptom development to receiving help.

Two models that have emerged are those posited by Rickwood et al. (2005) and Biddle et al. (2007; See Figures 1 and 2, respectively). Rickwood and colleagues conducted an extensive research program that took place over two years and resulted in 19 different studies on mental health issues in young people. Throughout their investigation, the researchers began to conceptualise help-seeking for mental health problems as a social transaction between the personal domain of the internal world of thoughts and feelings, and the interpersonal domain of social relationships. In one report specific to help-seeking, Rickwood et al. (2005) suggests that it should be conceptualized as a process or pathway involving multiple stages from symptom recognition through to a willingness to disclose the problem to a mental health professional. Their framework centers around the process of translating personal psychological distress to the interpersonal domain of help-seeking as they explore the factors that can facilitate or inhibit this transition. Their

process model begins with the awareness of symptoms and problem appraisal (i.e., 'Is what I am experiencing a mental health problem?'). The individual must then be able to articulate what they are experiencing and that they believe it is a problem; a second component to this stage is the help-seeker developing a way to articulate this in a way that they feel comfortable expressing. Once it has been established that a problem exists and has been articulated, sources of support must be available and accessible for an individual to get treatment. Finally, the individual must be willing to disclose their inner state to the source of support.

The second help-seeking model (Biddle et al. 2007) is a sociological model developed from qualitative research in adolescents, presented as a descriptive account of the factors preventing help-seeking. Biddle et al. (2007) termed their process model the Cycle of Avoidance (COA; Figure 2), which consists of five key components. The first aspect of the COA model is the evaluation of distress. They suggested that adolescents lack an accurate framework to evaluate their symptoms and as such, they struggle to understand whether what they are experiencing is normal or not. Even if they recognize what they are experiencing is distress, they lack the ability to benchmark their experience against something else. Given the lack of an accurate framework, adolescents tend to view most of their experiences as normal and view 'real' distress as an extreme category including severe mental illness (e.g., schizophrenia and psychosis) that they do not fall into. The second aspect of the COA model is the negotiation of the meaning of symptoms. At this stage, an individual may have some perception of distress but is reluctant to acknowledge their symptoms as 'real' distress due to the negative meaning they have assigned to this category. The stigma and permanence they believe to be associated with mental illness can act as a barrier to arriving at the recognition that they are in real distress. The third component of the COA model involves adolescents becoming aware of the distress they are in, but continually negotiating the

meaning of their symptoms to normalize it. In their qualitative analysis of interviews, they found that adolescents perceived their symptoms as transient, something that they would grow out of or have to endure only temporarily. Alternative explanations are continually given to the symptoms that rationalize them and make them dismissible. At this point, because they have normalized their experience(s), they do not believe they need treatment. The fourth and final component is a shifting threshold for distress. The adolescents were able to conceive a more distressed state than their current one, and used this future state as the benchmark for 'real', help-warranting distress. The authors acknowledge that the stigma and anticipated social consequences of being considered 'mentally ill' is a significant factor that is driving the avoidance model. At the end of Biddle's model there is a crisis stage: the point at which the distress has escalated to a point where it can no longer be denied that help is warranted.

In lieu of developing a new and unifying model of help-seeking behaviour, it is believed that these models should be combined and expanded with the addition of some barriers to offer a more in-depth understanding of the help-seeking process. An illustration of this expanded process model can be seen in Figure 4. Here, the first stage of Rickwood's model has been separated into distinct parts of 1) awareness of symptoms and 2) appraisal of having a problem, a distinction that has been supported by recent work (Gagnon, Gelinas, & Friesen, 2015). As illustrated by the COA, the awareness of symptoms is not sufficient in itself to lead to problem appraisal. Therefore, following part 1 (symptom recognition), this updated model of help-seeking behaviour includes the COA, whereby the meaning of symptoms is continually altered and normalized up to the threshold of 'real' distress. Within this first stage there can be significant delays between the onset of symptoms and recognition that a problem exists as students remain within the COA. At the end of the COA, when symptoms are appropriately evaluated as real distress, an individual moves

along the pathway to the second part of Rickwood's first stage - appraisal of having a problem. Once problem appraisal has taken place Stage 3 is the development of language to describe what is being experienced and articulation that a problem exists. Stage 4, is the awareness of help services and attitudes towards them, as help-seeking is significantly delayed when people are not aware of the mental health treatment options available to them (Eisenberg, Golberstein, et al., 2007), or have negative attitudes towards their professional treatment options (Elhai, Schweinle, & Anderson, 2008). The availability and accessibility stage from Rickwood's model is Stage 5. Finally, Stage 6 of Rickwood's model is the willingness to seek help and disclose one's inner state. This model will be used hereafter to explore the process of help-seeking and examine potential barriers that can impede an individual's progression through the stages.

2. 5 Barriers to Help-Seeking

Efforts to address the unmet mental health need of post-secondary students first require a deeper understanding of the barriers to help-seeking. Currently, the literature categorizes help-seeking barriers as being structural, attitudinal, or knowledge related (Thompson, Hunt, & Issakidis, 2004). Each of the three barrier categories has a significant body of research detailing how they impact individuals' help-seeking behaviour, and how each may differentially impact sub-populations or groups of people. These barriers will first be reviewed with literature from the general population, as it provides a more substantive understanding of the issues and there is a greater breadth of literature from which to draw. After reviewing the literature for the general population, each of these help-seeking barrier categories will be discussed more thoroughly from the vantage point of post-secondary students.

2. 5. 1 Structural Barriers to Help-Seeking

2. 5. 1. 1 Structural Barriers to Help-seeking for the General Population

Structural barriers are those obstacles that are contextual or environmental in nature. These include the cost of accessing treatment resources, transportation to and from the treatment location, and availability of childcare (Sareen et al., 2007). The influence of structural barriers varies greatly depending on a number of sociodemographic and environmental considerations. In one survey of adults who met criteria for an anxiety or affective disorder in the past 12 months, for example, less than 3% endorsed structural barriers as a primary reason for not seeking treatment (Steele et al., 2007). It is important to note that this study took place in Canada where there is universal health care. In contrast, the cost of mental health care services is frequently reported as a barrier to care in countries such as the United States, where there is a private health care system (Wang, Angermeyer, et al., 2007). Consistent with this finding, a recent study that summarized six years of population health data from the United States National Health Interview Survey found a significant increase (15.6% to 20%) in the number of people who reported psychological distress but were unable to afford mental health care (Mojtabai, 2005). Of note, some specific populations are more likely to endorse financial accessibility as a significant barrier to treatment-seeking; these include racial and ethnic minorities, the elderly, and those with low family income (Mojtabai, 2005). Accessibility issues have also been identified in rural communities, where access to mental health services may require substantial transportation. Transportation can significantly decrease an individual's willingness to access care. In a study of outpatient services in a rural mental health centre, living distances of 30 miles or more from the centre were associated with a decrease in

service utilization (Cohen, 1972). While structural barriers should certainly be prioritized for the general population, there are a number of unique situational factors that decrease the significance of these barriers for post-secondary students.

2. 5. 1. 2 Structural Barriers to Help-Seeking for Post-Secondary Students

The structural barriers that normally impede help-seeking in the general population – such as availability of services or the financial burden of accessing them – are often not reported as obstacles for post-secondary students. This is primarily due to the unique access to support that is available on most post-secondary school campuses. Almost every school across North America now provides some form of on-campus crisis intervention, individual counselling, or other mental health support service (Gallagher, 2014; Jaworska et al., 2016). In addition, most campuses offer free or highly subsidized health services, and the majority of students have health insurance through their parents or a student insurance plan (Hunt & Eisenberg, 2010). In a national survey of over 275 post-secondary institutions in 2014, only 4.7% of counselling centers charged a fee for counselling, down from 17% in 1996 (Gallagher, 2014). Furthermore, of those post-secondary institutions that did charge a fee for use, the average fee was $20 a session (Gallagher, 2014). This highlights the ever-increasing financial accessibility of services for students on post-secondary school campuses.

One structural barrier that is relevant to post-secondary students is the wait time to access care. As the demand for mental health services continues to increase, the number of post-secondary institutions reporting that their counselling or mental health service had a waitlist at some point during the previous year increased in parallel. A 2014 report from the Association for University

and College Counseling Center Directors found that ~30% of institutions were now reporting waitlists (Reetz, Barr, & Krylowicz, 2014). Along the same line, the number of students on the waitlist grew. For institutions with more than 25,000 students the average number of students on a counselling centre's waitlist nearly doubled between 2010 and 2012, from 35 students to 62 students (Reetz et al., 2014). Similar trends have been observed at Canadian universities. Canadian survey results indicate that the average wait time for an appointment in 2011 was seven days (Pin & Martin, 2012). At certain times of the year, however, the wait time could be in excess of months (Pin & Martin, 2012). While there has been an increase to wait times for professional mental health services on post-secondary school campuses, these are still significantly lower than wait times for publicly-available professional mental health services, which can be over a year (Children's Mental Health Ontario, 2015). These delays have been acknowledged as a potential deterrent, and significant effort is being spent to reduce waitlists on campuses across North America. An obstacle to this is that no known data exists that disentangles the impact of mental health service supply and the growing demand for services on help-seeking behaviour for post-secondary students. This begs the question of whether knowledge of a waitlist for mental health services on campus actually deters students from accessing them (Hunt & Eisenberg, 2010).

Despite the relative availability of free or low-cost mental health services, some structural barriers are still relevant for post-secondary students. One notable barrier is time; approximately 30% of undergraduate students report that they have little or no time to seek help, or that they have more pressing priorities that hinder them from reaching out for help (Czyz, Horwitz, Eisenberg, Kramer, & King, 2013; Hunt & Eisenberg, 2010). Even among students who acknowledge that they may have needed mental health services in the past, the perception that they lacked the time to do so is a significant reason for not seeking help (Yorgason, Linville, & Zitzman, 2008). Time

restrictions as an obstacle seem to be even more pertinent for students in professional programs (e.g., medical or law students). For professional students, not having enough time to seek help is frequently listed as one of the top reasons for not accessing care (Givens & Tjia, 2002). While some structural barriers certainly exist within a post-secondary school environment, they are reported with less frequency than attitudinal and knowledge barriers. As well, structural barriers are only relevant to the help-seeking pathway once a student has recognized a problem exists – already shown to be a significant problem among youth – and has reached Stage 4 of the help-seeking model (Figure 3). While attention should be paid to the ongoing efforts to eliminate structural obstacles to care, it is proposed that greater focus be paid to alternative help-seeking barriers, which act prior to structural barriers in the model, and would encourage early and proactive help-seeking.

2. 5. 2 Attitudinal Barriers to Help-Seeking

2. 5. 2. 1 Attitudinal Barriers to Help-Seeking in the General Population

Attitudinal barriers are defined as an individual's attitude towards mental illness, including stigma-related concerns, fears or embarrassment about having a mental illness, belief that one should handle a problem on their own, and beliefs about treatment efficacy (Thompson et al., 2004). Unfortunately, negative attitudes about seeking mental health services are prevalent: in a survey of Canadian and United States populations, 18% of Canadian respondents and 24% of American respondents reported negative attitudes towards help-seeking (Jagdeo, Cox, Stein, & Sareen, 2009). Furthermore, it appears as if positive attitudes towards mental illness and treatment-seeking have even declined over the last 40 years. A meta-analysis of help-seeking attitudes using

studies from 1965 to 2005 (Mackenzie, Erickson, Deane, & Wright, 2014) reported that help-seeking attitudes have become increasingly negative; a finding consistent with evidence of increased stigma towards people with mental illness during a similar time period (Angermeyer, Holzinger, & Matschinger, 2009).

Stigma is the feeling of being negatively differentiated due to a particular condition, group membership, or state in life (Arboleda-Florez & Stuart, 2012). This is still viewed as one of, if not the most significant barrier to mental health help-seeking in the general population and post-secondary students alike. Therefore, this section will focus extensively and exclusively on stigma as it is the primary attitudinal barrier.

Stigmatization of Mental Illness: Historical Perspective

While stigmatization of mental illness is a centuries-old phenomenon, formal inquiry into the nature of this stigmatization is comparatively more recent. Community research into the public's attitudes and beliefs surrounding mental illness was first conducted in the early 1950's largely motivated by the need to address widespread ignorance, negative attitudes, and general disregard concerning mental illness (Cumming & Cumming, 1957; Hollingshead & Redlich, 1958; Rabkin, 1974; Ramsey & Seipp, 1948). At that time national effort was made to educate the American public about mental illness, with particular emphasis on disseminating material on the medical model of mental illness in the hopes of challenging pervasive negative attitudes.

Following the decade-long public education campaign, Rabkin (1974) conducted a review of the literature on public attitudes towards mental illness and noted that "the cumulative impact of the studies demonstrates an increase during the 1960's in public acceptance of the medical model of mental illness and less extreme overt rejection of those labeled mentally ill, at least in terms of pencil-and-paper measures" (p. 14). While these findings initially appear optimistic, it is

more likely that they reflect a change in the social acceptance of *overt* rejections of mental illness, whereas peoples' personal attitudes and behaviours remained unchanged. In an elaborate public health survey conducted in New York City by the Columbia School of Public Health and the New York Community Mental Health Board, the authors found that the public largely endorsed that "mental illness is like any other." Conversely, over 75% of respondents also reported that patients in mental hospitals are "in many ways like children" and that "unlike physical illness, which makes people sympathetic, mental illness tends to repel most people" (Elinson, 1967). These findings suggest that the extensive efforts at stigma reduction through education were successful in that they changed the social norms around *overt* stigmatization of the mentally ill, but the negative beliefs were still surreptitiously prevalent in the American people.

Unfortunately, the stigmatization of mental illness is still a barrier to the proper treatment of the mentally ill and was reported by the WHO in 2001 as "the single most important barrier to overcome in the community" (Brundtland, 2001). For years the general understanding of stigma reduction focused on providing evidence that mental illness was a disease like any other and emphasized the medical model. However, recent evidence suggests that as more of the public embraces a neurobiological understanding of mental illness, this view translates into support for services but not into a decrease in stigma (Pescosolido, 2010).

Stigma: Definition

Stigma differs from prejudice or discrimination, as it is an umbrella term that encompasses these more specific components. Prejudice is the preconceived negative bias towards a person(s) not based on reason or actual experience ("Prejudice," 2007), while discrimination is the "unjust or prejudicial treatment of a person or group" ("Discrimination," 2013). Stigma was first conceptualized by Erving Goffman in his seminal book *Stigma: Notes on the Management of*

Spoiled Identity (1963). Goffman defined stigma as an "attribute that is deeply discrediting" (p. 3) to an individual, leading to varieties of discrimination and the general belief that "the person with a stigma is not quite human" (p. 5).

Stigma is inherently a social phenomenon; it is relationship- and content-specific as it is born and perpetuated by individuals who chose to delineate "us" from "them" and is not an innate quality within an individual. Taking into consideration the social nature of stigma, Link and Phelan (2001) proposed a model of stigma consisting of five components: labeling, stereotyping, separation, status loss, discrimination, and power differentiation (Link & Phelan, 2001, p. 367).

The first component, labeling, is the identification of an attribute as salient and negative, and in doing so, denoting a person as possessing the negative trait. Labeling can result in a shared sense that these negative traits represent things "being just the way things are" (Link & Phelan, 2001). For example, labeling someone as handicapped might lead individuals to see disability as an essentially negative state. However, the act of labelling may mask the fact that stigmatized traits are often neither good nor bad except through a process of social construction (Link & Phelan, p. 367).

Once identified, the labelled difference is associated with negative stereotypes, oversimplified preconceptions of the characteristics that typify a person ("Stereotype," 1916), and in this case, negative characteristics. This second component of their conceptualization is central to the definition of stigma as it links a particular label to a socially undesirable characteristic(s), such as the unfounded stereotype that people with mental illness are dangerous or violent (Canadian Mental Health Association, 2014). The third component, which follows the attribution of negative stereotypes, is the belief that these labels fundamentally differentiate those with the label from those without. Moreover, those who are labelled are often defined by the label(s) they

bear, as opposed to it being something they have. For example, a person *has* the flu, is beset by the illness but bears no label from it. Mental illness and other stigmatized conditions often work inversely, as a person is thought of as *being* a "schizophrenic."

The final two components of Link and Phelan's model are not normally included within other, more generally accepted, definitions of stigma: a) status loss and discrimination and b) assumed power of the perpetrator. Status loss and discrimination occur following the negative labelling and stereotyping of an individual, and labelled persons will find themselves placed under the perpetrator in the social hierarchy (Overton & Medina, 2008; Phelan, Lucas, Ridgeway, & Taylor, 2014; Puhl & Heuer, 2009). Having an undesirable or stigmatizing label can result in a variety of detrimental outcomes that can include: poor health, reduced well-being, experiences of inequality, and discrimination (Cruwys & Gunaseelan, 2016). Link and Phelan (2001) describe examples of structural discrimination for mental illness such as less dedicated research funding, fewer resources allocated to the proper care and management of those with mental illness, and more structural barriers to care, such as isolated treatment facilities. The detrimental effects of membership in a stigmatized group (not just mental illness) extend beyond that, including socioeconomic consequences such as access to education (Crosby & VanDeVeer, 2000), educational attainment (Kessler, Foster, Saunders, & Stang, 1995), employment (Decker, Ortiz, Spohn, & Hedberg, 2015; Link, 1987) and health care (Hatzenbuehler, 2014; Hatzenbuehler, Jun, Corliss, & Austin, 2015; Hatzenbuehler, Phelan, & Link, 2013; Sidanius & Pratto, 2001).

The final component, assumed power of the perpetrator, is critical to the conceptualization of stigma, as it takes power to maintain the social production of stigma (Link & Phelan, 2001). An example of this is the classification of homosexuality as pathological. As same-sex behaviour was viewed negatively, largely because of powerful religious influence, homosexuality was regarded

as an illness and a deviation from normal heterosexual development. It was not until 1973 that homosexuality was declassified from the Diagnostic and Statistical Manual of Mental Disorders (DSM; Drescher, 2015). However, as illustrated by Hatzenbuehler and colleagues (2013), individuals who wish to stigmatize a particular group will use a variety of methods to achieve their desired end, adapting over time to maintain their supremacy. Although declassified as a psychiatric disorder, homosexuality has continued to face stigmatization. This adaptation over time can be illustrated through the fight for marriage equality, which was not granted until 2015 in the United States ("Obergefell v. Hodges," 2015), 42 years following the psychiatric declassification.

Types of Stigma

Stigma is understood as a multidimensional construct that can be interpreted in numerous ways. Two of the most common conceptualizations of stigma are public stigma and internalized or self-stigma (Pattyn, Verhaeghe, Sercu, & Bracke, 2014). As highlighted in Figure 5, public stigma refers to overt stigmatization by the public towards a group or person. Public stigma is generally viewed as the most commonly understood form of stigma – the overt discrimination or victimization of a group or person (e.g., verbal comments, physical assaults, etc.). As discussed above, experiences of public stigma and discrimination have a number of detrimental effects on these individuals.

On the other hand, self-stigma is perpetuated and maintained by the individual. It is a devaluation of the self after internalizing and accepting the negative perceptions and stereotypes associated with a particular label that they hold (Corrigan, 2005). Corrigan and Rao (2012) developed a model of the development of self-stigma and argue that it is a progressive process spanning four distinct cognitive stages. While this model explains the development of self-stigma for those with mental illness specifically, it can be argued that the same stages would apply to all

stigmatized groups. The first stage in this model is awareness, where – in the case of mental illness – an individual becomes aware of, or acknowledges, the public's negative beliefs about their condition. In the second stage of agreement the individual accepts that the negative beliefs held by the general public are true (e.g., "I agree that people with mental illness are weak"). The agreement stage is an important component in the development of self-stigma, as an awareness of negative stereotypes alone does not predict whether or not someone necessarily agrees with these beliefs (Corrigan, Bink, Schmidt, Jones, & Rusch, 2016). The third stage is application, whereby the individual with mental illness internalizes the negative stereotypes associated with the label they hold (e.g., "I am mentally ill, therefore I must be weak"). Finally, there is harm, as self-stigma has both emotional and behavioural consequences, which manifest as both low self-esteem and self-efficacy. These effects can lead to what has been termed the "why try" effect: a sense of futility in which people believe they are unworthy or incapable of achieving personal goals. This is the result of internalized negative stereotypes translating into feeling of being incapable or unworthy of pursuing personally-relevant goals, such as independent living (Corrigan et al., 2016). Self-stigma has also been associated with lower perceived need to seek professional services in persons with mental illness (Schomerus et al., 2012), social isolation (Corrigan & Rao, 2012), and treatment noncompliance (Fung, Tsang, & Chan, 2010; Tsang, Fung, & Chung, 2010). Self-stigma also has pernicious effects on self-esteem and quality of life, and can engender shame, guilt, social isolation, depression, and suicidality (Alonso et al., 2009; Meyer & Dean, 1998).

Understanding the different types of stigma, how they develop, and the differential effects that they can have on an individual can help practitioners develop effective, personalized, and targeted stigma interventions. For instance, anti-stigma initiatives can be informed by understanding that personal identification with a community or group of people with similar

stigmatized characteristics and attributes buffers against negative consequences of stigma. The recent program "Coming Out Proud" was designed from this social identification research. Coming Out Proud helps people with mental illness conduct a cost-benefit analysis of disclosure for different life setting, teaches strategic disclosure techniques while being cognizant that some strategies are safer than others, and craft a disclosure story (Corrigan et al., 2015). Two recent studies have now demonstrated that Coming Out Proud significantly decreases stigma-related stress (Rusch et al., 2009), reduce self-stigma, and improves well-being (Corrigan et al., 2015).

Implicit versus Explicit Stigma

To this point this dissertation has discussed stigma from the vantage point of the stigmatized person, with the general assumption that the stigmatizing group or individual is aware of the inequality or situation they are creating/perpetuating. However, stigmatizing attitudes can be both explicit (overt) as well as implicit attitudes that are more unconscious, and that people may or may not be aware that they hold. In short: people can think, feel, and behave in ways that are in direct opposition to their explicitly expressed (or known), attitudes and beliefs. Recognition that many attitudes are held implicitly is important for our understanding of stigma as simply gathering explicit self-reports of attitudes will produce censored or socially favourable results, and may grossly underestimate the true biases and negative stereotypes held against stigmatized groups.

The Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) has been used to assess implicit biases and stereotypes. The IAT is a response time task that requires participants to classify items into more general categories. A person's implicit bias is determined by comparing the amount of time it takes them to classify stimuli when the paired categories match the person's automatic associations versus the time it takes when the pairing is contradictory to those assumptions. For example, people are generally faster at categorizing good words (e.g., joy,

love, peace, happy) and bad words (e.g., terrible, nasty, evil) correctly when the categories "good" and "straight people" and "bad" and "gay people" are paired than the reverse ("good" and "gay people" and "bad" and "straight people"). The IAT has also produced strong evidence that the general public hold strong implicit biases against people with mental illness (Teachman, Wilson, & Komarovskaya, 2006; Wang, Huang, Jackson, & Chen, 2012). In particular, there was strong belief that those with mental illness are bad, helpless, and blameworthy (Teachman et al., 2006).

Perhaps more important than revealing that these implicit biases exist is the growing body of research suggesting that these negatively held beliefs translate into discriminatory behaviour. A meta-analytic review of 122 studies (184 independent samples, 14,900 subjects), found that the IAT measures significantly predicted a number of potentially discriminatory outcome variables such as judgments, choices, physiological responses, and behaviours (average $r = .27$; Greenwald, Poehlman, Uhlmann, & Banaji, 2009). Despite significant effort placed on the development of evidence-based programming and the implementation of large-scale anti-stigma campaigns, recent work highlights that discrimination and stigma are still prevalent (Reavley & Jorm, 2011b; Stuart, Patten, Koller, Modgill, & Liinamaa, 2014). In 2010, Statistics Canada conducted a Canadian population survey on the public's expectations that people with mental illness will be discriminated against as well as personal experiences with stigma (Stuart et al., 2014). In the sample of 10, 398 Canadians, over one-third said they believed that employers would discriminate against someone who has had depression (38.2%) and that most people they know would be reluctant to become romantically involved with someone who has depression (33.7%; Stuart et al., 2014). These findings are not limited to depression; in a national population survey of over 6000 Australians using vignettes of different mental disorders (depression, depression with suicidal thoughts, early schizophrenia, chronic schizophrenia, and post-traumatic stress disorder) there were significant

reports of public stigma, regardless of the disorder. Specifically, respondents were most likely to agree or strongly agree with statements about other people's belief in the unpredictability of people with mental illness, the belief that most other people would not tell anyone they had a mental illness, and the belief that most other people would not employ someone with the problem (Reavley & Jorm, 2011b). These studies highlight that despite efforts to educate the public, stigma is still a significant factor in the lives of people who have, or have had mental illness, and that they are still experiencing negative responses from society.

Stigma as a Barrier to Help-Seeking

Both public and self-stigma have been shown to act as barriers to seeking mental health care. Corrigan (2004) presents a model whereby an individual's avoidance of public stigma or self-stigma effectively inhibits treatment-seeking or treatment compliance. As stigma has significant negative consequences through discrimination, prejudice, and stereotyping, individuals may conceal their mental illness to avoid public identification, in an attempt to shield themselves from this potential harm. Similarly, individuals will avoid being associated with institutions or services that may identify them as mentally ill, resulting in a lack of service utilization. In an effort to avoid self-stigma, individuals with mental illness may avoid seeking treatment, thereby circumventing the labelling of being mentally ill. While public and self-stigma may be rooted in distinct social-cognitive processes, they have both been shown to significantly hinder treatment seeking and treatment maintenance in individuals suffering from mental illness.

To date there have been six non-systematic reviews on mental health-related stigma and its impact on help-seeking, which were recently reviewed in a meta-synthesis (Clement et al., 2015). The review included 144 studies representing data from 90,189 participants including 56 quantitative association studies looking at the relationship between stigma and help-seeking, 44

quantitative barrier studies reporting data from participants who reported experiencing one or more stigma related barriers to help-seeking, and 51 qualitative studies on processes underlying the stigma–help-seeking relationship. Clement et al. (2015) found that a) internalized stigma and treatment stigma consistently exhibited a small negative association with help-seeking, b) stigma was ranked as the four highest barrier to help-seeking, representing a moderate negative effect, and c) there was dissonance between preferred self-identity and common stereotypes about mental illness, resulting in individuals anticipating negative consequences or experiencing negative consequences such as public judgment or rejection. Furthermore, to avoid these consequences, individuals did not disclose their mental health problems or they masked their symptoms. Together, these factors deterred individuals from seeking help from professional services.

2. 5. 2. 2 Attitudinal Barriers for Post-Secondary Students

For post-secondary students it is personal stigma – an individual's own stigmatizing beliefs about people with mental illness – as opposed to public stigma, that is correlated with help-seeking intentions (Eisenberg, Downs, Golberstein, & Zivin, 2009; Lally et al., 2013). Eisenberg et al. (2009) found that personal stigma is associated with lower likelihood to perceive a need for services or seek mental health support (Eisenberg, Downs, et al., 2009), while there was no impact of public stigma. In addition, students with high personal stigma were less likely to have sought treatment under their own volition: 63% as compared to 72% of students with low personal stigma (Eisenberg, Downs, et al., 2009). Mental health stigma also has detrimental secondary effects. Research suggests that post-secondary students report stigma as not only a barrier to help-seeking but also to community engagement and social relationships (Salzer, 2012), which may exacerbate

other help-seeking barriers by furthering students' sense of isolation and decrease their social support.

Given our knowledge that stigma is a barrier to help-seeking, considerable resources have been dedicated to anti-stigma programs at post-secondary institutions. However, recent research into the relationship between stigma and help-seeking for post-secondary students has indicated that it is more complex than originally hypothesized. For example, post-secondary students have repeatedly reported low to moderate levels of stigma (Golberstein, Eisenberg, & Gollust, 2008), whereas stigma is reported at much higher rates in the general population (Jagdeo et al., 2009; Mojtabai, 2007). In addition, for post-secondary students, no consistent relationship has been found between stigma and help-seeking attitudes (Cellucci, Krogh, & Vik, 2006; Czyz et al., 2013; Downs & Eisenberg, 2012; Eisenberg, Downs, et al., 2009; Golberstein et al., 2008; Salzer, 2012) or treatment seeking within the past 12 months (Golberstein, Eisenberg, & Gollust, 2008). Recent work has found that many students who do not seek treatment paradoxically report positive attitudes and beliefs about mental health (Eisenberg, Hunt, & Speer, 2012; Lipson, Jones, et al., 2016). This is not to say that stigma is not a relevant barrier to consider in the understanding of help-seeking behaviour. For students, it appears as though the effect of stigma is significant only when in conjunction with other variables, where it acts as a mediator or moderator to help-seeking. For example, a recent paper examining how stigma and self-reliance relate to mental health treatment-seeking found that higher perceived stigma was related to higher self-stigma and higher self-stigma was related to higher self-reliance. Higher self-reliance in turn was associated with stronger negative attitudes toward treatment-seeking, and a decreased probability of having sought treatment among those who screened positive for a mental health problem (Jennings et al., 2015). Attitudinal barriers such as stigma, may be significant impediments to seeking treatment, but only

in those students who have already acknowledged the need for treatment, a finding that was previously reported in the general population (Mojtabai, Olfson, & Mechanic, 2002). As highlighted in Figure 3, it is theorized that stigma acts as a significant deterrent to help-seeking only once an awareness and appraisal of a mental health problem has occurred.

Therefore, while stigma is significant to the overall understanding of help-seeking within a post-secondary student population, recent research suggests that other barriers, particularly knowledge barriers, warrant greater attention. A recent meta-analysis looking at the impact of mental health-related stigma on help-seeking reported that stigma was only fourth highest barrier reported (Clement, 2014), whereas the desire to handle the problem on one's own, and low perceived need for care were higher (Mojtabai et al., 2011). Similarly, in a large North American study, students who had untreated mental health problems most commonly reported low perceived need ("the problem isn't that serious", "the problem will get better by itself", "stress is normal in university or graduate school") as the predominant reason for not seeking help (Eisenberg, 2007). Given this body of literature, it may be suggested that the knowledge barrier of low perceived need stemming from mental health illiteracy is an earlier, and significant barrier to mental health treatment seeking for post-secondary students.

2. 5. 3 Knowledge as a Barrier to Help-Seeking

Knowledge as a Barrier to Help-Seeking in the General Population

Knowledge barriers include an individual's knowledge about mental illness, as well as awareness of services and how to access them. Knowledge of mental illness and how to seek care was first conceptualized for physical health and broadly defined as "health literacy": the ability to

gain access to, understand, and use information in ways that promote and maintain good health (American Medical Association Ad Hoc Committee on Health Literacy, 1992). Later, Jorm et al. (1997) introduced the term "mental health literacy." This included the ability to recognize stress, specific disorders, attitudes that facilitate recognition, as well as knowledge and beliefs about a) self-help interventions, b) risk factors and causes of mental illness, c) professional help services, and d) how to seek mental health information. In short, mental health literacy believes that without an adequate understanding of mental illness it is impossible to determine whether what you are experiencing warrants help or not, and to get appropriate care. More recently, the definition of mental health literacy has been updated and includes understanding how to obtain and maintain positive mental health; understanding mental disorders and their treatments; decreasing stigma, and enhancing help-seeking efficacy which includes knowing when and where to seek help, as well as self-care skills (Kutcher et al., 2016).

The level of mental health literacy in the general population is relatively low, and has frequently been reported as a significant barrier to seeking treatment world-wide. The WHO Mental Health Survey, which assessed DSM-IV disorders in household samples across 25 different countries, reported that among those respondents who a) met criteria for a DSM-IV disorder in the previous 12 months and b) who reported no treatment during that same 12-month period, low perceived need was the most commonly reported barrier (Andrade et al., 2014). Perceived need was assessed by asking those individuals who reported no service use if there was a time in the past 12 months when they felt they might have needed to see a professional for problems with their emotions, nerves, or mental health. Those who responded negatively were coded as having "low perceived need." Perceived need was generally low, with only 38% of respondents with a past year DSM-IV disorder reporting a need for professional treatment. There was also an association

between severity of illness and perceived need, with perceived need being slightly higher amongst individuals with serious versus moderate or mild disorders (Andrade et al., 2014). It has been hypothesized that this low perceived need for treatment is a consequence of people simply not recognizing what their symptoms are and/or when their symptoms warrant treatment (Andrews et al., 2001; Meltzer et al., 2003; Wells, Robins, Bushnell, Jarosz, & Oakley-Browne, 1994). Proper recognition of depression has generally been the highest in population surveys, with 50-75% of people correctly identifying depression when presented with a vignette (Jorm et al., 2006; Marcus & Westra, 2012; Wang et al., 2007). Unfortunately, correct recognition of other mental health problems (anxiety, post-traumatic stress disorder, phobias) is significantly lower (Marcus & Westra, 2012; Reavley & Jorm, 2011a). In consequence, there are often significant delays before seeking treatment, during which disorders can become more severe and intrusive. For example, in an Australian clinical sample of people who sought treatment for an anxiety or mood disorders, the average delay before receiving treatment was 8.2 years. However, the findings suggest that the vast majority of that delay (average 6.9 years) was due to a lack of problem recognition, and once people recognized that their symptoms were related to anxiety or depression the average delay before receiving treatment was 1.3 years (Thompson, Issakidis, & Hunt, 2008). Low mental health literacy results in a significant number of people delaying treatment, and as a result having worse prognoses.

In addition to the inability to recognize mental illness, misattribution – incorrectly attributing mental illness symptomatology to another cause – is also common. The misattribution of mental illness often involves normalizing symptoms that are actually clinically significant (Jorm, 2012). An example of this is depression, which is often incorrectly labelled as stress or the expression of normal life problems (Jorm, 2012). Normalizing symptoms by using alternative

labels can result in the individual being less likely to recognize their need for help. In a study using depression vignettes, when the depressed individual was incorrectly labelled with something other than depression, people were more likely to endorse that it would be better for them to handle the problems on their own (Jorm et al., 2006). As the correct recognition and attribution of a problem is a necessary antecedent to help-seeking, greater attention is now starting to be placed on this aspect.

Knowledge as a Barrier to Help-Seeking for Post-Secondary Students

Young people, often lacking experience and knowledge of mental illness, are significantly less likely to correctly identify mental illness unless the symptoms and context are stereotypical and/or severe. In a study with young adults using vignettes of individuals with depression, when the symptom profile clearly included suicidal ideation and feelings of worthlessness, depression was correctly identified 67.5% of the time. However, in the absence of commonly known symptoms (though the vignette still included at least five diagnostic symptoms of depression), correct recognition dropped to 33.8% (Burns & Rapee, 2006). In general, people are better at correctly identifying depression when the presenting symptoms are primarily mood related, and are less likely to make a correct attribution when symptoms are primarily somatic (Regier et al., 1988). In other studies with young adults, correct identification of depression is as low as 23% (Lam, 2014), and correct recognition of other disorders such as schizophrenia, social phobia, or psychosis is typically less than 25% (Reavley & Jorm, 2011a).

Low mental health literacy, specifically low perceived need, appears to be particularly prevalent in post-secondary students. Symptom recognition is one of the strongest correlates of a

student's intention to seek help (Cellucci et al., 2006), as well as their actual help seeking behaviour (Eisenberg et al., 2011). It has been postulated that young people may be less apt at correctly recognizing their symptoms and attributing them to mental illness because they have insufficient knowledge and experience to do so (Jorm, 2012). This theory was exemplified in the conceptual model of help-seeking behaviour put forth by Biddle et al. (2007). As discussed previously, a young person's threshold for distress before interpreting their symptoms as mental illness is continually altered as they attempt to avoid acknowledgement of real distress. Jorm (2012) suggests that this normalization is not done intentionally, but occurs because they are simply unable to make this realization. In a qualitative study by Biddle et al. (2007), young adults were asked to describe what they considered distress and depression to be, and the respondents continually normalized even extreme cases of distress. This is epitomized in the excerpt below with a 23-year-old female:

Young adult: You've got stress and then you can kind of go over the edge of stress and it's like mental problems . . .

Interview: So how do you know whether you're just stressed or whether you've got mental problems?

Young adult: I would say stressed is when you literally can't cope with getting up in the morning . . . You've got to that point then when you can't do anything, you don't want to go anywhere.

Interview: So that's stress?

Young adult: Yeah, to me, in my eyes.

Interview: And how about mental problems? What would they be?

Young adult: Oh um getting close to the edge and feeling life isn't worth living and contemplating taking your own life.

Students are often aware that they are experiencing a level of distress but do not pathologize it, which in turn negates the possibility that it warrants professional treatment.

In a study by Gagnon et al. (2015) the authors examined student's beliefs regarding symptoms and whether they believed specific symptoms to be early warning signs versus signs that action signs that would actually prompt help-seeking behaviour. Amongst the sample of 154 university students only six of the possible 18 symptoms presented to participants were endorsed as "action signs," which were delusions, hallucinations, prolonged sadness, suicidal thoughts, self-harming behaviour, and substance abuse. Amongst those 6 symptoms, only delusions, hallucinations, suicidal thoughts, self-harming behaviour and substance abuse were more likely to be endorsed as "action signs" rather than simply "warning signs." The authors also noted that when students were discussing those symptoms that they believed warranted action the terms severe and extreme were often added as qualifiers (Gagnon et al., 2015). These findings are concurrent with previous findings of youth mental health help-seeking behaviour, which have found that it is not until severe distress or crisis is experienced that symptoms are evaluated as a 'real' problem that warrants treatment (Biddle et al., 2007).

As discussed earlier, one significant predictor of recognizing a need for help is symptom severity. The severity of illness moderates the perception of need, such that people who are experiencing mild symptomatology report the lowest perception of need (Mojtabai et al., 2011; Pagura, Fotti, Katz, Sareen, & Swampy Cree Suicide Prevention Team, 2009). Within a post-secondary student population, the relationship between the severity of symptomatology/distress and perceived need breaks down. Levels of reported distress by students, even in those with an absence of mental illness, is exceptionally high: more than 60% of students reported feeling of overwhelming stress (89.3%), exhaustion (86.9%), and loneliness (63.9%; American College

Health Association, 2013). Unfortunately, post-secondary students will continually alter the meaning of their distress and normalize their experience as part of "university/college life" (Biddle et al., 2007). This normalization of distress increases students' belief in self-reliance and decreases their perception that these feelings warrant professional help. For example, more than half of students who screened positive for a mental illness but had not received any professional services reported that the reason they did not seek treatment was that the stress they were experiencing was normal in college/graduate school (51%; Eisenberg, Golberstein, et al., 2007). Other reasons for not seeking treatment included the belief that there was no need (45%) or that the problem would get better by itself (37%; Eisenberg, Golberstein, et al., 2007). Even amongst suicidal students (those reporting suicidal ideation, having a plan, or making a suicide attempt during the previous year), over half of those who did not seek treatment endorsed the statements "Stress is normal in college/graduate school" and "I question how serious my needs are" (Denmark, Hess, & Becker, 2012; Downs & Eisenberg, 2012). This finding has been replicated, and students continually report that they do not need treatment given that their problem is only minor or transient. There is also a noticeable absence of endorsement for stigma as a significant barrier: in one study, compared to 66% of students who endorsed a lack of need as the reason for not seeking treatment, only 12% endorsed stigma as a barrier (Czyz et al., 2013). These findings highlight that there is a deficit in the ability to correctly self-identify when distress warrants help within the student population. Given these recent findings, the notion that stigma is the most significant barrier is being called into question. The high prevalence of mental health problems and the relatively low mental health literacy has been repeatedly observed. This has led to the current hypothesis: the primary barrier that should now be focused on to improve help-seeking for students is mental health literacy.

2. 6 Proposed Research and Hypotheses

This study is one of the first to experimentally assess whether increasing the perception of need for professional services via increased mental health literacy will significantly alter problem identification and attitudes about treatment seeking in a student sample. Thus far, stigma reduction has been the primary focus of campus interventions. Given the recent evidence of low mental health literacy and its impact on help-seeking intention, it is proposed that there should be a shift to interventions that target earlier stages in the help-seeking process to target symptom recognition and problem appraisal. Specifically, this study set out to test the following hypotheses:

Hypothesis 1: Race/Ethnicity, living situation, proximity, gender identity, international status, and previous diagnosis will each influence students' knowledge and attitudes towards mental health pre-intervention. This hypothesis is based on studies conducted in the general population and extrapolated to a university setting. As such, these demographic hypotheses are largely exploratory. Nonetheless, the following results were anticipated:

a. Race/Ethnicity: those students who did identified as a visible minority would have more negative attitudes towards seeking help and higher levels of stigma compared to students who identified as white/Caucasian.
b. Living situation: students living in on-campus housing would have the more favourable help-seeking attitudes and lower stigma compared to those living off campus or with parent(s)/guardian(s).

c. Proximity: students who reported contact with more people who have sought help for a mental or emotional problem would have higher mental health knowledge, more favourable treatment seeking attitudes, and lower stigma.
d. Gender-identity: Male-identified students would have less mental health knowledge, poorer treatment seeking attitudes, and more stigma compared to female-identified students. In comparison to both male- and female-identified students, transgender and gender-non-conforming students would have the poorest attitudes towards treatment seeking and the highest level of stigma.
e. International students: International students would have lower mental health knowledge, poorer treatment seeking attitudes and higher stigma compared to Canadian citizens/permanent residents.
f. Previous diagnosis: Students with a previous mental health diagnosis would have great mental health knowledge, but there would be no difference between treated and untreated students on attitudes and stigma towards treatment.

Hypothesis 2: Student's self-reported barriers to treatment would be knowledge barriers (e.g., lack of problem recognition) and not stigma-related barriers.

Hypothesis 3: The mental health literacy condition would significantly increase positive attitudes towards seeking treatment compared to those students exposed to the stigma reduction condition.

Hypothesis 4: Support would be found for the proposed conditional mediation model that incorporates problem identification as the mediator and positive self-assessment as a moderator. The conditional indirect effect of condition (mental health literacy or stigma reduction) on attitudes towards mental health and help-seeking intentions via problem identification will be stronger when participants received a positive self-assessment for a mental health problem compared to those who did not.

Hypothesis 5: Students who screened positive for a mental health problem but are currently untreated would report low stigma beliefs and positive views of mental health treatment services. This would replicate previous findings from a study by Eisenberg et al., 2012, which found that amongst 1,263 student participants with untreated mental illness the majority reported low stigma and positive beliefs about treatment.

CHAPTER 3. METHODS

3. 1 Participants

3. 1. 1 Recruitment

This study was approved by the Research Ethics Board of the McGill University Health Centre – Research Institute (See Appendix 1: Research Ethics Board approval letter), and all participants provided informed consent (Appendix 2: Consent Form). Participants were recruited through two methods a) local campus advertising (e.g., posters on campus, McGill classifieds, Listservs, etc. and b) targeted recruitment via McGill's Office of Planning and Institutional

Analysis (PIA). The request for PIA's sampling services was made by the Manager of Student Assessment in Student Services. PIA and Student Assessment routinely collaborate on survey sampling and scheduling to avoid survey fatigue for projects related to McGill Student Services' programs. A random sample of 3000 undergraduate students was prepared by PIA to increase the likelihood that the sample group would be demographically representative of McGill's undergraduate student body. The request to participate was only sent to undergraduate students and excluded professional students (e.g. law or medicine). The 3000 students were representative of the Fall 2015 admissions profile. In addition, male students and those in the STEM sciences (science, technology, engineering, mathematics) were over sampled as these groups are traditionally underrepresented in mental health surveys. Within the recruitment text, participants were informed that they were would be entered into a draw to win one of four prizes of $250. As an additional incentive, participants were told that a donation of $1 would be made on their behalf to Suicide Action Montreal, a local Montreal organization that provides support services, crisis workers, and monitoring for people who are at risk of committing suicide, for their friends and family, and for people affected by suicide. The recruitment emails included similar information and can be found in Appendix 3: Recruitment Text.

3. 2 Sample

A total of 423 students initially volunteered to participate in a research study on attitudes about mental health; of those, 184 completed the entire experiment. Of the 184 students that completed the study, 17 participants were removed as they were not undergraduate students (9 Master's students, 3 medical students, 2 PhD students and 3 non-students). In addition, individuals

above the age of 29 were excluded from the sample in order to more accurately represent emerging adults in a post-secondary school setting. This resulted in the removal of an additional two participants. The final sample for this study consisted of 165 undergraduate students ranging in age from 18 to 29. Of the 165 participants who completed the study, 80 participants were randomly assigned to the mental health literacy condition and 85 were assigned to the stigma reduction condition. Random assignment was done with a randomizer built into the Qualtrics platform. Following each of the conditions, participants either received a mental health self-assessment (n = 83) or no self-assessment (n = 82). Demographic characteristics of the whole sample are summarized in Table 1.

3. 3 Measures

3. 3. 1 Demographics and Current Mental Health Status.

Demographic information, current mental health status and related issues (e.g., distress, symptomatology, etc.), and mental health service utilization were assessed using the questionnaire from the Healthy Minds Study, referred to as the Healthy Minds Questionnaire (HMQ; (Eisenberg, Gollust, et al., 2007)). The HMQ is a web-based survey developed by Eisenberg et al. (2007) that asks up to 200 questions, and uses skip logic to eliminate irrelevant questions. The HMQ consists of 17 subsections, which cover demographic variables, academics, flourishing items, screening for depression, anxiety, disordered eating or body image, self-injurious behaviour, and suicide, diagnosed mental illness, knowledge and beliefs about mental health services, stigma, mental

health service utilization, knowledge of help-seeking/support, reasons for seeking or not seeking help, insurance, substance use, witnessing/experiencing negative events, and general lifestyle questions. An example item from the HMQ is: "At my school, I feel that the campus climate encourages free and open discussion about mental and emotional health." Since its inception in 2007 the HMQ has been used at over 100 post-secondary campuses, with over 100,000 survey respondents. In particular, the demographic items, self-reported barrier items, and previous diagnosis and treatment (both therapy and pharmacological) were used to test Hypotheses 1 and 2, respectively. In addition, previous diagnosis, current symptoms, and past or present treatment (therapy or pharmacology) were used to identify currently untreated participants.

3. 3. 2 Mental Health Knowledge Schedule

To assess mental health knowledge related stigma the Mental Health Knowledge Schedule (MHKS) was utilized. The MHKS was developed by (Evans-Lacko et al., 2010) and consists of six items tapping into six individual stigma-related areas: help-seeking, recognition, support, employment, treatment, and recovery. Responses are made on a 6-item Likert-type scale from *strongly agree,* to *strongly disagree* and includes *neither agree nor disagree* as well as *don't know*, as possible responses. An example item from the MHKS is "Most people with mental health problems want to have paid employment." Items in which the respondent strongly agreed with a correct statement had a value of 5 points, while 1 point reflected a response in which the respondent strongly disagreed with a correct statement. The total score for each participant was calculated by adding together the response values of each item. The response *Don't know* was

coded as neutral and was given 3 points. Previous studies have reported test-retest reliability of 0.71 using Lin's concordance statistics and re-test reliability ranging from 0.57 to 0.87 (Evans-Lacko et al., 2010), which suggests moderate to substantial reliability over time.

3. 3. 3 Public Stigma about People with Mental Illness

The Error Choice Test (ECT) was developed to obtain a more accurate assessment of an individual's stigmatizing attitudes towards mental illness. The ECT is designed to avert the cultural mores that encourage the endorsement of socially preferred answers rather than one's true beliefs by masquerading as a mental health knowledge test. The ECT consists of 14 items. Each test item has an answer "a" and "b." Items are scored such that one point is given to the more stigmatizing response while a score of zero is given to the less stigmatizing response. Higher total scores represent greater bias or prejudice. Participants are told that this is a test of their knowledge about mental illness and that the questions on the test are taken from findings of scientific research. Participants are also told that they do not need to be experts in mental health but through their experience and general knowledge they should be able to pick the correct answer. An example question from the ECT is "people with severe mental illness cannot maintain private residences" and then participants must respond "true" or "false."

3. 3. 4 Stigma about Seeking Mental Health Services

Self-stigma was assessed using the Self-Stigma of Seeking Psychological Help (SSOSH) scale (Vogel, Wade, & Haake, 2006). The SSOSH is a 10-item questionnaire, designed to assess

an individual's beliefs about seeking professional mental health services. An example question from the SSOSH is "I would feel inadequate if I went to a therapist." Participants were asked to indicate how they would react to each statement. Responses were made on a 5-point Likert-type scale ranging from *Strongly disagree* to *Strongly agree*. A score on the SSOSH is calculate by reverse scoring items 2, 4, 5, 7, and 9, and then summing all 10 items. Possible total scores range from 10 to 50, where a scores of 10 - 22 indicates low self-stigma, 23 - 32 indicates medium self-stigma, and 33 - 50 is indicative of high self-stigma. A validation study of this scale found that the SSOSH exhibited strong internal consistency (0.90 at Time 1 and 0.88 when measured at Time 2), as well as good test-retest reliability (0.72 at 2-month follow up). In addition, scores on the SSOSH were found to significantly differentiate individuals who eventually sought psychological services from those who did not (p = .03) (Vogel, Wade, & Haake, 2006). In the present study, the Cronbach's alpha score for the scale was 0.89 pre-intervention and 0.89 post-intervention.

3. 3. 5 Perceptions of Stigmatization by Others for Seeking Help

Public stigma (the perception of stigmatizing beliefs held by others) from seeking mental health treatment was assessed using the Perceptions of Stigmatization by Others for Seeking Help (PSOSH) scale (Vogel, Wade, & Ascheman, 2009). The PSOSH is a 5-item questionnaire. Participants were asked to imagine how people would react if they sought counselling services for a mental or emotional problem that they could not solve on their own. Responses ranged from *Not at all* to *A great deal.* A total score is obtained by summing all 5 items. An example item from the

PSOSH is "If you sought counselling services for this issue, to what degree do you believe that the people you interact with would react negatively to you." Vogel, Wade, and Ascheman (2009), found support for the reliability and validity of the scale, as it correlated with other help-seeking scales, has good internal consistency (0.88), and good test-retest reliability (0.77 over 3 weeks). Finally, the PSOSH was found to measure a unique aspect of stigma that was related to other stigma scales but provided additional information that was valuable to the understanding of self-stigma. Cronbach's alpha were 0.88 and 0.91 pre- and post-intervention, respectively.

3. 3. 6 Attitudes Towards Seeking Mental Health Services and Help-Seeking Intentions

Participant's attitudes about seeking help and intentions to seeking mental health services were assessed with the Attitudes Towards Seeking Mental Health (ATSMH) scale developed by Fischer and Farina (1995). The ATSMH is a 10-item questionnaire that uses a 4-point Likert scale ranging from 0 (*Disagree*) to 3 (*Agree*). An example item from the ATSMH is "Personal and emotional troubles, like many things, tend to work out by themselves." Items 2, 4, 8, 9, and 10 are reverse scored, and a total score is obtained by summing the responses. A higher score indicates more positive attitudes towards seeking professional help. The ATSMH has demonstrated both validity and reliability as a measure of attitudes towards help-seeking in post-secondary students. The ATSMH demonstrated internal consistency ranging from 0.82 to 0.84, and one-month test-retest reliability of 0.80 in a sample of post-secondary students (Elhai et al., 2008). Cronbach's alphas were 0.80 and 0.78 pre- and post-intervention, respectively.

To measure help-seeking intention more specifically, only item 6 of the ATSMH, which is "I might want to have psychological counselling in the future" was used for the variable Help-Seeking Intention. This item asked directly about future intention to seek help rather than general attitudes towards help-seeking and was therefore used as a measure of this variable of interest.

3. 3. 7 Problem Identification

To assess whether participants reported that what they are experiencing could be a mental health problem, which we term 'problem identification', a single item from the Mental Health Problem Appraisal (MHPA) scale was used. The full 5-item scale was developed by Schomerus et al. (2012) and assesses the degree to which the rater feels that a problem or symptom they are experiencing could be a mental health issue. Participants are asked to indicate the extent to which they agree with the statement: "My present problems could be the first signs of a mental disorder" using a 5-point Likert scale from 1 (*Don't agree at all*) to 5 (*Agree completely*).

3. 4 Self-Assessment Manipulation

3. 4. 1 Patient Health Questionnaire

The Patient Health Questionnaire (PHQ) is a self-administered diagnostics tool for mental health disorders that covers mood, anxiety, alcohol, eating and somatoform disorders (Spitzer et al., 1999). The PHQ is based on the Primary Care Evaluation of Mental Disorders (PRIME-MD) and is a quick and efficient tool to assess mental health symptomatology. The PHQ is not designed to provide a clinical diagnosis but to assist with decision-making and to encourage help-seeking

when warranted. The self-assessment portion of the current study utilized the depression, anxiety and disordered eating portions of the PHQ. The diagnostic validity of the PHQ has been confirmed with overall accuracy of 85%, sensitivity of 75% and specificity of 90%. The psychometric properties of its component scales have also been research and are discussed below.

3. 4. 1. 1 Depression

The present study used the depression PHQ-8, which is identical to the PHQ-9 but does not include a final question on self-harm and suicide. It was decided to use the PHQ-8 rather than the PHQ-9 because a true assessment of suicide requires a clinical interview and the PHQ-8 is commonly used for research in non-depressed populations (Kroenke and Spitzer, 2002). The PHQ-8 has been assessed in large epidemiological studies and has been demonstrated to be a useful measure of depression for population studies (Kroenke et al., 2009).

For each of the 8-items, responses range from 0 (*Not at all*) to 3 (*Nearly every day*), providing a 0 to 24 severity score. Scores of 5, 10, 15, and 20 represent cut points for mild, moderate, moderately severe, and severe depression, respectively. An example item from the PHQ-8 is "Over the last two weeks how often have you been bothered by feeling down, depressed, or hopeless?" Internal reliability of the PHQ-9 (Cronbach's $\alpha = 0.89$) and test-retest reliability have both been confirmed (Kroenke et al., 2001). In the current sample, Cronbach's alpha was 0.93.

3. 4. 1. 2 Anxiety

The anxiety portion of the PHQ, the GAD-7, is composed of seven items, each of which is scored 0 to 3, providing a 0 to 21 severity score. An anxiety score is calculated by assigning

scores of 0, 1, 2, and 3, to the response categories of — *not at all* — *several days* — *more than half the days*, and — *nearly every day*, respectively. Scores of 5, 10, and 15 represent the cut off points for mild, moderate, and severe anxiety, respectively. Though this questionnaire was designed primarily as a screening and severity measure for generalized anxiety disorder, the GAD-7 also has moderately good operating characteristics for three other common anxiety disorders – panic disorder, social anxiety disorder, and post-traumatic stress disorder (Spitzer, Kroenke, Williams, & Lowe, 2006). The GAD-7 has also been demonstrated as an effective tool for screening in research (Spitzer et al., 2006). In this sample the Cronbach's alpha for the GAD-7 was 0.93. PHQ items specific to panic were also included. Panic disorder was assessed using a single dichotomous screening question "In the last 4 weeks, have you had an anxiety attack – suddenly feeling fear or panic?" and four follow up questions if the participant responded yes. The PHQ Panic Disorder section has been down to have good screening performance (Lowe et al., 2003).

3. 4. 1. 3 Disordered Eating

The disordered eating portion of the PHQ (PHQ-ED) is comprised of two primary dichotomous (yes / no) questions and six sub-questions, which are only answered if the respondent answers *yes* to either of the primary questions. If participants responded yes to the two primary questions ('Do you often feel that you can't control what or how much you eat?' and 'Do you often eat, within any 2-hour period, what most people would regard as an unusually large amount of food?') and reported that it had been as often, on average, as twice a week for the last 3 months then they were given the feedback that their responses suggested that they may be experiencing disordered eating. For the purposes of the present study no differentiation between bulimia,

anorexia or binge eating was made. The PHQ-ED has previously been demonstrated to have high sensitivity and specificity for detecting disordered eating in a community sample (Striegel-Moore et al., 2010).

3. 4. 2 Drugs and Alcohol Misuse

The CAGE-AID is a screening tools for drug and alcohol misuse. If participants respond *yes* to either "Do you drink alcohol?" or "Have you ever experimented with drugs?" then they are asked an additional four questions on their alcohol and/or drug use. CAGE is an acronym for its four follow-up items: (1) In the last three months, have you felt that you should **C**ut down or stop drinking? (2) In the last three months, has anyone **A**nnoyed you or gotten on your nerves by telling you to cut down or stop drinking? (3) In the last three months, have you felt **G**uilty or bad about how much you drink? (4) In the last three months, have you been waking up wanting to have an alcoholic drink (**E**ye opener)?

Usually the CAGE-AID uses conjoint questions that simultaneously ask about drugs and alcohol misuse but given that the self-assessment was designed to give feedback with regard to specific issues questions specific to drugs and alcohol were asked separately. The CAGE-AID has been validated in an adolescent sample and have been demonstrated to have good accuracy at detecting the presence and absence of substance use disorders (Brown & Rounds, 1995). In addition the screening tool has good internal consistency with a Cronbach's α of 0.77 (Couwenbergh, Van Der Gaag, Koeter, De Ruiter, & Van den Brink, 2009). If study participants had a score of two or more on the CAGE-AID for drugs and/or alcohol they were informed that

they may have issues around alcohol and/or drugs, respectively. Cronbach's alpha in the present study was 0.75 for the CAGE-AID alcohol and 0.86 for the CAGE-AID drugs.

3. 5 Self-Assessment Manipulation Feedback

Those participants who were assigned to receive the self-assessment manipulation were provided with one of two written outcomes. The first outcome, informed the participants that their "current responses to the previous set of questions indicate that you may be experiencing…" and were then given a list of positive self-assessment outcomes: some low mood, significantly low mood, some anxiety, some panic symptoms, disordered eating, issues around drugs, or issues around alcohol. The feedback then suggested that they "…may wish to seek professional support in the form of psychiatrists, psychologists, or psychotherapists available at McGill Mental Health Services." It also offers a number of resources including peer-support on campus and external resources made available upon completion of the study. Those participants who screened negative for all mental health disorders were told that "your current responses do not indicate issues in the specific areas measured by this questionnaire." However, the feedback did acknowledge that they may experience problems in areas not measured by the questionnaire and offered the same resources as the positive self-assessment group. All future analysis of the self-assessment manipulation considered those participants who completed the self-assessment and screened positive as the positive self-assessment group and those who completed the self-assessment but screen negative as the control group

3. 6 Procedure

All participants were provided with a link to the online survey powered by Qualtrics, a popular survey development website. Participants first completed a series of baseline questionnaires, including the MHKS, and ECT, the SSOSH, the PSOSH, the ATSMH scale. Participants then completed the HMQ, a comprehensive questionnaire covering demographic information as well as many facets of their mental health and professional service knowledge and use. After completing these initial questionnaires, the online survey program randomly assigned each participant into one of four groups. Participants were assigned to either the mental health literacy or stigma reduction condition. In addition, half of the participants within each of those groups were placed in the mental health self-assessment group. Participants were blind to the condition that they were assigned as they were not aware that there were alternative conditions. Participants were then told that they would be shown health information designed for university-aged students. They were also informed that there would be a short quiz on the material at the end to assess what they learned. Once the participant had gone through all of the website material, they completed the short quiz to ensure attentiveness to the content. The attention checks were short four question quizzes covering basic content from each of the conditions (literacy and stigma). An example "true" or "false" question from the anti-stigma quiz is "individuals with mental and emotional problems are more likely to be the victims of violence rather than be aggressive or violent themselves." Participants only completed the quiz that corresponded to their condition. After reviewing their respective content and completing the quiz, participants assigned to the mental health self-assessment group completed a battery of self-screening questionnaires (PHQ and CAGE-AID questionnaires, described in Measures). All participants then completed the

SSOSH, the PSOSH, and the ATSMH scale a second time, to allow for pre- post-comparisons. Participants also answered the single item from the MHPA (My present problems could be the first signs of a mental disorder) for the first time. Finally, all participants were thanked for their participation and sent resource material including a list of campus and community resources (Appendix 4: Resources). Completion of the study took approximately 45 minutes. Figure 6 provides a schematic representation of the overall study design.

3. 7 Experimental Conditions

The experimental conditions were created exclusively for the present research study. The stigma reduction condition was based on existing stigma reduction interventions such as the online tutorial created by the Centre for Addiction and Mental Health (CAMH). A mental health literacy intervention geared towards post-secondary students was not in existence and therefore had to be developed for this study. The elements of the intervention were based on the same critical elements proven to be effective for anti-stigma programming such as myth-busting and behaviour change. Both conditions included original graphics were designed for each condition by Thought Café, to increase readability and the aesthetic appeal of the content. The development of online content that can be adapted for a particular population (in this case undergraduate students at McGill University) and delivered easily and cost effectively is a strength of this content. The online nature of the interventions makes them scalable, sustainable, and customizable.

3. 7. 1 Stigma Reduction Condition

Creation of the stigma-reduction condition was based on recent literature highlighting key features to successful anti-stigma programming. As outlined by Arboleda-Flórez and Stuart (2011), there are six approaches that have been used to tackle mental health stigma (Arboleda-Florez & Stuart, 2012). These six approaches (outlined in more detail in Table 2), include education, contact, protest, legislative reform, advocacy, and stigma self-management. The first three strategies (education, contact, and protest) have been widely used in anti-stigma campaigns to reduce public stigma. Legislative reform and advocacy, on the other hand, explicitly address the structural aspects of stigma, focusing on policy rather than personal or public opinion. Finally, stigma self-management aims to reduce the personal impact of stigma via improved self-esteem and reduction of self-stigmatizing beliefs.

In addition to these different approaches, key elements of anti-stigma programming have been outlined by the Mental Health Commission of Canada (Knaak, Modgill, & Patten, 2014). These elements are viewed are principal to reducing stigma by improving attitudes and behavioural intentions. These key elements are as follows: 1) social contact (particularly from someone with lived experience), 2) multiple forms of social contact, 3) focus on behaviour change, 4) myth-busting, 5) positive tone, and 6) recovery focused (Knaak et al., 2014).

With consideration of the elements above, a pilot version of the stigma-reduction condition was developed, which integrated these key elements of anti-stigma programming. The stigma-reduction condition included: 1) a section of myth-busting focused on dispelling commonly held beliefs such as “Individuals with mental and emotional problems cannot succeed at university,” 2) a section of mental health statistics focused on normalizing the experience of distress and

seeking help. For example, "10% of McGill students surveyed sought psychological help for anxiety or depression in the past year," 3) a section highlighting successful and famous people who had mental illness (highlighting that recovery and success are possible), 4) behaviour change in the form an interactive activity meant to trigger reflection on the stigmatizing language commonly used (e.g., "crazy", "psycho", etc.) as well as a list of "things you can do" to reduce stigma, such as being aware of your own attitudes and judgements, and 5) a video of lived experiences from McGill students. As it was not possible to include true social contact into an online intervention it was intended to mimic the impact of social contact by including a video of McGill peers discussing their experiences with mental illness and treatment.

3. 7. 2 Mental Health Literacy Condition

The impetus to create a mental health literacy condition was based on recent findings which suggest that improving peoples' understanding of signs, symptoms, and resources is an effective strategy to facilitate early intervention for mental disorders (Kelly, Jorm, & Wright, 2007). Mental health literacy includes knowledge and attitudes about mental health as well as help-seeking behaviour (Jorm, 2000). However, given that the attitude portion of mental health literacy is typically focused on stigma reduction, and our comparison condition is a stigma reduction condition, this aspect of the traditional definition of mental health literacy was not included in this manipulation. Therefore, the mental health literacy condition including 1) what constitutes positive mental health, include self-care strategies; 2) knowledge of mental disorders (i.e., typical signs and symptoms), with an emphasis on *early* signs and symptoms (e.g., feeling "not right"), and 3) mental health resources; all of which are components of other successful mental health literacy campaigns that have been used on post-secondary students (Kutcher,

Bagnell, & Wei, 2015; Kutcher, Wei, & Morgan, 2015). To parallel some aspects of the stigma reduction condition, we again included a myth-busting section but focused on myths surrounding accessing care and recognition of symptoms. An example of one of the myths is "most university students with mental or emotional problems are getting the help they need." In addition, a video was included, although in the present condition it covered the signs and symptoms of common mental disorders and reiterated the importance of early help-seeking. Finally, there was an interactive component where students were asked to list five common warning signs of mental illness and were then presented with a validated list of warning signs to compare their answers against.

3. 8 Assessment of Pilot Content

Once pilot versions of the websites were developed, 12 content experts were invited to evaluate the appropriateness of the content and provide feedback on both their effectiveness and distinctiveness as unique manipulations. Of the 12 experts invited to participate, responses were received from 8 (67%). Experts included a mental health professional, a mental health staff member, three graduate students, two undergraduate students, and one student affairs professional. All of the students that were asked to participate all had some mental health expertise (e.g., graduate student in counselling psychology, etc.).

The experts were asked to answer five specific questions: 1) Do you think the content is easy to understand? 2) Do you think the length of the content is appropriate? 3) Do you think this content would be successful at reducing stigma? 4) Do you think this content would be successful at increasing knowledge of mental health symptoms? and 5) Do you think this content would increase the likelihood that a student would seek help from a mental health services professional?

All questions used a 5-point Likert-type scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Experts were then asked what they thought the goal of the specific content was. Content was presented in a counter balanced order so that half of the experts reviewed the stigma reduction content first while the other half reviewed the mental health literacy content first. After reviewing both conditions they were asked if they felt that overlap existed between the two conditions, and if they had any comments or suggestions.

3. 8. 1 Pilot Content: Statistical Analysis

Responses for each of the five questions were analyzed individually and compared using paired sample t-tests. Results were deemed significant if p-values were equal to or less than 0.05.

3. 8. 2 Pilot Content: Results

Data from the pilot survey is outlined in Table 3. Experts reported that both the stigma-reduction content and mental health literacy content were easy to understand and an appropriate length. There were no significant differences between the content for either 'ease of understanding' ($t(7) = 1.0$, $p = .35$) or 'appropriate length' ($t(7) = -0.5$, $p = .60$). These results indicated that the design of each website (word choice, length of content) should not interfere with any of our variables of interest in the following study.

As anticipated, the experts reported that the stigma reduction content would be significantly better at successfully reducing stigma compared to the mental health literacy content ($M = 3.5$, $SD = 0.5$; $t(7) = -5.3$, $p < .01$) and vice versa, that the literacy content would be significantly better at

increasing knowledge of mental health symptoms (Stigma reduction: $M = 2.1$, $SD = 1.3$, Mental health literacy: $M = 4.6$, $SD = 0.5$, $t(7) = 6.6$, $p < .01$). There was also a significant difference between the conditions on success at increasing help-seeking from professional mental health services, with participants reporting that the mental health literacy content ($M = 4.1$, $SD = 0.8$) would be more successful at increasing help seeking compared to the stigma reduction content ($M = 3.4$, $SD = 0.5$; $t(7) = 3.0$, $p = .02$). Finally, 62.5% of respondents indicated that there was no overlap between the two conditions and the remaining 37.5% highlighted only minor overlap in content. As such, the two conditions were deemed to be both quantitatively and qualitatively distinct.

3. 8. 3 Pilot Content: Feedback

A summary of the comments and feedback from the eight content experts can be found in Appendix 5: Comments and feedback on pilot conditions. The feedback received highlighted two areas where contact was lacking a) non-traditional support services and b) diversity of the student population. To address these gaps additional content was added, which will be described below.

3. 8. 4 Changes to Experimental Conditions

3. 8. 4. 1 Non-Professional or Traditional Support Services

Of the eight experts consulted, three noted that resources other than Counselling, Mental Health, and Health Services should be mentioned. Two recommended mentioning non-professional support services including the Peer Support Centre and Nightline, both of which are student-run services at McGill University. The third reviewer suggested the inclusion of some of

the non-traditional support services such as First Peoples' House and Queer McGill. In response to this feedback non-professional student-run support services were added to the Mental health literacy content.

3. 8. 4. 2 Diversity

Within the comments it was also mentioned that there was an absence of content recognizing diversity with respect to (dis)ability, sexuality, race, and ethnicity within the student population. Specifically, one expert wrote:

> "It is important to mention that at times, students do not seek services because they do not see themselves reflected in those services, have historically been mistreated or exploited by services/professionals in mental health or higher education (e.g., conversion therapy offered by mental health practitioners, ridiculed for accent by professor in classroom leading to mistrust, hospitalized w/o awareness), or more broadly, generally had a negative experience (e.g., not been understood). I think it is important to validate these students' experiences in your work, so that they do not feel further excluded and isolated."

In response to this feedback, a section on diversity was developed in conjunction with an expert on inclusivity and diversity in communities. This additional content acknowledges that students who belong to systemically marginalized groups may face greater barriers to accessing mental health services and finding a space where they can comfortably share their experience is important. Once finalized, the text content was sent to a graphic designer and web developer to be illustrated and formatted web interaction.

3. 9 Statistical Analysis

All analyses were performed using IBM SPSS® Statistics Version 23 for Macintosh. Variables of interest were first screened for normality using Shapiro-Wilks test, and equality of variance was assessed using the Levene's test. When assumptions for parametric statistics were not met nonparametric tests were used. Power analysis was calculated using G*Power and post-hoc Cohen's d effect sizes. Results were deemed significant if p-values were equal to or less than 0.05.

3. 9. 1 Hypothesis 1: Pre-Intervention Questionnaires

The six demographic variables used to test Hypothesis 1 were: race/ethnicity, living situation, proximity, gender-identity, international students, previous diagnosis. Proximity was defined as familiarity with individuals with mental health issues and was assessed using the following item: "As far as you know, how many of your friends or family have ever sought professional help for an emotional or mental health problem?" with possible responses of none, 1 or 2, and 3 or more. The race/ethnicity variable was created by combining all students who identified as a visible minority into a single group. This was done on the basis of the Canadian government's definition of visible minorities as "persons, other than aboriginal peoples, who are non-Caucasian" (Canada, 2015). Unfortunately, there were no aboriginal students in the sample, therefore, a dichotomous race variable was created with White/Caucasian and visible minority-identified students. These variables were then used as independent factors to examine pre-

intervention differences on the scales previously described (i.e., ECT, MHKS, SSOSH, ATSMH, PSOSH) in the full sample (n = 165).

3. 9. 2 Hypothesis 2: Barriers to Treatment

To test Hypothesis 2, that students self-reported barriers to treatment are knowledge barrier (e.g., lack of problem recognition), the percentage of the sample that endorsed each barrier was calculated. The numbers in some cases sum to more than 100% because participants could endorse more than a single barrier.

3. 9. 3 Hypothesis 3: Post-Intervention Questionnaires

To test the third hypothesis that the mental health literacy condition would significantly increase positive attitudes towards treatment seeking compared to the stigma reduction condition, independent samples t-tests were then used to examine differences between the two conditions for each of the three post-intervention dependent variables (ATSMH, SSOSH, PSOSH). To account for the influence of pre-intervention differences on rating of stigma, knowledge and beliefs, percent change scores between pre-intervention and post-intervention were calculated and used instead of raw post-intervention scores. As the MHPA scales was only given post-intervention the total score for that scale was used, as a percent change score was not possible.

3. 9 .4 Hypothesis 4: Moderated Mediation Model

To test hypothesis four, that support would be found for a mediated moderation model of help-seeking, a moderated mediation regression analysis was performed using the PROCESS macro for SPSS (Hayes, 2013), Model 7). For this analysis condition was the independent variable was condition, self-assessment was the moderator, problem identification was the mediator, and both ATSMH and help-seeking intentions were the dependent variables. Of the 82 participants who were given the self-assessment manipulation, 57 participants screened positive for at least one of the possible clinic outcomes (see Table 4). These 57 participants with a positive screening were considered to be the self-assessment manipulation group in the model.

3. 9. 4 Untreated Participants

The analysis for each of the four hypotheses were then repeated exclusively on participants who had a positive screen for either depression, anxiety, disordered eating or suicidality in the past 12-months. Analysis focused on exploring differences between those students who were not receiving treatment, either medication or therapy, and those who were. Untreated participants were defined using two variables from the HMQ: a) mental health screening questions, i.e., they had to meet criteria for a mental health problem (anxiety, depression, disordered eating, or suicidal ideation) in the past 12 months and b) past or present treatment. To be considered an "untreated" participant they must not have been currently receiving mental health treatment (either therapy or pharmacological treatment). These items were taken from the HMQ Subsection E "Experiences with Services and Support."

One variable that was explored was belief in treatment effectiveness. The variable 'treatment effectiveness' was defined using the parameters established by Eisenberg et al., 2012. Eisenberg defined treatment effectiveness by responses to two questions about the helpfulness of medication and therapy for depression. Participants only needed to respond favourably to one of the treatment sources as an individual only needs to be willing to seek help from one source to receive help. Reponses ranged from *not at all helpful* to *quite helpful*. The responses "not at all helpful" and "a little helpful" were considered to indicate a questioning belief about treatment effectiveness.

Limiting the analysis to just those participants with a mental illness significantly reduced the sample size and impacted the statistical power even further. Therefore, these analyses only considered two groups (condition) as opposed to four groups (condition and mental health self-assessment), to decrease the likelihood Type II errors.

CHAPTER 4. RESULTS

4.1 Hypothesis 1: Pre-Intervention Questionnaires

4. 1. 1 Race/Ethnicity

The hypothesis that students who identified as a visible minority would have more negative attitudes towards help-seeking and higher levels of stigma was partially supported. Students who identified as a visible minority had *higher* perceived public stigma around seeking mental health services, as measured by the PSOSH. The mean score on the PSOSH was 10.17 *(SD* 4.18) for visible minority students compared to 8.68 (*SD* 3.76) and for white/Caucasian-identified students. However, visible minority students had significantly higher scores on the MHKS, indicative of *lower* personal stigma (MHKS $t(163) = 2.17$, $p = .03$), which was not hypothesized. Finally, there were no difference between the two groups on attitudes towards help-seeking (ATSMH: $t(163) = 1.170$, $p = .24$), or any of the other stigma scales (ECT: $t(163) = 1.53$, $p = .13$; SSOSH: $t(163) = 1.77$, $p = .08$). See Table 5 for complete results.

4. 1 .2 Living Situation

The hypothesis that students living in campus housing would have the more favourable help-seeking attitudes and lower stigma than those living off campus or with their parents/guardian was not supported. There was significant variability in sample distribution between the three groups (campus residence: $n = 10$, off-campus in non-university housing: $n = 114$, parent(s)/guardian(s): $n = 41$), therefore non-parametric statistics were used to control for this

inequality. There were significant differences on measures of self-stigma (SSOSH) and attitudes towards seeking mental health services (ATSMH) between the different living situation groups ($\chi^2(2) = 9.01, p = .01$; $\chi^2(2) = 10.33, p < .01$, respectively). Students who were living in on-campus housing reported significant *higher* levels of self-stigma about seeking help than the other two groups, with a mean rank SSOSH score of 126.90 for students on campus, 80.07 for students off-campus, and 80.44 for students living with parents/guardian. In addition, students in on-campus housing also reported more *negative* attitudes about seeking help, with mean rank ATSMH scores of 36.35 for students in campus houses, 85.14 for off-campus, and 88.41 for students living with parents/guardian. There were no significant differences on any of the other scales ($p > .05$). See Table 6 for complete results.

4. 1. 3. Proximity

The hypothesis that students who knew more friends and/or family members who had sought help for mental or emotional problems would have lower stigma was supported. Proximity significantly influenced scores on both self-stigma scales (ECT: ($\chi^2(2) = 13.06, p < .01$; SSOSH: ($\chi^2(2) = 6.37, p = .04$). For both scales, participants who reported knowing three or more people (family or friends) who had sought help for mental health services had fewer self-stigmatizing beliefs about mental illness and seeking-help than those who knew no one or few than three. For the ECT, the mean rank score for those who knew no one was of 112.28, 87.16 for those who knew one or two people, and 71.47 for those who knew three or more, where higher numbers indicate more stigmatizing views. On the SSOSH mean rank scores were 93.00, 91.22, and 72.99 for no one, one or two, and three or more, respectively. While proximity had a significant effect on

personal stigma it had no significant effect on their reported pubic stigma (i.e., the belief that *other* people would think negatively about someone for seeking help; PSOSH ($\chi^2(2) = 1.40$, $p = .50$). Our hypothesis that students with greater proximity would have more mental health knowledge and more favourable attitudes towards treatment seeking was not supported. The null hypothesis was retained as there were no significant differences on the knowledge (MHKS) or attitudes towards treatment seeking (ATSMH) scales ($p > .05$). See Table 7 for complete results.

4. 1. 4 Gender Identity

There was significant variability sample distribution amongst the gender-identity subgroups (Female ($n = 115$), male ($n = 43$), transgender or gender-nonconforming ($n = 7$)), therefore non-parametric statistics were used. The hypothesis that female-identified students would have more favourable treatment-seeking attitudes was supported. Results from the Kruskal-Wallis test showed that there was a significant difference in attitude scores between gender groups ($\chi^2(2) = 11.54$, $p < .01$), with a mean rank ATSMH score of 91.30 for female, 63.35 for male, and 67.36 for transgender or gender-nonconforming participants. Female participants had more positive attitudes about seeking help than male or transgender and gender-nonconforming students. The hypothesis that females would have less stigma and more mental health knowledge was not supported and the null hypothesis was retained as there were no significant differences on any of the other scales ($p > .05$). See Table 9 for complete results.

4. 1. 5 International Status

The hypothesis that international students would have poorer treatment-seeking attitudes and higher stigma was not supported. As can be seen in Table 9, from this data it can be concluded that international students had lower perceived public stigma than domestic students (PSOSH: $U = 1665$, $p < .01$). There were no significant differences between groups on any of the other scales ($p > .05$).

4. 1. 6 Previous Diagnosis

The hypothesis that those individual with a previous mental health diagnosis (i.e., experience with mental health treatment seeking and professionals) would have greater mental health knowledge was rejected. There were no significant differences in knowledge, attitudes or stigma between those who had previously been diagnosed and those who had not ($p > .17$ for all scales). See Table 10 for complete results.

4. 2 Hypothesis 2: Barriers to Treatment

Hypothesis 2, that students would identify knowledge barriers as the most significant reasons for not utilizing mental health services or receiving fewer services than they would have otherwise received, was supported. The most frequently identified reason was “I question how serious my needs are (44.2%), followed by “I don’t have time (42.4%), “Stress is normal in college/graduate school” (40%). Other common reasons included “I get a lot of support from

other sources" (32%), and "Financial reasons" (26.6%). The numbers sum to more than 100% because participants could endorse more than a single barrier.

4. 3 Hypothesis 3: Post-Intervention Questionnaires

Percent change scores for ATSMH, PSOSH, and SSOSH were examined between the conditions (mental health literacy and stigma reduction). Those participants in the mental health literacy condition had significantly higher change scores on the SSOSH, indicating a larger reduction in self-stigma from pre-intervention ($t(162) = 2.05$, $p = .04$). All other pre-post intervention scales were not significant ($p > .28$).

4. 4 Hypothesis 4: Moderated Mediation Model Analysis

As shown in Table 11, the interaction between condition and self-assessment was significant. The nature of the interaction was explored by calculating simple slopes of positive self-assessment or no self-assessment. Simple slopes analyses indicated that condition was associated with problem identification in those participants who had a positive mental health self-assessment ($\beta = 0.67$, $SE = 0.35$, $p = .05$), but not in those who did not have a positive self-assessment ($\beta = -0.22$, $SE = 0.26$, $p > .05$; see Figure 8). The estimates and bias corrected bootstrapped 95% confidence intervals for the conditional indirect effects are presented in Table 12. As hypothesized, the conditional indirect effects of condition on post-intervention ATSMH scores and help-seeking intentions were both significant via problem identification when

participants were presented with a positive mental health self-assessment and not significant when they did not have a positive mental health self-assessment. Thus, support for hypothesis 4 and the proposed model was found.

The results of this model were explored further and an independent samples t-test of the 57 positive self-assessment participants found that there was again a significant effect of condition. Those participants who were in the mental health literacy condition had significantly higher problem identification (i.e., greater agreement with the item "my present problem could be the first signs of a mental disorder"), than those in the stigma reduction condition ($t(55) = -2.08$, $p = .04$).

4. 5 Untreated Participants

Of the 165 participants, 113 (68.5%) met criteria for at least one mental health problem (depression, anxiety, disordered eating, suicidal ideation in the past 12 months) based on screening questionnaires within the HMQ questionnaire. Of those who screened positive 23.6% met criteria for two, 7.9% for three and 4.8% for all four of the mental health problems assessed. Within the sample of students who screened positive, 71 (64.5%) also indicated that they were not currently receiving any treatment.

Amongst those who screened positive for at least one mental health problem those who received treatment were significantly more likely than untreated participants to report that they would know where to go to get help for their mental or emotional health at McGill University ($t(111) = 2.44$, $p = .02$). In addition, they had more positive views of medication as an effective treatment ($t(111) = 3.23$, $p < .01$). There were no differences between treated and untreated participants on their views of therapy as a treatment option, ($t(111) = 0.36$, $p = .72$).

There was a significant difference on the ATSMH scale pre-intervention between participants who were untreated versus treated with untreated participants. Those who were untreated reported significantly poorer attitudes towards treatment as measured by the ATSMH ($t(111) = -5.36$, $p < .01$). There were no significant differences between treated and untreated participants on any of the other pre-intervention questionnaires, including all stigma scales ($p > .09$).

Support for hypothesis 5 was found, replicating previous findings that untreated students have low stigma beliefs and positive views of treatment services. Within the untreated sample ($n = 71$), the majority of students reported low stigma beliefs, both personal stigmatizing beliefs (e.g., "I would not willingly accept someone who has received mental health treatment as a close friend) and low perceived public stigma (e.g., "most people feel that receiving mental health treatment is a sign of personal failure). Only three students reported high levels of personal and/or public stigma (4.2%) and the rest of the sample (68 participants) reported low stigma on both measures (95.8%). Of those students with low stigma the majority also reported positive views of therapy as a treatment option with 48.5% and 26.5% reporting that therapy was "quite helpful" or "very helpful", respectively. In contrast, these low stigma participants were more skeptical of the effectiveness of medication with only 41.1% reporting positive views of medication as treatment while 55.9% questioned the effectiveness. Overall treatment effectiveness, defined as a positive view of either medication or therapy or a positive view of both, was reported by 83.8% of the sample versus 16.2% who questioned the effectiveness of either treatment option.

4. 5. 1 Hypothesis 1: Pre-Intervention Questionnaires (Untreated Participants)

4. 5. 1. 1 Race/Ethnicity (Untreated Participants)

The hypothesis that students who identified as a visible minority would have more negative attitudes towards help-seeking and higher levels of stigma was not supported when this relationship was examined exclusively in untreated participants. Students who identified as a visible minority had trend level differences on the MHKS compared to white/Caucasian students. Students who identified as a visible minority had *higher* scores on the MHKS, indicative of greater mental health knowledge and *lower* stigma (MHKS $t(69) = 1.94$, $p = .06$), which was not hypothesized. There were no difference between the two groups on attitudes towards help-seeking (ATSMH: $t(69) = .46$, $p = .65$), or any of the other stigma scales (ECT: $t(69) = -.13$, $p = .91$; SSOSH: $t(69) = .51$, $p = .61$).

4. 5 .1. 2 Living Situation

The hypothesis that students living in campus housing would have the more favourable help-seeking attitudes and lower stigma than those living off campus or with their parents/guardian was again not supported. As was found in the whole sample, there were significant differences on measures of self-stigma (SSOSH) and attitudes towards seeking mental health services (ATSMH) between the different living situation groups ($\chi^2(2) = 7.63$, $p = .02$; $\chi^2(2) = 10.68$, $p < .01$, respectively). Students who were living in on-campus housing reported self-stigma towards seeking help than the other two groups, with a mean rank SSOSH score of 56.80 for students on campus, 36.88 for students off-campus, and 28.78 for students living with parents/guardian. In

addition, students in on-campus housing also reported more *negative* attitudes about seeking help, with mean rank ATSMH scores of 10.00 for students in campus houses, 35.54 for off-campus, and 43.55 for students living with parents/guardian. There were no significant differences on any of the other scales ($p > .05$).

4. 5. 1. 3 Proximity

The hypothesis that students who knew more friends and/or family members who had sought help for mental or emotional problems would have lower stigma was again supported. Proximity significantly influenced scores the ECT ($\chi^2(2) = 8.90$, $p < .01$). Participants who reported knowing three or more people (family or friends) who had sought help for mental health services had fewer self-stigmatizing beliefs about mental illness than those who knew no one or few than three. The mean rank scores for those who knew no one person and two or fewer people were 43.13 and 44.24, respectively. The mean rank ECT score for participants who knew 3 or more people was 29.27. For the ECT higher scores indicate more stigmatizing views. While proximity had a significant effect on the ECT (an indirect measure of personal stigma) it had no significant effect on their reported pubic stigma (i.e., the belief that *other* people would think negatively about someone for seeking help; PSOSH ($\chi^2(2) = 1.69$, $p = .43$). Our hypothesis that students with greater proximity would have more mental health knowledge and more favourable attitudes towards treatment seeking was not supported. The null hypothesis was retained as there were no significant differences on the knowledge (MHKS) or attitudes towards treatment seeking (ATSMH) scales ($p > .05$).

4. 5. 1. 4 Gender Identity

There was significant variability sample distribution amongst the gender-identity subgroups (Female (n = 47), Male (n = 21), transgender or gender-nonconforming (n = 3)), therefore non-parametric statistics were used. The hypothesis that female-identified students would have more favourable treatment-seeking attitudes was not supported. There were no significant differences between gender identities on any of the pre-intervention questionnaires and the null hypotheses were retained ($p > .05$).

4. 5. 1. 5 International Status

The hypothesis that international students would have poorer treatment-seeking attitudes and higher stigma was not supported in the untreated sample. International students had lower perceived public stigma towards treatment seeking than domestic students (PSOSH: $U = 302$, $p = .03$). There were no significant differences between groups on any of the other scales ($p > .05$).

4. 5. 1. 6 Previous Diagnosis

The hypothesis that those individual with a previous mental health diagnosis (i.e., experience with mental health treatment seeking and professionals) would have greater mental health knowledge was again rejected, as the opposite pattern was found. Within the sample of untreated participants those who had no previous diagnosis scored higher in the MHKS (M =24.39, SD = 2.25) indicative of greater mental health knowledge and lower personal stigma compared to

those participants with a previous mental health diagnosis (M = 23.00, SD = 2.35; $t(69) = 2.47$, p = .02). There were no significant differences on any of the other attitudes or stigma scales between those who had previously been diagnosed and those who had not.

4. 5. 2 Hypothesis 2: Barriers to Treatment (Untreated Participants)

Amongst the untreated group, the top three reported barriers to care were "I prefer to deal with the issue on my own (54.9%), "I question how serious my needs are" (52.1%) and "I don't have enough time" (47.9%). Within the sample of students who had an untreated mental health problem and low stigma there were differences in the reported barriers based on whether or not they viewed treatment to be effective. Students with low stigma and high beliefs in the effectiveness of treatment (the majority of participants 83.8%) had the same top three barriers as the group as a whole ("I question how serious my needs are", "I prefer to deal with issues on my own," and "I don't have time"). For those participants that questioned the effectiveness of treatment the second highest barrier reported was "I question the quality of my options", a barrier that was not ranked highly by students who believed in the effectiveness of treatment.

4. 5. 3 Hypothesis 3: Post-Intervention Questionnaires (Untreated Participants)

Percent change scores for ATSMH post-intervention were examined between those participants in the stigma reduction condition and those in the mental health literacy condition. Independent samples t-tests did not initially show significant differences between the two conditions (p = .37), however, the standard deviations of the two groups were significantly

different (stigma reduction *SD* = 32.67; mental health literacy *SD* = 18.82). Upon examination of the data set there was a single participant within the stigma reduction condition who had a percent change score of 150%, which was more than 4 standard deviations above the sample mean of 4.9. As it appeared upon visual inspection of the data that a significant difference between the groups did exist, analysis was rerun with this participant removed (see Appendix 6 for data with and without the outlier participant). As displayed in Figure 9, a significant difference between stigma reduction participants and mental health literacy participants was apparent. Those participants in the mental health literacy condition had significantly higher change scores towards positive attitudes than those participants exposed to the stigma reduction intervention ($t(68) = -2.09$, $p = .04$).

Percent change scores for the SSOSH were higher for participants in the mental health literacy condition ($M = -8.54$, $SD = 13.40$) than the stigma reduction condition ($M = -0.53$ $SD = 23.29$), $t(54) = 1.77$, $p = .08$). Levene's test indicated unequal variances ($F = 4.16$, $p < .05$), so degrees of freedom were adjusted from 69 to 54. There were no significant differences between conditions when looking at percent change scores for the PSOSH ($p = .88$).

4. 5. 5 Hypothesis 4: Moderated-Mediation Model Analysis (Untreated Sample)

Regression analyses found that for the untreated group, condition (stigma reduction or mental health literacy) and self-assessment alone did not predict problem identification ($\beta = -0.09$, $SE = 0.35$, $p = .81$, 95% CIs = -0.81, 0.65; $\beta = -1.06$, $SE = 0.89$, $p = .24$, 95% CIs = -2.98, 0.72). In addition, the condition by self-assessment interaction ($\beta = 0.76$, $SE = 0.56$, $p = .18$, 95% CIs = -0.37, 1.88) was not significant.

CHAPTER 5. DISCUSSION

Young people's use of the internet for health information and desire to have mental health programs available online is ever increasing (Escoffery et al., 2005). As such, the development of online mental health interventions for youth has become increasingly important. The present study demonstrated that a brief online mental health literacy intervention including a short standardized mental health self-assessment can be effective at increasing mental health problem appraisal and improving attitudes towards treatment seeking, while being delivered cost-effectively to a large number of students, with beneficial outcomes.

This study was the first to experimentally assess the efficacy of an online mental health literacy intervention aimed at increasing positive attitudes toward treatment-seeking via enhanced problem identification in a sample of post-secondary students. The results from this study offer support for the five primary hypotheses. First, it was hypothesized that race, living situation, proximity, gender-identity, international student status, and previous diagnosis would impact students' knowledge and attitudes about mental health and towards treatment-seeking. Within the complete sample, knowing fewer people with mental illness (proximity), and living in on-campus housing were associated with higher levels of self-stigma about seeking treatment, being a visible minority was associated with increased perceived stigma, while being male-identified was associated with poorer attitudes towards treatment seeking. Within the subsample of untreated participants, living in on-campus housing was again associated with higher levels of stigma towards seeking treatment and poorer treatment seeking attitudes. Finally, in both the full sample and the sub-sample of untreated participants, international students had lower perceived stigma about treatment seeking.

Secondly, as hypothesized, participants from the entire sample and sub-sample of untreated participants endorsed doubtfulness about the seriousness of their treatment needs as the most significant barrier to seeking help. Third, within the entire sample, post-intervention SSOSH change scores were significantly different between conditions with participants in the mental health literacy condition reporting greater reductions in self-stigma towards treatment seeking. Within the untreated sub-population, participants in the mental health literacy condition had greater change scores on the SSOSH and ATSMH indicating lower levels of self-stigma towards treatment seeking and increased positive attitudes towards treatment seeking compared to participants in the stigma reduction condition.

Fourth, the present study provides the first evidence of a conditional interaction effect of our proposed conditions and self-screening on attitudes towards seeking mental health services (ATSMH) and help-seeking intentions via mental health problem identification. This relationship was such that when participants were presented with the mental health literacy condition and screened positive for a mental health problem they reported the highest level of mental health problem identification, which in turn increased positive mental health help-seeking attitudes and intentions. Finally, this study successfully replicated previous findings of untreated students such that those students who screened positive for a mental health problem but were currently received no treatment would report low stigma beliefs and positive views of mental health treatment services.

With regards to student demographics, the current study highlighted that being a visible minority, having little knowledge of people who have sought mental health services (proximity), and being male-identified negatively impacted stigma and attitudes towards help-seeking, which have all been reported previously (Eisenberg et al., 2011; Masuda, Anderson, Twohig, Feinstein,

Chou, Wendell et al., 2009). In contrast, students living in on-campus housing reported more negative attitudes about seeking help compared students in off-campus housing or those living with parents/guardians, which goes against previous research on mental health help-seeking and living situation. It has been reported previously that students who live on campus have higher mental health help seeking intentions (Chen, 2013) and greater utilization of therapy (Eisenberg et al., 2011). As on-campus housing is primarily available to first year students we examined whether this unanticipated finding was attributable to year of study, as it may have reflected the notion that's first year students may have more negative attitudes about help-seeking (Vidourek, King, Nabors, & Merianos, 2014). This supposition was not supported as year of study did not predict pre-intervention ATSMH scores ($\chi^2(3) = 6.11$, $p = .11$), with mean rank scores of 25.53, 33.37, 40.47, and 41.09 for first, second, third and fourth year students, respectively. While not addressing attitudes specifically, students who live in on-campus housing generally have greater knowledge and use of their school's mental health services, which has been attributed to living within a supportive campus culture (Beiter et al., 2015; Lester, 2013). This contradictory finding should be interpreted in light of the small sample of students who were untreated and living on campus (n = 5) compared to those living off campus (n = 46) or with their parents/guardians (n = 20). As students who live on campus generally have greater knowledge and access to treatment services (Beiter et al., 2015; Lester, 2013; Yorgason et al., 2008), the students in this sample who reported living in on-campus housing and were untreated may have particularly negative attitudes attributable to factors not assessed in the present study.

It has been reported previously that despite having low levels of stigma and generally positive beliefs about treatment efficacy, post-secondary students have low rates of treatment seeking. Previous studies have reported that the reason for these incongruous findings is that

students are not opposed to seeking mental health services if they are warranted, however, they question the seriousness of their mental health symptoms, prefer to handle problems on their own, believe that what they are experiencing is normal in university or college (Eisenberg, Speer, & Hunt, 2012). The present study replicates these observations, offering additional support to the growing view that a lack of perceived need for treatment services is a significant barrier to care in post-secondary students. In addition, it is argued that knowledge barriers may differ between specific sub-populations of untreated students. For example, within the untreated participant sample, those who questioned the effectiveness of treatment frequently endorsed this doubt as a barrier to getting professional treatment; a barrier not highly endorsed by untreated participants who had positive beliefs about treatment efficacy. Criticism of the ability to provide timely and effective treatment on campus has been a prominent condemnation of many campus mental health/counselling centers (Stone & Archer, 1990). Programs to increase help-seeking may wish to highlight the effectiveness of treatment, as well as the training and expertise of the professionals working on campus to assuage these negative beliefs. Other subgroups likely exist; however, given the limited sample size of untreated participants it was beyond the ability of the present study to examine these.

Within the current sample of post-secondary students, stigma was not endorsed as a significant deterrent to mental health help-seeking (Czyz et al., 2013; Eisenberg, Downs, et al., 2009). These results, however, do not negate the possibility that stigma is impacting the help-seeking pathway. First, the sample of students in the present study all reported low levels of stigma at baseline, which prevented the assessment of the mental health literacy condition on students with high mental health stigma. Secondly, stigma, particularly self-stigma, has been reported as a barrier to care (Gulliver, Griffiths, & Christensen, 2010; Lally et al., 2013) and was endorsed as a

barrier to treatment seeking in the present sample just to a lesser extent than knowledge barriers. The present study though, suggests that amongst students with low levels of stigma, mental health literacy - specifically a lack of problem identification - is a significant barrier that may impede progression along the mental health help-seeking pathway. The lack of problem identification reported as skepticism of symptoms severity supports the separation of symptom awareness and problem appraisal in the proposed adapted model of help-seeking (Figure 4). The model of adolescent help-seeking proposed by Rickwood et al. (2005) combined the awareness and appraisal of symptoms into a single stage. Biddle later proposed that awareness and problem appraisal were not necessarily mutually exclusive and described a Cycle of Avoidance whereby young people negotiate and altered the meaning of their symptoms to normalize their experience and avoid recognition of having a mental health problem until it became serious (Biddle et al., 2007). More recently, work has attempted to untangle the dissociation between symptom awareness and problem appraisal. Progression along the help-seeking pathway is reliant on the appraisal of symptoms as a problem. Unfortunately, post-secondary students are reluctant to make this appropriate appraisal unless the symptoms they are experiencing are extreme or severe (Gagnon et al., 2015). If not severe in nature students interpret their symptoms as simply "warning signs" as opposed to signs that action should be taken (Gagnon et al., 2015).

The present study tested an intervention to target this stage of the help-seeking model, increasing awareness of both signs and symptoms and using a self-assessment to address the most commonly endorsed barrier to treatment "I question the seriousness of my needs." The objective of the mental health literacy intervention was to increase students' problem recognition and move them from Stage 1: symptom awareness to Stage 2: problem appraisal, along the help-seeking pathway. The present study found that the combination of increasing mental health literacy and

getting a positive self-assessment increased problem recognition, positive attitudes, and help-seeking intentions. It is possible that the combination of greater symptom awareness and the sense of validation from an authoritative external source that what they are experiencing warrants professional help is sufficient to move students out of the Cycle of Avoidance and further along the help-seeking pathway.

The mental health literacy condition significantly self-stigma towards help-seeking in both the whole sample and the sub-sample of untreated participants. In addition, the mental health literacy intervention increased positive attitudes towards help-seeking in the untreated sample of participants. Mental health literacy interventions typically include an element of stigma reduction as stigma reduction is included in the current definition of mental health literacy (Kutcher, Wei, & Coniglio, 2016). The present study however, demonstrates that increasing knowledge of mental health, in and of itself, can act to decrease stigma without including an explicit stigma reduction element in the condition. Previous mental health literacy interventions have demonstrated that quick psychoeducational material can increase students' feelings of comfort around mental illness and the belief that people with mental illness can live productive lives (Kutcher et al., 2015). The present finding that mental health literacy can decrease self-stigma related to seeking treatment and increase positive attitudes towards treatment seeking offers additional support for mental health literacy as an effective intervention to improve attitudes and treatment seeking in post-secondary students.

In addition to decreasing self-stigma towards treatment seeking within the sample of untreated participants, exposure to the mental health literacy condition also increased positive attitudes about seeking mental health services. Previous findings have demonstrated that increasing mental health literacy can also improve help-seeking intentions (Smith & Shochet,

2011) as well as attitudes about help-seeking, however these were conducted in general convenience samples of students and were not specific to those who screened positive for a mental health problem and were not receiving treatment (Kutcher, Wei, et al., 2015; Smith & Shochet, 2011). The present study adds to literature in that it demonstrates that a mental health literacy intervention is effective at increasing positive attitudes about seeking help in vulnerable students who need to access care. Increasing positive attitudes amongst untreated students is critical as positive associations between treatment attitudes and actual treatment utilization have been demonstrated in post-secondary students (Cohen, 1999; Mackenzie, Knox, Gekoski, & Macaulay, 2004). Increased favourable attitude scores are also related to treatment seeking intentions, more positive therapist ratings, and lower likelihood of hiding distressing information (Mackenzie et al., 2004). Together with the present findings, these studies suggest that mental health literacy can improve attitudes towards help-seeking in general as well as in untreated students, and this improvement to treatment attitudes is indicative of greater treatment seeking intentions as well as actual treatment utilization.

The present study provides the first evidence of a conditional interaction effect of our proposed conditions and self-screening on ATSMH and help-seeking intentions via mental health problem identification. This relationship was such that when participants were presented with the mental health literacy manipulation and screened positive for a mental health problem they reported the highest level of mental health problem identification, which in turn increased positive mental health help-seeking attitudes and intentions. Results from the conditional moderated mediation model are in line with previous reports that increasing mental health literacy positively impacts students reported knowledge of mental health treatment, increases their reported comfort seeking help for a mental health concern if they needed it, and in some cases, can prompt them to

seek help (Kutcher, Wei, et al., 2015). There has also been some preliminary evidence supporting the utility of self-screening to increase problem recognition and help-seeking in post-secondary students (Kim, Coumar, Lober, & Kim, 2011). The present finding supported the hypothesis that receiving information about one's own mental health status would increase the level of perceived need over and above the presentation of the mental health literacy intervention alone and that greater problem assessment will increase one's reported intention to seek help. This additive effect could be the combined result of altering symptom appraisal in addition to increasing symptom awareness. It was recently reported that mental health symptoms are more likely interpreted by students as warning signs as opposed to a signal for action (i.e., a sign that help-seeking action is needed; Gagnon et al., 2015). As such, students remain in the first stage of the help-seeking pathway model where they have an awareness of symptoms as they have yet to accept or recognize that they have a mental health problem warranting treatment. However, when presented with authoritative information suggesting that their symptoms could be a mental health disorder and that they may wish to seek professional support in the form of psychiatrists, psychologists, or psychotherapists, our results suggest that this combination has the capacity to move students from symptom awareness to problem appraisal, which increases the likelihood of seeking-treatment.

5. 1 Limitations

Results from the present study should be interpreted in light of the following considerations. One limitation of the study was the potential for self-selection bias, which may limit the generalizability of the findings attributable to differences between survey responders and non-responders on our dependent variables. One area where this selection bias may have

influenced the study is the almost ubiquitous lack of stigma within the sample. This lack of reported stigma could be a reflection of a willingness to participate and disclose mental health information – an indication of a certain type of student with low mental health stigma. While this may be the case, low levels of stigma in post-secondary student samples have previously been reported. Therefore, this finding may not be unique to the current study sample. In a large national study of 13,105 students from 26 different institutions, amongst untreated students the majority (92%) reported low levels of stigma (Eisenberg, Speer, et al., 2012), which is similar to the low levels of stigma reported in the present study (95.8%). It is, however, possible that selection bias has impacted the findings from both of these studies and the number of post-secondary students with stigmatizing beliefs has been grossly underestimated. Alternatively, these data may suggest that untreated post-secondary students do not hold deeply rooted stigmatizing beliefs or their stigmatizing beliefs are expressed in a manner that was not assessed in these studies (Eisenberg, Hunt, et al., 2012).

While self-selection bias may have been present in the study, two methods were employed to attempt to lessen the impact of this bias on the results. First, participants were randomly assigned to each condition and there would have been equal chance that could have been selected into each of the four conditions. Secondly, a significant portion of the analysis used percentage change scores which would have removed any pre-intervention biases and would not have impacted the results.

A methodological shortcoming of the present study is the lack of a control condition. This study tested the effect of a mental health literacy condition against a stigma reduction condition and did not include a true control group where participants were exposed to neutral material. As stigma reduction is the predominant focus of mental health interventions aimed at post-secondary

students the decision to test mental health literacy against the popular intervention rather than a neutral control was made. While this is certainly a methodological limitation, the fact that there were significant differences between these two active conditions with mental health literacy contributing to increased positive attitudes and problem identification over and above the stigma reduction condition, suggests that these findings would be even more prominent when compared to a neutral control condition. Nonetheless, future iterations of the present study should include a neutral control to test both active conditions against.

The sample size of 165 participants was modest and as a result some analyses lacked power. This was particularly true when looking specifically at the subset of untreated participants (n = 71). To address the limited sample size, we employed the bias-corrected bootstrapping method for analysis of the conditional mediated moderation model. Bootstrapping is a resampling strategy for calculating population coefficient estimates using numerous resamples of the data (Hayes, 2013). Of particular interest to scholars is that this method provides confidence intervals around the estimated coefficient, such that we can be confident with a high level of accuracy that the effect is present.

In addition, despite the limited sample size, the present findings do mirror those from much larger, national studies using the HMQ with samples well over 2000 students (Eisenberg, Gollust, et al., 2007; Eisenberg, Speer, et al., 2012). The fact that even with a relatively limited sample size the student profiles remained quite similar gives greater confidence to the additional findings from the present study. However, future studies should be conducted with a larger sample size to investigate more complex interactions that could potentially be contributing to post-intervention differences between groups such as the type of mental health symptoms experienced by students, the specific self-screening feedback received, or other demographic characteristics that were not

examined but have been shown to impact help-seeking behaviour (e.g., sexual orientation, academic discipline, and self-reliance; Czyz et al., 2013; Eisenberg et al., 2007; Lipson et al., 2016).

The findings of the present study are also limited by not directly assessing help-seeking behaviour. Thus, ratings of intention to seek help in the future and problem appraisal can only be used to infer later help-seeking behaviour. There is some research which suggests that self-reported intentions to seek treatment is positively correlated with actual help-seeking behaviour (Wilson et al., 2005), although the strength of this finding has been variable across studies (Rickwood et al., 2005). Future research could employ a longitudinal design to examine the impact of increasing positive attitudes and problem recognition on actual behaviour; however, it is recognized that this type of study introduces additional barriers and is labourious in nature.

While the intent was to provide full support for this updated help-seeking pathway model, including variability in knowledge, attitudes, and treatment seeking intentions between those students with low or high mental health literacy versus those with low or high stigma, these comparisons were limited by the study's sample size. Specifically, only one participant fell into the category of having correct problem recognition and a high level of stigma. Therefore, it was impossible to assess whether a stigma reduction intervention would significantly increase help-seeking intentions in those students who surpassed the mental health literacy stage of the help-seeking pathway model and were not seeking mental health treatment because of stigma. Replication of this study on a larger scale could test this hypothesis in the future.

Another limitation was the significant drop out rate of participants. Of the 423 students who consented to participate, over one hundred dropped out after the next page when they were informed that the experiment would take approximately 45 minutes to complete. Thus, the length

of the experiment was clearly an impediment to participation. Replication of this study in the future could remove non-pertinent items to decrease the over length and increase participation. Of note, of those students who completed the pre-intervention questionnaires and reached one of the interventions (n = 193) all except for eight completed the experiment in full. This is important as it indicates that condition distribution did not contribute to participant drop out. However, given the length of the study those participants that did complete the study could reflect a subset of students who were particularly invested in the topic, which may or may not have impacted the generalizability of the findings from this sample.

5. 2 Future Research

Future research using a longitudinal study design to merge the link between the effectiveness of the mental health literacy intervention, increased help-seeking intentions, and actual help-seeking behaviour would be advantageous. To date, only one study has followed student help-seeking behaviour (i.e., requested a mental health referral on campus) after an intervention and self-assessment. Of those students who requested a referral 78.9% did so after completing the self-screening and 75.4% of students reported that the screening tool was helpful in making their decision to seek help from a mental health professional (Kim et al., 2011). This study, however, did not assess attitudes, beliefs, or knowledge of mental health. A future iteration of the present study could add a referral request component to follow student's post-intervention help-seeking behaviour. This type of longitudinal study would add further support to the utility of this intervention to effect real change in untreated students.

It would be of great interest to repeat the current study using a larger sample size to examine the effect of the conditions and manipulation on various sub-groups. Mental health problems in students have been shown to vary across sex, race, religiosity, sexual orientation, and financial situation (Eisenberg, Hunt, & Speer, 2013). While it has been suggested that developing targeted interventions specific to at-risk groups would potentially have the greatest impact on mental health attitudes and help-seeking behaviour this has yet to be examined. With a larger sample size, the effectiveness of the interventions in the present study could be explored within these sub-sets of students that have been shown to be at greater risk for untreated mental illness.

It would also be interesting to test specific components on the mental health literacy condition. As time constraints have continually been reported by students as a barrier to accessing care both for face-to-face services (Givens & Tjia, 2002) and online interventions (Crisp & Griffiths, 2014), efforts should be made to create brief, but effective, interventions. Therefore, testing which components of the mental health literacy condition were related to the observed effects on treatment attitudes and help-seeking could inform the development of an even briefer intervention.

Finally, the generalizability, and scalability of the mental health literacy intervention should be tested. The mental health literacy material was largely specific to McGill University students, speaking to the resources available on campus, statistics regarding help-seeking behaviour amongst McGill peers, and was branded with the McGill Mental Health logo to provide a degree of authority. It is unclear whether more general messaging would have had the same impact on the sample, lacking both familiarity and authority. Testing whether the interventions developed for the present study would be as effective if made more general would be critical prior to large-scale dissemination. This could also provide greater evidence to support why some

interventions have had positive findings and others do not, if it is found that the material is effective only when specific to the group being targeted.

5. 3 Implications

The most significant finding from this study is that increasing awareness and appraisal of symptoms via mental health literacy and self-screening increased scores on the ATSMH as well as help-seeking intentions within this sample of post-secondary students with low stigma. As mental health promotion efforts on post-secondary campuses have been largely focused on stigma reduction, the present findings suggest that it would be advantageous to integrate mental health literacy into future campaigns. In addition, the inclusion of self-assessment component with feedback regarding symptoms is likely to be the most effective method for increasing help-seeking intentions.

Two recent reviews examined whether online mental health services and online screening were effective at increasing help-seeking (Batterham, Calear, Sunderland, Carragher, & Brewer, 2016; Kauer, Mangan, & Sanci, 2014), respectively. Neither review found significantly favourable results for online interventions or self-screening alone. The current study suggest that it is perhaps the combination of increasing mental health literacy in addition to providing targeted symptom feedback that leads to appropriate problem appraisal, and ultimately help-seeking behaviour.

5. 4 Conclusion

In conclusion, this research builds on a number of recent studies demonstrating that mental

health literacy is a significant barrier to treatment-seeking amongst post-secondary students. Pre-post assessment of a mental health literacy intervention and self-assessment demonstrated empirically that increasing knowledge of symptoms and providing feedback about symptoms can increase problem recognition and help-seeking intentions in a post-secondary student population. The hope with this dissertation is that more research and effort is put into developing mental health interventions targeting literacy, as this is a significant barrier to treatment seeking that has received a disproportionally small degree of attention but may be critical to the help-seeking process. In sum, the objective is to further the development of effective interventions to reach students facing mental health problems and encourage them to seek timely and effective treatment services.

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TABLES

Table 1 **Demographic Characteristics of the Sample**

Characteristic		**Statistics**	
Age		20.72 ±1.76	
Gender Identity			
	Male	43	26%
	Female	115	70%
	Transgender	1	1%
	Other	6	4%
Year of Study			
	1	29	18%
	2	47	29%
	3	50	30%
	4	33	20%
	5+[a]	6	4%
Sexual Orientation			
	Heterosexual	120	73%
	Bisexual	21	12%
	Gay/Lesbian/Queer	14	9%
	Questioning/Other	10	6%
Residency Status			
	Canadian or Permanent Resident	127	77%
	International	38	23%
Marital Status			
	Single/Never married	96	58%
	In a Relationship	66	40%
	Married	1	1%
	Other	2	1%
Living Situation			
	Campus Residence	10	6%
	Off-campus/ Non-university Housing	114	69%
	Parent/Guardian's Home	41	25%
Ethnicity			
	White/Caucasian	88	53%
	East Asian	24	14%
	South Asian	7	4%
	Latin American	1	1%
	Black/Afro-Canadian	2	1%
	Southeast Asian	5	3%
	Arab	6	4%
	Other [b]	34	20%

Note. N = 165. [a]Four participants were in year 5 and two participants were in year 6. [b]These students did not self-identify with any ethnicity or identified with multiple ethnicities.

Table 2 Six Approaches That Have Been Used to Disrupt the Process of Stigmatization

Strategy	Mechanism	Targets	Desired outcome
1. Education	Replace myths and misinformation with accurate information	General public or selected subgroups	Improved knowledge; improved mental health literacy; better recognition of symptoms; early help seeking
2. Protest	Formal (often written) objection to negative representations	Opinion leaders or stigmatizers (for example, politicians, journalists, and manufacturers)	Suppress negative attitudes; remove negative representations and content
3. Contact-based education	Contact with people who are successfully managing a mental illness, usually including opportunities for active discussion and learning	General public or selected subgroups, usually high school or university students	Reduce stereotypes; improved attitudes; reduce desire for interpersonal distance
4. Legislative reform	Development and enactment of protective legislations	Legal system; legislators	Improved protections for rights and freedoms; improved access to social entitlements; reduced social inequities
5. Advocacy	Use of multiple approaches to increase priority of mental health on agendas of decision makers	Politicians and decision makers	Greater policy recognition; improved services; reduced social inequities; improved avenues of redress
6. Stigma self-management	Peer-supported self-learning; recovery-oriented supports and services	People who have a mental illness or have family members with mental illnesses	Reduced personal impact of stigmatization; reduced self-stigma; improved self-esteem; empowerment

Note. The above table is from "From Sin to Science: Fighting the Stigmatization of Mental Illnesses," by Arboleda-Flórez and Stuart, 2011, *Canadian Journal of Psychiatry* and reprinted with permission from SAGE Publications.

Table 3 Survey Results of Pilot Conditions

	Condition elements									
	Easy to understand		Appropriate length		Reduce stigma		Increase knowledge		Help-seeking	
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Mental health literacy	5	0	4.6	0.5	3.5	0.5	4.6	0.5	4.1	0.8
Stigma reduction	4.9	0.4	4.8	0.5	4.5	0.5	2.1	1.3	3.4	0.5

Note. Results from survey of pilot condition. M = mean; SD = Standard deviation. n = 8. Easy to understand = Do you think the content is easy to understand? Appropriate length = Do you think the length of the content is appropriate? Reduce stigma = Do you think the content would be successful at reducing stigma? Increase knowledge = Do you think this content would be successful at increasing knowledge of mental health symptoms? Help-seeking = Do you think this content would increase the likelihood that a student would seek help from a mental health professional?

Table 4 Breakdown of Groups by Condition and Self-Assessment Manipulation

Condition		*n*		*n*
Stigma-reduction	Self-assessment	43	Postitive self-assessment	32
			Negative self-assessment	11
	No self-assessment	42	Postitive self-assessment	
			Negative self-assessment	
Mental health literacy	Self-assessment	40	Postitive self-assessment	25
			Negative self-assessment	15
	No self-assessment	40	Postitive self-assessment	
			Negative self-assessment	
	Total:	165	Total positive self-assessment:	57

Table 5 Pre-Intervention Questionnaires by Race/Ethnicity

Measures	Groups	*N*	*M*	*SD*	*t*	*df*	*p*
ECT	Caucasian/white	165	6.20	2.31	1.53	163	.13
	Visible minority		5.55	2.42			
MHKS	Caucasian/white	165	24.00	2.70			
	Visible minority		23.10	2.60	2.17	163	.03*
SSOSH	Caucasian/white	165	26.17	7.16			
	Visible minority		24.29	6.50	1.77	163	.08†
ATSMH	Caucasian/white	165	17.65	5.54			
	Visible minority		18.67	5.56	1.17	163	.24
PSOSH	Caucasian/white	165	10.17	4.18			
	Visible minority		8.68	3.76	2.41	163	.02*

Note. N = 165. ECT = Error Choice Test; MHKS = Mental Health Knowledge Schedule; SSOSH = Self-Stigma of Seeking Help scale; ATSMH = Attitudes Towards Seeking Mental Services scale; PSOSH = Perceived Stigma of Seeking Help scale. Means, standard deviations and results from independent samples t-tests between Caucasian/white and visible minority students are presented above for each of the five pre-intervention questionnaires. For the ECT, SSOSH and PSOSH, higher scores indicate greater stigma. For the MHKS a higher scores indicates less stigma/bias and for the ATSMH a higher score indicates more favourable attitudes towards seeking mental health treatment.
* $p \leq .05$, two-tailed. ** $p \leq .01$, two-tailed.

Table 6 Pre-Intervention Questionnaires by Living Situation

Measures	Group	*n*	Mean rank	*M*	*SD*	□²	*df*	*Asymp. Sig. (two tailed)*
ECT	Campus residence	10	91.55	6.1	1.45	1.07	2	.59
	Off campus	141	80.51	5.7	2.48			
	Parents/Guardian	41	87.83	6.07	2.29			
MHKS	Campus residence	10	84.05	23.6	1.71	0.76	2	.69
	Off campus	141	80.95	23.39	2.84			
	Parents/Guardian	41	88.44	23.88	2.39			
SSOSH	Campus residence	10	126.90	31.8	6.31	9.01	2	.01**
	Off campus	141	80.07	24.81	6.59			
	Parents/Guardian	41	80.44	24.59	7.06			
ATSMH	Campus residence	10	36.35	12.8	4.42	10.33	2	.01**
	Off campus	141	85.14	18.46	5.36			
	Parents/Guardian	41	88.41	18.76	5.77			
PSOSH	Campus residence	10	95.65	11.1	5.92	1.20	2	.55
	Off campus	141	80.66	9.28	4.15			
	Parents/Guardian	41	86.43	9.24	3.01			

Note. N = 165. ECT = Error Choice Test; MHKS = Mental Health Knowledge Schedule; SSOSH = Self-Stigma of Seeking Help scale; ATSMH = Attitudes Towards Seeking Mental Services scale; PSOSH = Perceived Stigma of Seeking Help scale. Mean ranks, means, standard deviations and results from Kruskal-Wallis tests between students' living situations are presented above for each of the five pre-intervention questionnaires. For the ECT, SSOSH and PSOSH, higher scores indicate greater stigma. For the MHKS a higher scores indicates less stigma/bias and for the ATSMH a higher score indicates more favourable attitudes towards seeking mental health treatment.

* $p \leq .05$, two-tailed. ** $p \leq .01$, two-tailed.

Table 7 Pre-Intervention Questionnaires by Proximity

Measures	Group	*n*	Mean rank	*M*	*SD*	□²	*df*	*Asymp. Sig. (two tailed)*
ECT	No one	18	112.28	7.11	2.00	13.06	2	.01**
	1 - 2 people	51	87.16	6.16	2.73			
	3+ people	92	71.47	5.38	2.16			
MHKS	No one	18	73.67	23.06	2.56	3.38	2	.18
	1 - 2 people	51	73.10	23.16	2.43			
	3+ people	92	86.82	23.82	2.84			
SSOSH	No one	18	93.00	27.17	8.03	6.37	2	.41
	1 - 2 people	51	91.22	26.43	7.06			
	3+ people	92	72.99	23.98	6.48			
ATSMH	No one	18	65.92	16.17	6.38	2.65	2	.27
	1 - 2 people	51	79.14	18.00	5.81			
	3+ people	92	84.98	18.87	5.20			
PSOSH	No one	18	84.5	9.17	3.13	1.40	2	.50
	1 - 2 people	51	86.44	9.51	3.53			
	3+ people	92	77.30	9.12	4.32			

Note. N = 165. ECT = Error Choice Test; MHKS = Mental Health Knowledge Schedule; SSOSH = Self-Stigma of Seeking Help scale; ATSMH = Attitudes Towards Seeking Mental Services scale; PSOSH = Perceived Stigma of Seeking Help scale. Mean ranks, means, standard deviations and results from Kruskal-Wallis tests between proximity groups are presented above for each of the five pre-intervention questionnaires. For the ECT, SSOSH and PSOSH, higher scores indicate greater stigma. For the MHKS a higher scores indicates less stigma/bias and for the ATSMH a higher score indicates more favourable attitudes towards seeking mental health treatment.
* $p \leq .05$, two-tailed. ** $p \leq .01$, two-tailed.

Table 8 Pre-Intervention Questionnaires by Gender Identity

Measures	Group	*n*	Mean rank	*M*	*SD*	χ^2	*df*	*Asymp. Sig. (two tailed)*
ECT	Male	43	75.69	5.37	2.34	1.74	2	.42
	Female	115	86.2	5.97	2.33			
	Trans/GNC	7	75.29	6.00	3.32			
MHKS	Male	43	77.35	23.19	2.63	1.28	2	.53
	Female	115	84.27	23.61	2.72			
	Trans/GNC	7	96.79	24.29	2.36			
SSOSH	Male	43	92.5	26.33	6.04	2.31	2	.32
	Female	115	79.67	24.71	6.99			
	Trans/GNC	7	79.43	25.71	9.50			
ATSMH	Male	43	63.35	15.93	5.57	11.54	2	.01**
	Female	115	91.3	19.14	5.28			
	Trans/GNC	7	67.36	16.43	6.40			
PSOSH	Male	43	91.15	10.05	4.16	2.19	2	.36
	Female	115	80.85	9.13	3.77			
	Trans/GNC	7	68.21	9.43	6.80			

Note. N = 165. Trans/GNC = Transgender and gender non-conforming. ECT = Error Choice Test; MHKS = Mental Health Knowledge Schedule; SSOSH = Self-Stigma of Seeking Help scale; ATSMH = Attitudes Towards Seeking Mental Services scale; PSOSH = Perceived Stigma of Seeking Help scale. Mean ranks, means, standard deviations and results from Kruskal-Wallis tests between gender identity groups are presented above for each of the five pre-intervention questionnaires. For the ECT, SSOSH and PSOSH, higher scores indicate greater stigma. For the MHKS a higher scores indicates less stigma/bias and for the ATSMH a higher score indicates more favourable attitudes towards seeking mental health treatment.
* $p \leq .05$, two-tailed. ** $p \leq .01$, two-tailed.

Table 9 Pre-Intervention Questionnaires by Student Status (International or Domestic)

Measure	Group	*n*	Mean rank	*M*	*SD*	*U*	*Z*	*df*	*Asymp. Sig. (two tailed)*
ECT	Domestic students	127	80.76	5.69	2.34	2128.5	-1.11	1	.27
	International students	38	90.49	6.24	2.49				
MHKS	Domestic students	127	84.54	23.63	2.61	2217.0	-0.76	1	.45
	International students	38	77.84	23.18	2.89				
SSOSH	Domestic students	127	85.27	25.33	6.8	2124.5	-1.12	1	.26
	International students	38	75.41	24.66	7.14				
ATSMH	Domestic students	127	84.47	18.37	5.45	2226.0	-0.73	1	.47
	International students	38	78.08	17.58	5.93				
PSOSH	Domestic students	127	88.89	9.77	3.91	1665.0	-2.92	1	.01**
	International students	38	63.32	8.08	4.18				

Note. N = 165. ECT = Error Choice Test; MHKS = Mental Health Knowledge Schedule; SSOSH = Self-Stigma of Seeking Help scale; ATSMH = Attitudes Towards Seeking Mental Services scale; PSOSH = Perceived Stigma of Seeking Help scale. Mean ranks, means, standard deviations and results from Mann-Whitney U tests between international and domestic students are presented above for each of the five pre-intervention questionnaires. For the ECT, SSOSH and PSOSH, higher scores indicate greater stigma. For the MHKS a higher scores indicates less stigma/bias and for the ATSMH a higher score indicates more favourable attitudes towards seeking mental health treatment.

* $p \leq .05$, two-tailed. ** $p \leq .01$

Table 10 Pre-Intervention Questionnaires by Presence or Absence of Previous Diagnosis

Measures	Groups	*n*	*M*	*SD*	*t*	*df*	*p*
ECT	Previous diagnosis	165	5.91	2.21	0.46	163	.65
	No previous diagnosis		5.74	2.52			
MHKS	Previous diagnosis	165	23.36	2.74			
	No previous diagnosis		23.67	2.63	-0.73	163	.46
SSOSH	Previous diagnosis	165	25.35	6.82			
	No previous diagnosis		25.02	6.94	1.20	163	.23
ATSMH	Previous diagnosis	165	18.74	5.98			
	No previous diagnosis		17.7	5.14	0.31	163	.76
PSOSH	Previous diagnosis	165	9.84	4.12			
	No previous diagnosis		8.98	3.91	1.39	163	.17

Note. ECT = Error Choice Test; MHKS = Mental Health Knowledge Schedule; SSOSH = Self-Stigma of Seeking Help scale; ATSMH = Attitudes Towards Seeking Mental Services scale; PSOSH = Perceived Stigma of Seeking Help scale. Means, standard deviations and results from independent samples t-tests between students with a previous diagnosis and those without are presented above for each of the five pre-intervention questionnaires. For the ECT, SSOSH and PSOSH, higher scores indicate greater stigma. For the MHKS a higher scores indicates less stigma/bias and for the ATSMH a higher score indicates more favourable attitudes towards seeking mental health treatment.
* $p \leq .05$, two-tailed. ** $p \leq .01$

Table 11 Interactions Between Conditions and Self-Assessment

Predictor	Problem identification		Post-Intervention ATSMH		Help-seeking intentions[a]	
	ß	*SE*	ß	*SE*	ß	*SE*
MHL / SR	-0.23	0.41	0.54	0.84	-0.03	0.12
PSS	-0.79	0.68				
MHL / SR X PSS	0.92*	0.44				
Problem identification			0.69*	0.31	0.21*	0.05
R^2	0.06		0.04		0.12	

Note. N = 165. MHL/SR = Mental health literacy and stigma reduction conditions. PSS = Positive self-assessment for a mental health condition.
* $p \leq .05$, two-tailed. ** $p \leq .01$
[a] Help-seeking intention was operationalized as item 6 of the post-intervention ATSMH scale.

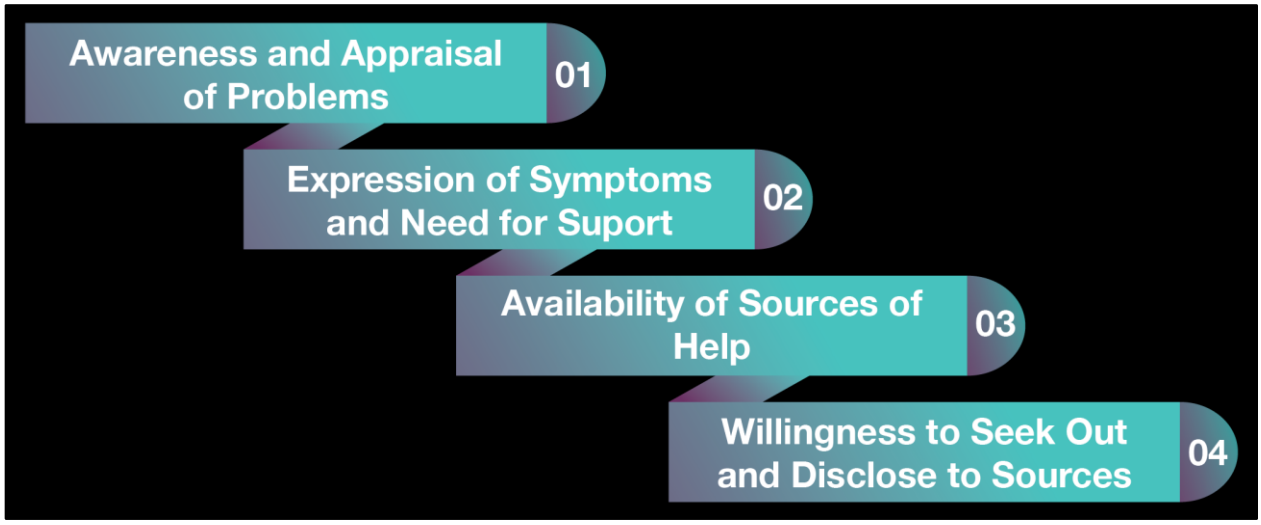
Table 12 Conditional Indirect Effect of Condition on Attitudes Towards Seeking Mental Health Services and Help-Seeking Intentions at Levels of Problem Identification

Level of Problem Identification	ATSMH		Help-seeking intentions[a]	
	Estimate (SE)[b]	*CI*	Estimate (SE)[b]	*CI*
Positive PSS	0.47 (0.32)	0.052, 1.1429	0.14 (0.08)	0.021, 0.357
No PSS	-0.16 (0.21)	-0.716, 0.158	-0.05 (0.05)	-0.186, 0.057

Note. CI = confidence interval. PSS = Positive self-screen for a mental health condition. ATSMH = Attitudes Towards Seeking Mental Health Services scale.
[a]Help-seeking intention was defined as item 6 of the post-intervention ATSMH scale.
[b]Bootstrapped estimates for the standard error (SE) are presented.

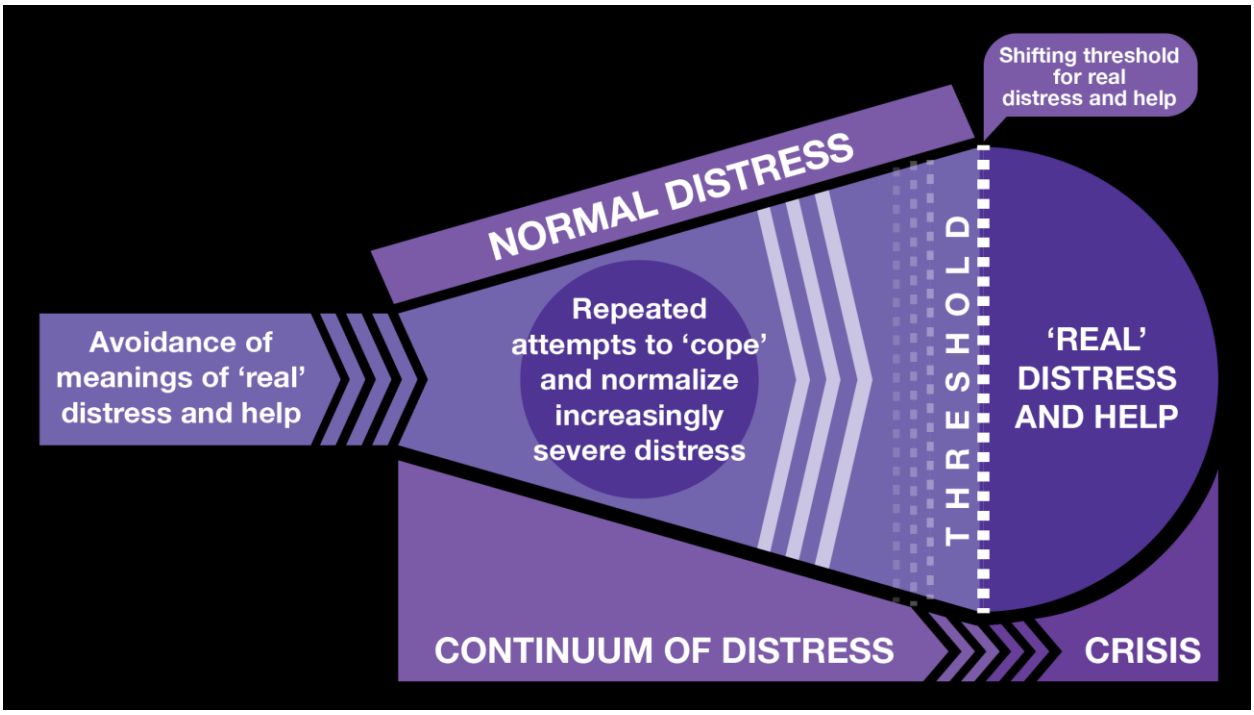
FIGURES

Figure 1 Model of Adolescent Help-Seeking



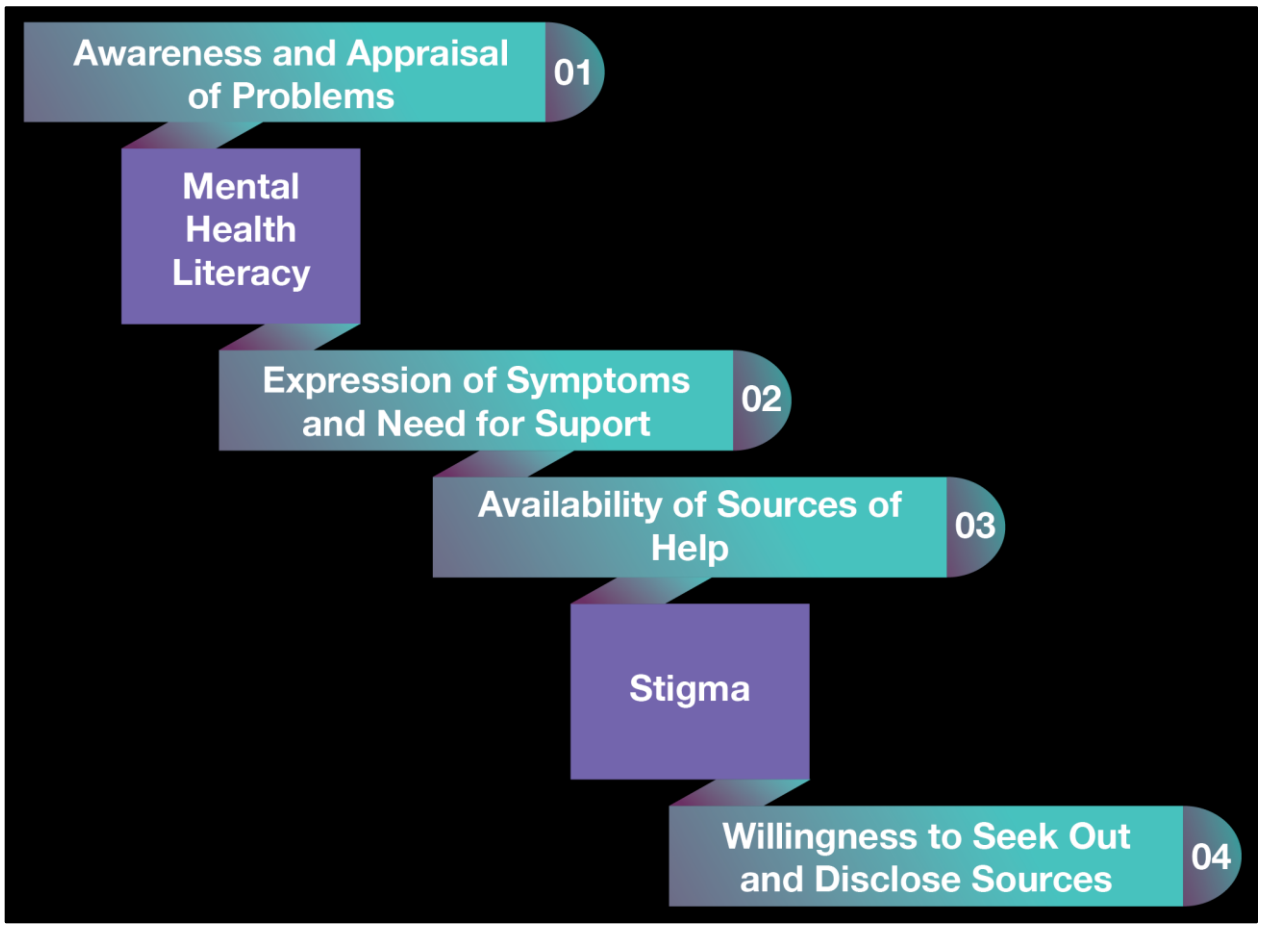
Note. Model of adolescent help-seeking from "Young people's help-seeking for mental health problems," by Rickwood et al., 2005, *Australian e-journal for the Advancement of Mental Health* and reprinted with permission from Taylor & Francis.

Figure 2 The Cycle of Avoidance



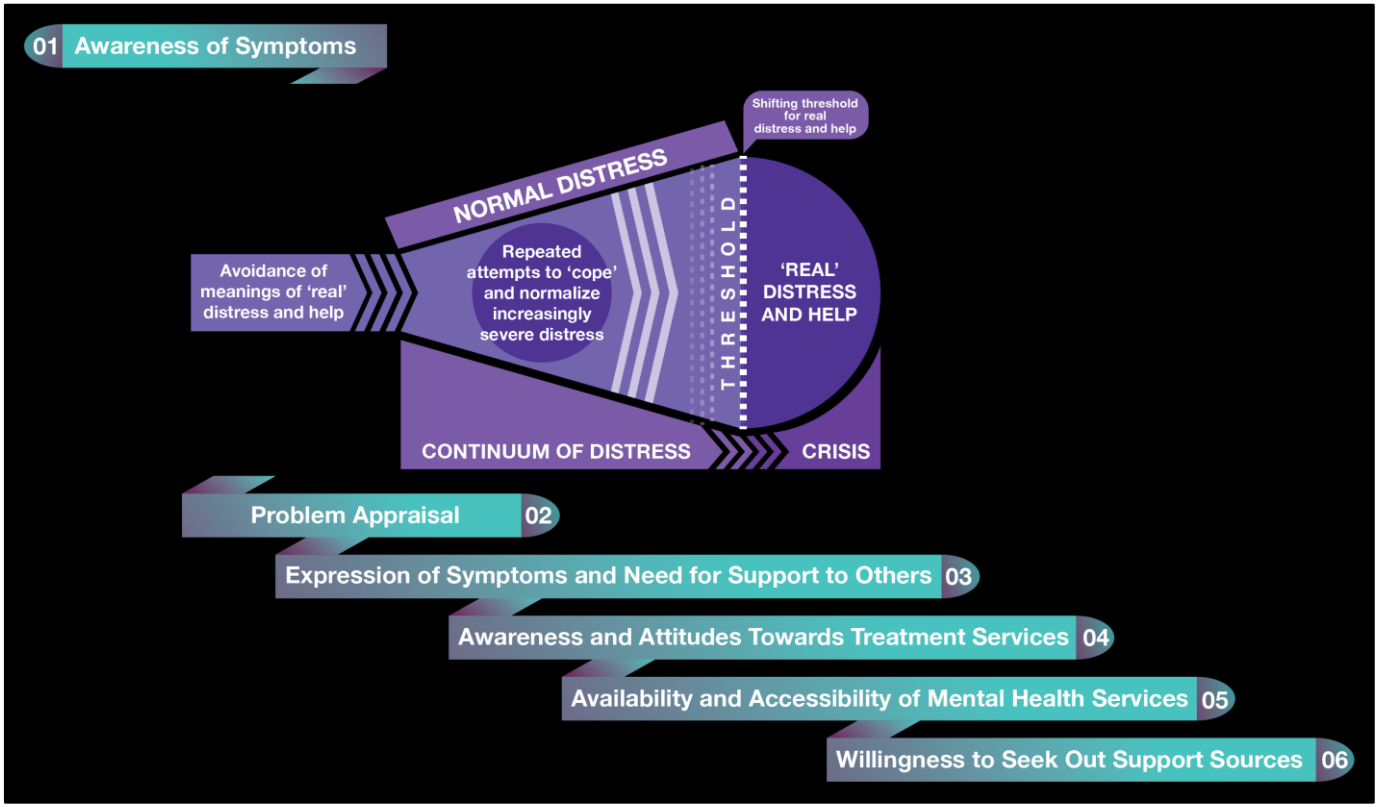
Note. The above model is a recreation of The Cycle of Avoidance, a model of adolescent help-seeking from "Explaining non-help-seeking amongst young adults with mental distress: a dynamic interpretive model of illness behaviour" by Biddle et al., 2007, *Sociology of Health & Illness* and reprinted with permission from John Wiley and Sons.

Figure 3 Barriers to Action Along the Help-Seeking Pathway



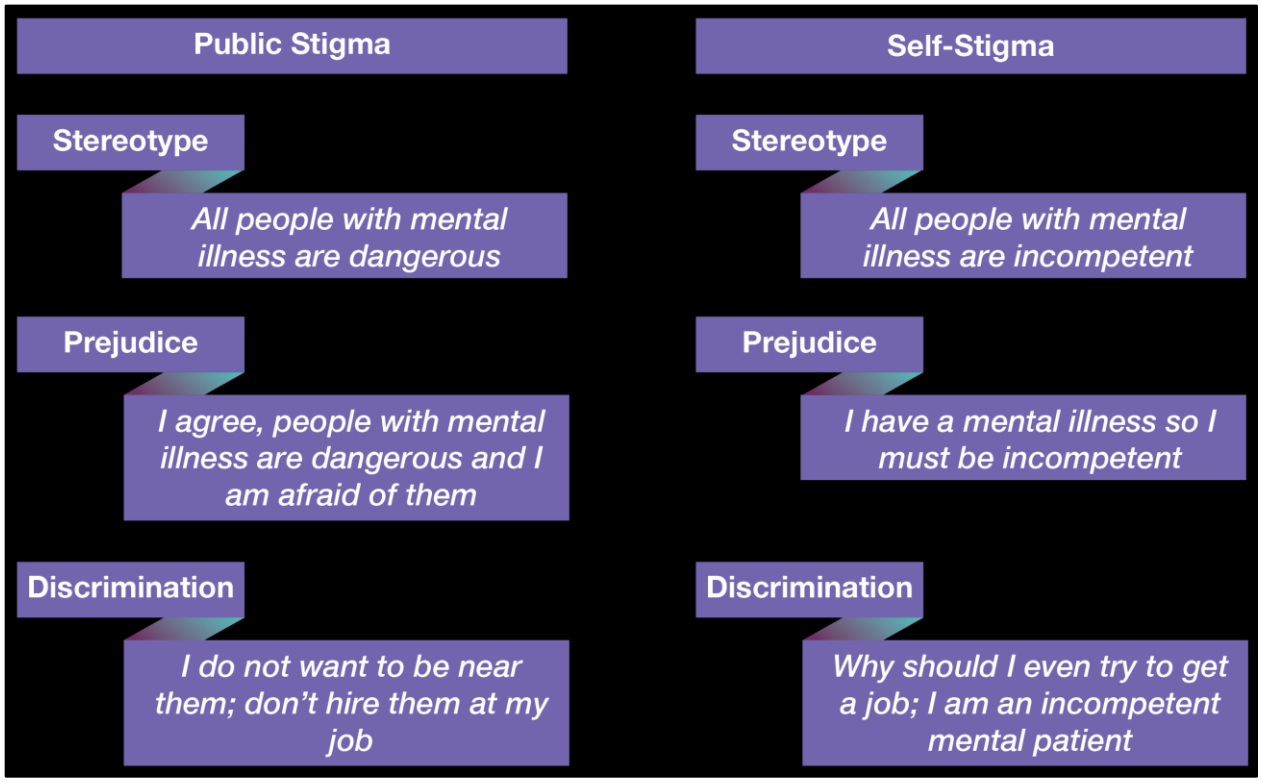
Note. The figure above highlights where along the Rickwood et al. (2005) help-seeking model it is proposed that mental health literacy and stigma would each act as significant barriers to treatment seeking. This is an adapted version of the adolescent help-seeking from "Young people's help-seeking for mental health problems," by Rickwood et al., 2005, *Australian e-journal for the Advancement of Mental Health* and reprinted with permission from Taylor & Francis.

Figure 4 Proposed Model of Help-Seeking Behaviour



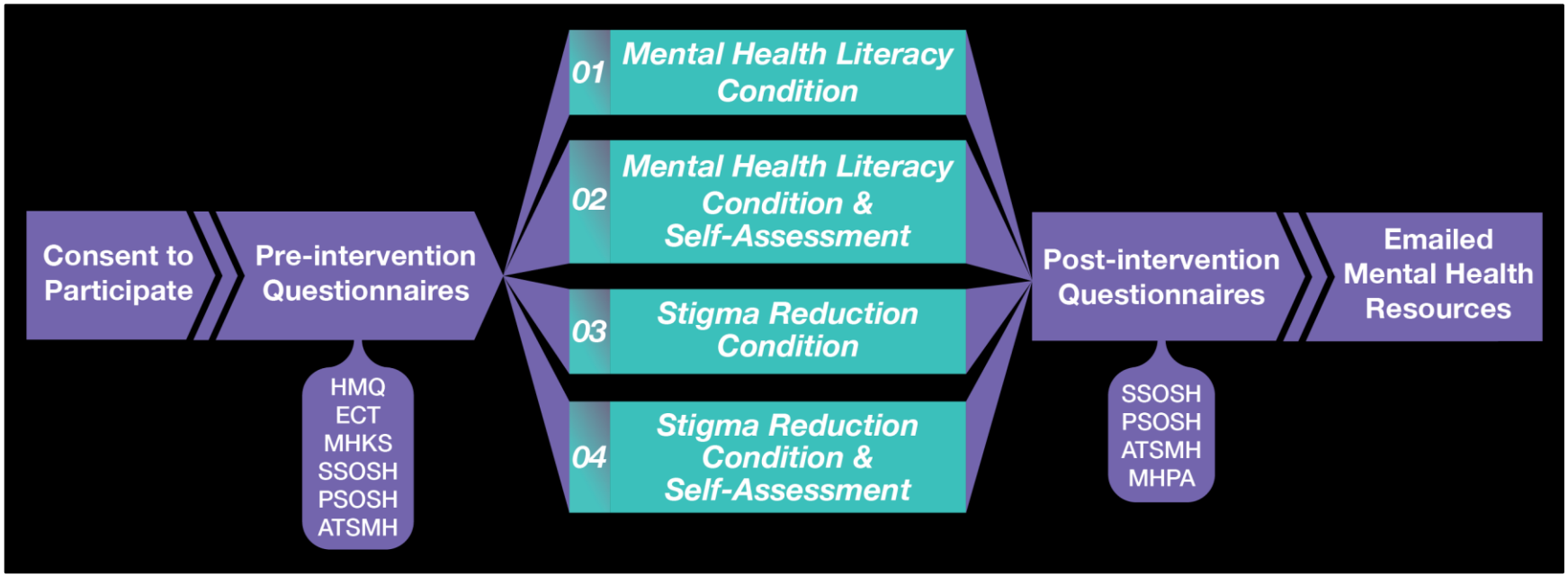
Note. The above model is the proposed conceptual unifying model of adolescent help-seeking behaviour. This model distinguishes between awareness of symptoms and problem appraisal, highlighting that the Cycle of Avoidance acts as a significant barrier between awareness and appraisal of a mental health problem. This model also includes awareness and attitudes towards treatment services as an additional step along the help-seeking pathway. The above figures includes elements of the adolescent help-seeking from "Young people's help-seeking for mental health problems," by Rickwood et al., 2005, *Australian e-journal for the Advancement of Mental Health* and reprinted with permission from Taylor & Francis as well as The Cycle of Avoidance from "Explaining non-help-seeking amongst young adults with mental distress: a dynamic interpretive model of illness behaviour" by Biddle et al., 2007, *Sociology of Health & Illness* and reprinted with permission from John Wiley and Sons.

Figure 5 Differentiating Public Stigma and Self-Stigma



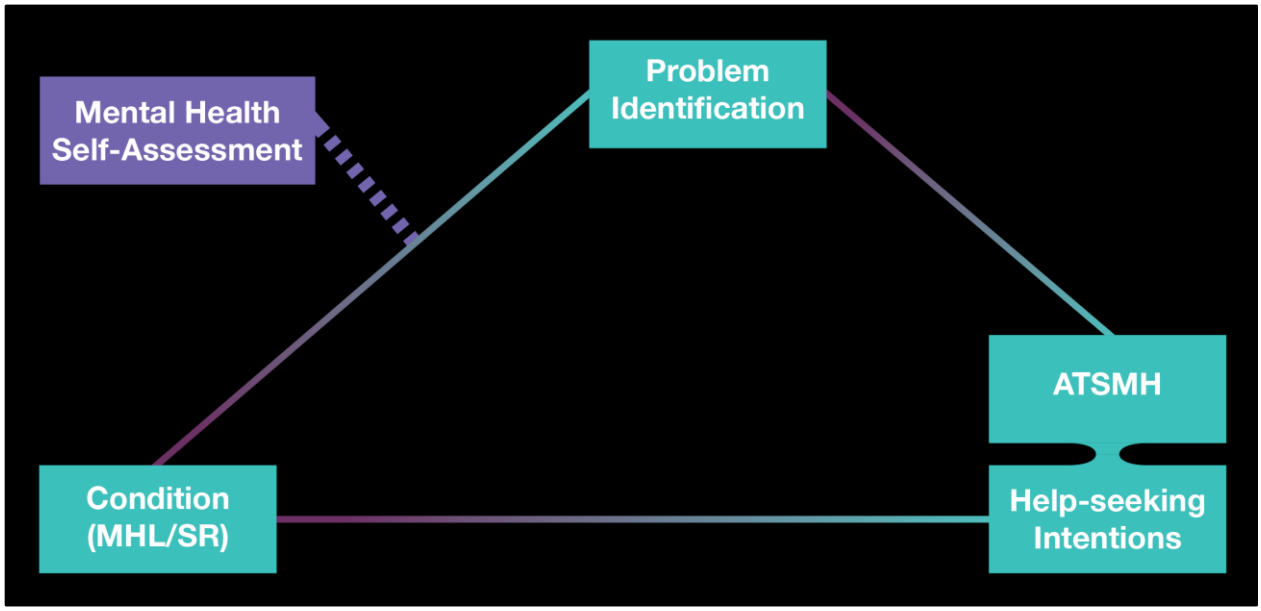
Note. The above figure distinguishes between public stigma and self-stigma. The figure is adapted from the figure "Two Factors That May Influence Whether a Person Who Might Benefit From Mental Health Treatment Actually Seeks It" in "How stigma interferes with mental health care" by Corrigan, 2004, *American Psychologist* and reprinted with permission by the American Psychological Association.

Figure 6 Schematic Representation of the Overall Study Design



Note. HMQ = Healthy Minds Questionnaire; ECT = Error Choice Test; MHKS = Mental Health Knowledge Schedule; SSOSH = Self-Stigma of Seeking Help scale; PSOSH = Perceived Stigma of Seeking Help scale; ATSMH = Attitudes Towards Seeking Mental Services scale; MHPA = Mental Health Problem Appraisal scale. All participants consented to participate and then completed the pre-interventions questionnaires. Participants were then randomly assigned to one of the conditions. Participants then completed post-interventions questionnaires. At the end of the experiment all participants were emailed a set of mental health resources with information on how and where to seek mental health services on campus and in the community.

Figure 7 Proposed Mediated Moderation Model



Note. MHL = Mental health literacy. SR = Stigma reduction. ATSMH = Attitudes Towards Seeking Mental Health Services.

Figure 8 Self-Assessment Moderates the Relationship Between Condition and Problem Identification

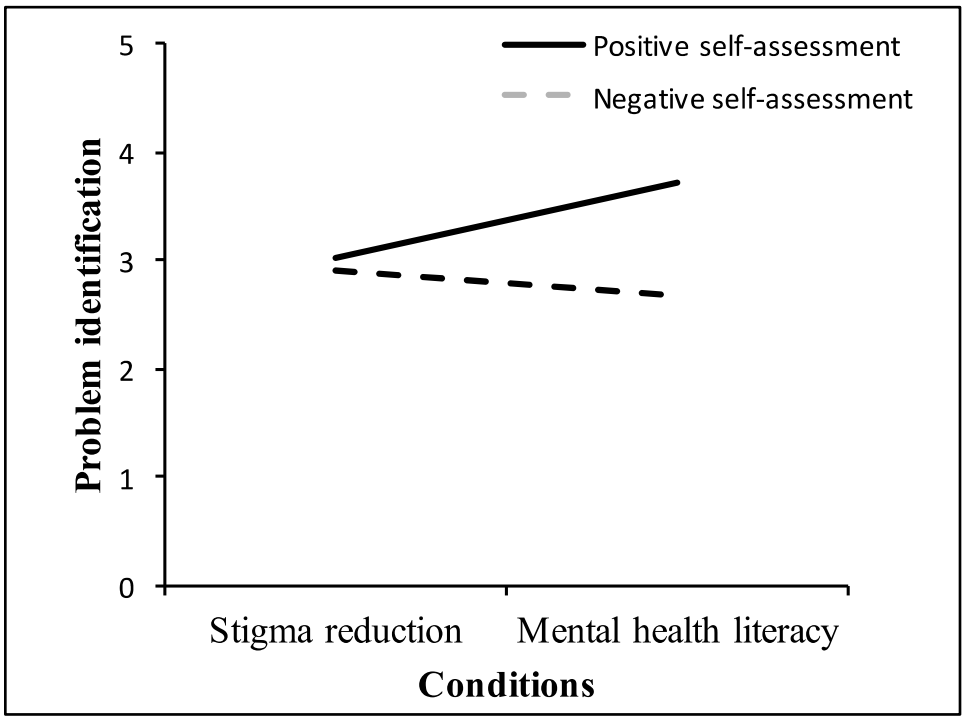
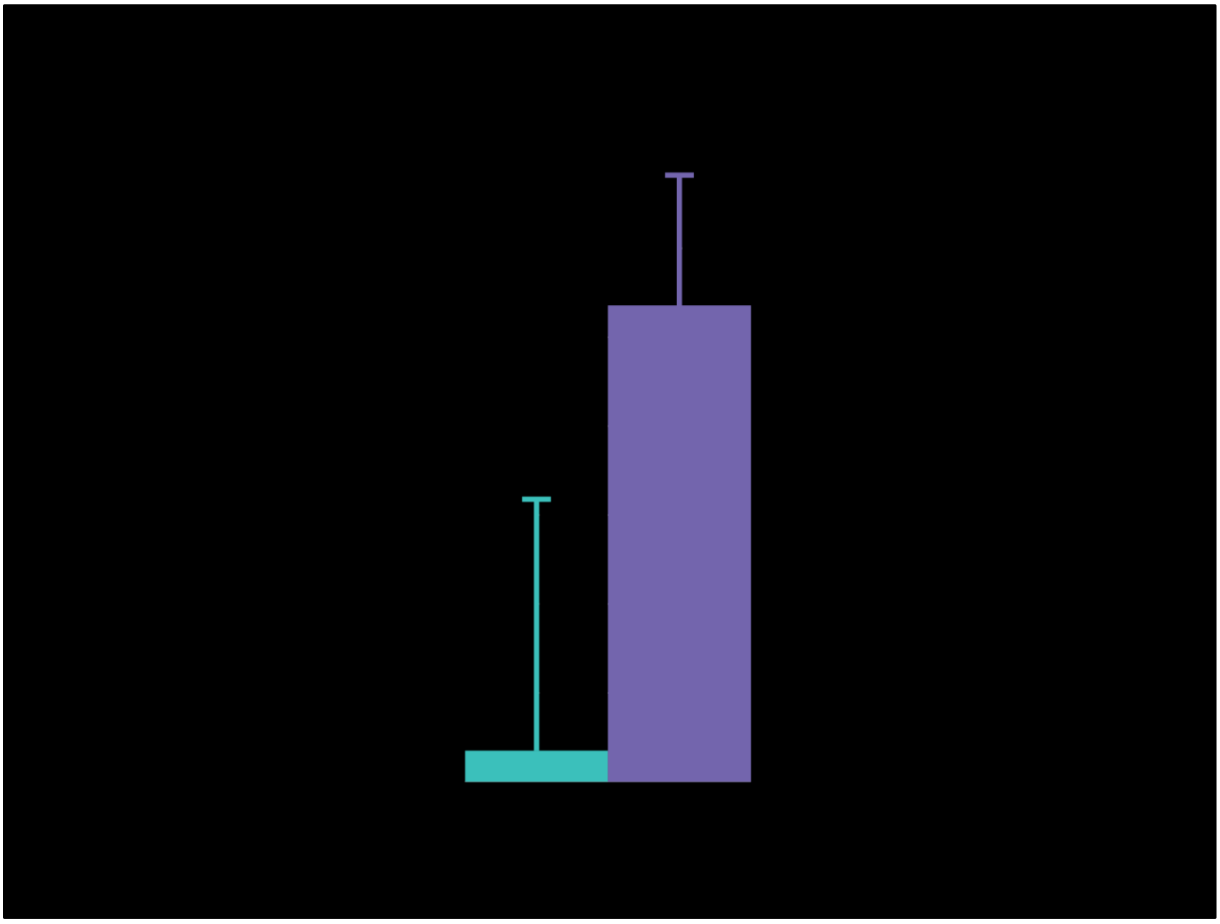


Figure 9 Post-Intervention ATSMH Scores Between Conditions



Note. ATSMH = Attitudes Towards Seeking Mental Health Services scale; % change = percentage change score. M + SEM = Mean plus Standard Error of the Mean. Independent samples t-tests (n = 70) indicated a significant difference between conditions ($t(68) = -2.09$, $p = .04$). Participants in the mental health literacy condition had significantly greater change scores than participants in the stigma reduction condition, indicating a greater shift towards positive attitudes towards seeking mental health services.

APPENDICES

Appendix 1 Consent form

Treatment Seeking in Young Adults
February 10, 2016
Version 2

McGill University Health Centre
CONSET FORM

Title of Project: Attitudes and beliefs about personal health and wellness in a University student population and the desire to seek professional services

Supervisor: Nancy Low, M.D., M.Sc.
Graduate student: Elizabeth I Cawley-Fiset, M.Sc.

PREAMBLE

We are inviting you to participate in a research project. However, before consenting to participate in this project, take the time to read, understand, and carefully examine the following information.

1. REASON FOR THE STUDY
Many young people do not seek professional health services (e.g., a doctor, psychologist, etc.) even though they may need them. Untreated physical or mental illness can lead to complications, contribute to longer recovery periods, and have a negative impact on one's overall life. Therefore, the purpose of this research is to gain a greater understanding of how individual attitudes and beliefs about health and wellness affect willingness to seek professional services.

2. PROCEDURES
Participation in this study involves filling out a series of online questionnaires that will focus on your attitudes and beliefs about health and wellness. You will be asked to complete a questionnaire about your own current health and wellness, read an online health education document and then complete a quiz on the information you just read. The time requested to complete the study is approximately 1 hour.

3. BENEFITS AND RISKS
The risks associated with participation in this study are minimal. Some of the questions you will be asked are very personal and you may find them upsetting. Should you become upset during the course of the study you may contact the graduate student, Elizabeth Cawley-Fiset (elizabeth.fiset@mail.mcgill.ca) and you will be referred to appropriate mental health professionals at McGill Mental Health Services. You are free to stop participation in the study at any point without any negative consequences. There are no direct benefits to participating in this research study; however, the data collected will increase knowledge in this field.

4. WITHDRAWAL FROM THE STUDY
Participation in this study is strictly voluntary. If you agree to take part in this study, you can withdraw at any time without negative consequences or loss of benefits to which you are otherwise entitled.

5. COMPENSATION
As a token of our appreciation, a donation of $1 will be made on your behalf to Suicide Action Montreal, a local Montreal organization that provides "support services, crisis workers, and monitoring for people who are at risk of committing suicide, for their friends and family and for people affected by suicide." In addition, you will be entered into a draw to win one of four prizes of $250.

6. NON-WAIVER OF LEGAL RIGHTS
By accepting to participate in this project, you are not waiving any of your legal rights nor discharging the researchers and the institution of their civil and professional responsibility.

7. CONFIDENTIALITY
The questionnaires that you complete will be completed on a web survey tool that has been used for research in over 200 universities and is encrypted and password protected. An alpha-numeric code will be used to identify you on all research data and this will be kept separately from your consent form and any other identifying documents. All data will be kept on a password protected master USB key and stored in the researchers office. Only the primary researchers will have access to your data.

No personal information will be released to third parties without your written approval. Unless you have provided specific authorization or where the law permits or a court order has been obtained, your personal results, personal information and your drug history will not be made available to third parties such as employers, government organizations (except Health Canada), insurance companies or educational institutions. You should be aware that the Research Ethics Board, or Quality Assurance Officers duly authorized by it, may access all study data. You should also be aware that in accordance with McGill University's record retention schedule, all study documents will be kept for 10 years following completion of the study, at which point they will be destroyed.

8. CONTACT INFORMATION
If you have any inquires about the study please feel free to contact the primary investigator associated with this study, Mrs. Elizabeth Cawley-Fiset, at Elizabeth.fiset@mail.mcgill.ca. If you have any questions regarding your rights as a research subject and you wish to discuss them with someone not conducting the study, you may contact the McGill University Health Centre Patient Ombudsman at (514) 934-1934 ext. 22223.

By clicking "yes" below you are indicating that you are at least 18 years old, have read and understood this consent form, and agree to participate in this research study. Please download and save a copy of this content form for your records.

Yes ☐
No ☐

Appendix 2 Recruitment Text

Dear McGill student,

This is a reminder that you are invited to participate in a research study on attitudes about mental health. The study involves completing a series of questionnaires and viewing a health education website. The study will take approximately one hour to complete.

As a token of our appreciation, all participants will be entered into a draw to win one of four prizes of $250. In addition, a donation of $1 will be made on behalf of all participants to Suicide Action Montreal, a local Montreal organization that provides support services, crisis workers and monitoring for people who are at risk of committing suicide, for their friends and family and for people affected by suicide.

All personal information will be kept secure and confidential. The principal investigators are Dr. Nancy Low and Elizabeth Cawley-Fiset.

If interested, please click here to be directed to the McGill Mental Health Survey. Or copy and paste the following link into your browser: http://tinyurl.com/jg53vwj

If you have any inquiries about the study please feel free to contact the primary investigator associated with this study, Ms. Elizabeth Cawley-Fiset, at Elizabeth.fiset@mail.mcgill.ca.

Sincerely,

Elizabeth Cawley-Fiset, MSc
PhD Candidate,
Department of Psychiatry
McGill University

Dr. Nancy Low, MD, MSc, FRCPC
Clinical Director
Mental Health Service
McGill University

Appendix 3 Resources Emailed to Participants Following Participation

SUPPORT SERVICES FOR MCGILL STUDENTS

There are a number of services designed to support McGill students. Here is a list of some resources that you, or others, may find helpful.

In case of an emergency call 911 or McGill Campus Security/Service de securite de McGill at 514.398.3000 (Downtown); or 514.398.7777 (Macdonald Campus)

McGill Mental Health Urgent Care
Monday to Friday, 11am to 2pm
Brown Student Services Building
3600 McTavish, 5th Floor, Suite 5500
Montreal, Quebec, H3A 0G3
T: 514-398-6019
Website: http://www.mcgill.ca/mentalhealth/home

McGill Counselling Crisis Support
Monday to Friday, 9am to 4pm
Brown Student Services Building
3600 McTavish Street, 4th Floor, Suite 4200
Montreal, Quebec, H3A 0G3
T: 514-398-3601
Website: https://www.mcgill.ca/counselling/counselling-service

Office of the Dean of Students/Le Bureau du Doyen des Étudiants
Contact: 514.398.4990 or visit their website: http://www.mcgill.ca/deanofstudents/office-dean-students

The Dean of Students is the main contact for any issue regarding student safety and well-being on both campuses. In the case of sexual harassment, sexual assault and abuse the Dean of Students can authorize emergency safety measures, coordinate conflict resolution/mediation, and can also coordinate access to various university services.

McGill Campus Security/Service de securite de McGill
Downtown: 514.398.3000
Macdonald Campus: 514.398.7777

Campus Security is responsible for investigating all serious crimes on campus. Liaising with municipal, provincial and federal police forces conducting investigations that involve McGill University. McGill Security service can also facilitate a disclosure and connect you with the appropriate resources on and off campus to file a report.

Sexual Assault Centre of the McGill Student's Society (SACOMSS)
Contact: 514.398.8500 or visit their website (http://sacomss.org/).

A student-run organization committed to supporting survivors of sexual assault and their allies through direct support, advocacy, and outreach. Services (all free) include: a confidential, non-directional phone line (DIAL), drop-in hours, group support, assistance with reporting at McGill and with the police, and hospital accompaniment.
For more information on filing a sexual assault report see page 5.

McGill Mental Health Services/Santé Mental
Team of psychiatrists, psychologists, and psychotherapists available by appointment.

Brown Student Services Building
3600 McTavish, 5th Floor, Suite 5500
Montreal, Quebec, H3A 0G3
T: 514-398-6019
Website: http://www.mcgill.ca/mentalhealth/home

McGill Counselling Services/Service de Counseling
Counselling Services has a Monday to Friday Intake service between 12pm to 4pm, as well as crisis drop-in from 9am to 4pm.
Monday to Friday, 9am to 4pm

3600 McTavish Street, 4th Floor, Suite 4200
Montreal, Quebec, H3A 0G3
T: 514-398-3601
Website: https://www.mcgill.ca/counselling/counselling-service

McGill Student Health Service/Service de Santé de McGill
Contact: 514.398.6017 (Downtown); 514.398.7992 (Macdonald Campus) or visit their website: https://www.mcgill.ca/studenthealth/healthservices

The downtown campus offers a walk-in clinic with physicians and nurses with a daily nurse triage. They are open Monday to Friday, 8:30am to 4:30pm.

Peer Support Network For contact information, visit their website. Provides free, confidential, drop-in space, offering non-judgmental peer support, information, and referrals to the McGill community. Facilitates and encourages communication so that students feel empowered to resolve whatever they may be going through.
Website: http://ssmu.mcgill.ca/studentsinmind/psn.html

Night Line
McGill Students' Nightline has offered a confidential and anonymous, information, listening and referral service for all members of the McGill community for over 20 years. Nightline's volunteers are anonymous to all callers, and callers can be sure that any matters discussed during a call will stay confidential within the service. Additionally, Nightline is designed to take calls on virtually any topic. Their volunteers are there to help answer information questions, such as inquiries regarding academic policies,

directions, or even food delivery numbers. As well, their lines are open to anyone who just wants to chat about something that might be on their mind, such as exam anxiety or relationship troubles.

Community Resources

A range of community-based resources are available by phone or in-person. Please keep in mind that a valid health insurance card may be required when using any off-campus service and there may be associated fees. Please consult with the service(s) you may use regarding any fees and/or restrictions they may have on providing their services.

Community counselling/therapy & listening services

If you are looking for off-campus counselling/therapy or listening services, AMI-Québec provides a list of some of them in the Montreal area. Many of these are free of charge and open to anyone looking to use them.

http://amiquebec.org/counseling/
http://amiquebec.org/listening-services/

If you are in immediate danger (you are either about to seriously hurt yourself or someone else), please call 911. If you are on campus, you can call Campus Security at 514-398-3000, or 514-398-7777 for Macdonald Campus. For crisis numbers and links in Montreal, please visit here.

Suicide Action Montreal
24 hours a day, 7 days a week for those at risk. They can be reached at 514 723-4000. Suicide Action Montreal also offers information meetings for friends and family where crisis workers offer methods to help a suicidal people.

2110 Centre for Gender Advocacy
The Centre for Gender Advocacy offers free confidential support services through its Peer Support and Advocacy (PSA) program, which operates on principles of empowerment, harm reduction and self-determination. The program is run by staff and volunteers who have undergone training so they can be there to actively listen and help you find any resources you may be looking for - whether that's information about health care, sexuality, legal issues, drop-in centres, or something else altogether. Support services are provided in person or by phone.

Face á Face
Face à Face provides a listening and referral centre, where a team of professionally-trained volunteers are available to listen to you and help you overcome your personal

difficulties. In addition, they offer Café Recontre which is a discussion/support group for participants to socialize, share feelings with others, and develop a support network.

Monday to Friday, 9am to 5pm
T: 514-934-4546

Head and Hands
Committed to physical and mental health of the youth of Montreal community, Head and Hands offers medical, social, and legal services with a harm-reductive, holistic, and non-judgmental approach.

Off Campus Health Clinics
A variety of health services are available to you off-campus, including clinics, CLSCs (community centres), women's shelters, and phone-in services. If you need assistance with a medical question, you can contact Info-Santé immediately by dialing 8-1-1. This service is available in Québec 24/7.

The Jed Foundation
The JED Foundation operates a 24-hour, anonymous suicide prevention helpline, which is available to all post-secondary students in Canada and the United States. Jed is a non-profit organization and the helpline is only one of its many student-oriented mental health initiatives.

Need help now? Call 1-800-273-TALK. Find more suicide prevention resources through their online portal at: www.ulifeline.org

Sexual Assault Reporting
Acts of Sexual Harassment are covered by the Policy on Harassment, Sexual Harassment and Discrimination, Prohibited by Law. Allegation of breaches of the code are handled by Harassment Assessors. Sexual Assault is covered by the Code of Student Conduct or your respective Human Resource department. Allegations of breaches of the code are treated by Disciplinary Officers, Residences, the Committee on Student Discipline, and Human Resources.

Filing a Report of Sexual Assault- Support Services
It can be difficult to know what actions to take after a sexual assault and who to turn to for support. Know that you are not alone in this process. There are many dedicated people at McGill available to provide you with confidential support and information. Members of the McGill community can signal a complaint or incident through several different channels at McGill, including through individual faculties, and within various Student Services. In addition to the services above, here are additional services that are available should you require assistance or information on reporting:

Disciplinary Officer: The duties and responsibilities of the Disciplinary Officers are defined by the Code of Student Conduct and Disciplinary Procedures. They are in charge of reviewing complaints and investigation.

Filing and Processing of Formal Complaints
The policies address acts on McGill property or during a McGill activity. If an alleged incident falls outside of that jurisdiction and it is a criminal matter, it becomes a police matter. The university will, if applicable, address campus safety concerns that fall outside the jurisdiction of the police. For more information on these safety measure, contact the Office of the Dean of Students.

For a breakdown of the process, view the protocol for disciplinary procedures.

Filing with the Police
If you are considering reporting an incident of sexual assault outside of the university, contact the police non-emergency line (514.280.2222) when you are ready.
There are several resources within McGill and the surrounding community who can assist you with filing a report to the police. SACOMSS The Montreal Sexual Assault Centre Regroupement Québécois des C.A.L.A.C.S

Appendix 4 Comments and Feedback on Pilot Conditions

Expert 1.

N/A.

Expert 2.

Some of the content in the first condition near the end seemed segmented and redundant. Might be possible to condense it.

Expert 3.

Overall, a reasonable intervention.

Expert 4.

As important as reducing stigmatization of mental illness is, it would seem to me that if the two conditions cannot be combined, the first condition would be much more effective in actually increasing awareness of the symptomatology of mental illness and encouraging people to seek help if various forms, both of which would contribute to increase rates of treatment, a spandrel effect of which would also be decreased stigmatization.

Expert 5.

I am honoured to participate in the evaluation of this fine piece of work. You should be proud of your efforts in creating the conditions. I am concerned about the absence of certain issues in the first condition. Because of the diversity in the student body, with respect to (dis)ability, sexuality, race and ethnicity, SES, etc., I feel that it is important to mention that at times, students do not seek services because they do not see themselves reflected in those services, have historically been mistreated or exploited by services/professionals in mental health or higher education (e.g., conversion therapy offered by mental health practitioners, ridiculed for accent by professor in classroom leading to mistrust, hospitalized w/o awareness), or more broadly, generally had a negative experience (e.g., not been understood). I think it is important to validate these students' experiences in your work, so that they do not feel further excluded and isolated. Students may actually be harmed if they follow recommendations to seek a mental health professional that is not competent or ethical in service delivery to all students. Please feel free to follow up if you would like to brainstorm amendments to the first condition. Last, I really appreciate the inclusion of alternative forms of service (e.g., First Peoples' House, Queer McGill). Your work will definitely have important implications for this campus.

Expert 6.

I find both contents to be informative and interesting. I think even people with little knowledge on mental health will be able to understand the contents easily. Content 2 might be too long to keep some readers' interest since stigma will be less relatable than general emotional health discussed in content 1. As well, pointing out that we can think about mental illness in the same way we think about physical illnesses can be helpful for reducing the stigma.

Expert 7.

Signs and symptoms: It may be helpful to mention that those changes listed can be a part of everyday life and can be common. However, a person should pay attention to drastic changes (as you said, the combination of various signs/symptoms) in themselves or others. Resources listed: Professional support resources are the ones listed (Health, Counselling, Mental Health) but it would be good to have peer support resources at McGill listed too. Post-survey: It would be good to provide a list of resources that the student can access (if they may need) as the content may help them recognize that they may need help.

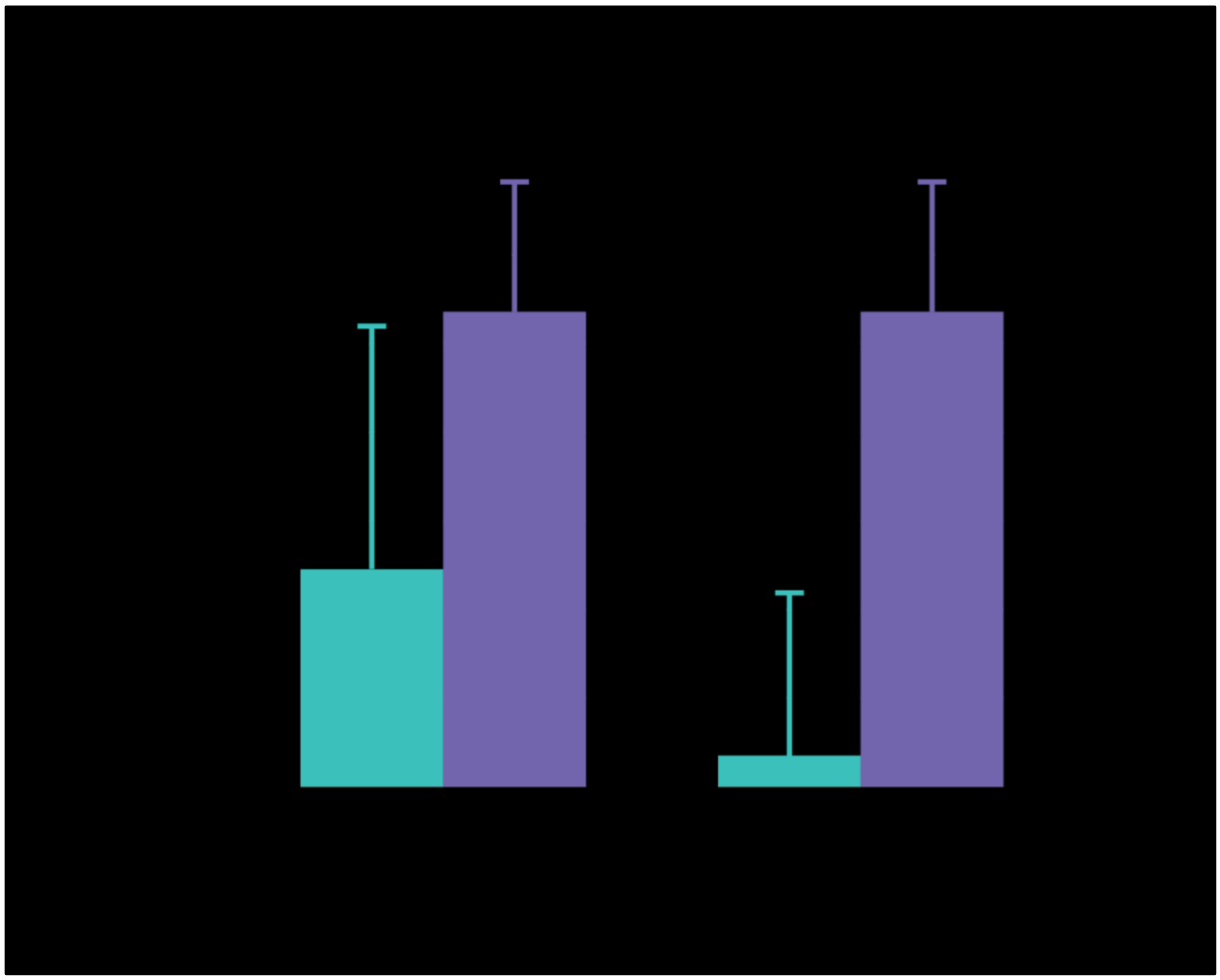
Expert 8.

The first condition is promoting help-seeking behaviours, did you only want to limit it to professional treatment? In condition 1, you don't mention other forms of treatment "at McGill," like the Peer Support Centre, McGill Students' Nightline, MORSL, etc. Not sure if the goal is to promote professional treatment or just seeking help. Condition 2 seemed to really focus on stigma being a by-product of language, but I wonder how much that's true. Just not sure how relevant or impactful the label exercise would be.

Expert 9.

This all looks very good. The only comment I would make is that you use the terms "illness" and mental health, emotional health, etc. interchangeably assuming that the students will know what you mean. I think that most will not know what 'illness' is and the word itself may trigger stigma. Therefore, you may want to talk about mental and emotional problems that have the potential to interfere with their academic work and daily lives (focusing on the dysfunction rather than the label).

Appendix 5 Post-Intervention ATSMH Scores Between Conditions With and Without An Outlier Participant



Note. ATSMH = Attitudes Towards Seeking Mental Health Services scale; % change = percentage change score. M + SEM = Mean plus Standard Error of the Mean. When the data was examined with 71 participants there was a single participant within the stigma reduction condition who had a percent change score that was more than 4 standard deviations above the sample mean and was deemed an outlier. Analysis was rerun with the outlier participant removed (n = 70), and a significant difference between conditions was then apparent ($t(68) = -2.09$, p = .04).