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Strengthening Mental Health Awareness of University Students Using an Online Training Module

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Abstract

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Lavern Bourne

MHSc, Ontario Tech University, 2014

BHA, Ryerson University, 2005

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

Canadian youth pursuing postsecondary education are facing a major mental health crisis. There are substantial gaps between the diagnosis and treatment of mental illnesses. The purpose of this study was to evaluate whether a web-based mental health educational intervention was an effective tool with which to increase mental health awareness and help-seeking behaviors of university students. The theory of planned behavior, the help-seeking model, and the technology acceptance model were the theories that guided this study. Using a quantitative quasi-experimental research design, data were collected from 329 undergraduate students in the Faculty of Health Sciences at a university in Eastern Ontario. The attitude, perception, and knowledge about mental health were measured before and after an online mental health educational module (Mindsight) using the Attitudes to Mental Illness Questionnaire (AMIQ), Help Seeking Attitudes Scale (HSAS), and Knowledge Test (KT). The paired *t* test and one-way ANOVA were used to examine the effects of the Mindsight on pre/post survey AMIQ, HSAS, and KT scores. The results indicated that there was no statistically significant difference in the mental health attitude and knowledge of students after completing a web-based mental health educational module; however, there was a statistically significant difference in the mental health perception of students. Positive social change may be accomplished through the implementation of strategies aimed at improving the mental health awareness and increasing the help-seeking behaviors of university students. Students who have good mental health are more likely to do well academically and become productive members of their communities and society.

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Dedication

I dedicate this work to God and my family. No words can adequately express my gratitude to God for guiding and sustaining my life from conception to this point. Without the wisdom that comes from above, none of this would have been possible. God, you will always receive my highest praise. To my devoted husband, you have always believed in me and even when I doubted myself, I could hear your encouraging voice saying “soldier on”. The love and respect that I have for you are beyond words. You are the wind beneath my wings and my dearest friend. To my children Ashley and Matthew, you both have been such a great blessing in my life. I hope that this will inspire you to accomplish God’s plan for your lives. I pray that the path that you choose in life will bring you happiness, peace, and fulfillment as you serve God and your fellowmen. I love tons! To my extended family especially my parents who sacrificed to give me the education that they did not have and my siblings who supported me along this journey, please know that you are loved and appreciated. To my nieces, nephews, in-laws, and friends, I am grateful for your love and support throughout this journey. Finally, this dream became a reality because of all the love and support from family and friends. Thanks for everything.

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Chapter 1: Introduction to the Study

Mental health has emerged as a leading public health concern affecting the social, emotional, and psychological well-being of persons from every sector of society. Mental illness is among the leading causes of ill-health and disability that directly affect more than 450 million persons worldwide (World Health Organization [WHO], 2020). The term *mental health* is often used interchangeably with *mental illness*, but there is a difference between the two. Mental health refers to the state of well-being and how individuals can cope with the stresses of life and reach their goals (WHO, 2014), whereas mental illness refers to a diagnosable mental condition that usually alters a person's thoughts, mood, or behavior (WHO, 2018). It is also important to distinguish between the terms *mental illness* and *mental disorders*. Mental disorders usually refer to disturbances of the mind, and mental illness refers to diseases of the mind (American Psychiatric Association, 2018). Because the difference between these two terms is subtle, both terms, *mental disorders* and *mental illness* will be used interchangeably in this study.

The overall state of the mental health of Canadian youth is steadily deteriorating (Versaevel, 2015). According to the Center for Addiction and Mental Health (CAMH, 2020), one out of every five Canadians will experience their first mental illness before 40 years old. It is estimated that 10-20% of Canadian youth are affected by at least one mental disorder and that 5% of males and 12% of females, age 12 to 19, have experienced a major depressive episode (CAMH, 2020). Among youth 15-24 years, suicide was reported as the second leading cause of death claiming the lives of about

4000 youth every year (Canadian Mental Health Association [CMHA], n.d.). The pervasiveness of mental disorders among Canadian youth is a leading public health concern(DeSalvo & Levi, 2019). Over 800,000 children aged 4 to 17 years have experienced serious mental health problems that interfere with their future development but less than a quarter (25%) of the youth affected receive appropriate mental health services (Waddell, Mcewan, Shepherd, Offord, & Hua, 2005). Lack of evidence-based treatment for mental illness can impede the ability of adolescents to function as fully productive adults later on in life (Robinson, Jubenville, Renny, & Cairns, 2016).

The prevalence of mental illness among youth enrolled in postsecondary institutions was highlighted in the 2016 American College Health Association national survey. The survey, which involved 43,789 students studying at 41 Canadian postsecondary institutions, found that 11.5% of students reported experiencing anxiety and depression, and 8.2% reported having at least one mental health disorder in the last 12 months (American College Health Association, 2016). The research indicates that large numbers of youth from different cultural and socioeconomic backgrounds, ages, and races are struggling with mental health issues. The magnitude of the problem dictates that mental illness can no longer be regarded as a private individual matter. Poor mental health resulting in mental illness has broken the social threshold and has become a major public health issue. The broad scope of mental health issues requires a collaborative national public health strategy that includes coordinating government policies across different jurisdictions to promote the healthy development of children and youth (Orpana, Vachon, Dykxhoorn, McRae, & Jayaraman, 2016). This would be a

step in the right direction and could potentially prevent or reduce the prevalence of mental disorders among the youth.

In the current literature, there is a substantial body of knowledge based on scholarly research, supporting the theory that poor mental health is an enormous social and economic cost to society (Faculty of Public Health and Mental Health Foundation, 2016). In Canada, it is the responsibility of the public health department at all levels of government to ensure everyone has access to optimal healthcare. Local public health units have accepted this mandate and are beginning to incorporate mental health into their daily operations. For example, Public Health Ontario stated that "the core business of public health encompasses illness prevention and health promotion. Mental health is increasingly considered to be a key component of overall health and wellbeing" (Centre for Addiction and Mental Health, Ontario Agency for Health Protection and Promotion, & Toronto Public Health, 2013). Despite their best intentions and efforts, local public health departments face many challenges in implementing mental health interventions for youth, including lack of dedicated resources, coordination of services among community partners, stigma, and treatment gaps resulting in unmet needs (Health Promotion Resource Centre et al., 2013). Despite these barriers, there is high motivation to find solutions because of the societal cost of inaction.

The social costs of poor mental health are both emotional and behavioral (McDaid et al., 2017). Examples of emotional difficulties include experiencing anxiety and depression, while behavioral difficulties include aggressive behavior, hyperactivity, and inattentiveness(Vojt et al., 2018). Some of the broader social consequences of poor

public mental health include unemployment, increased need for government housing, lower educational achievements, and criminal behavior (Henry, Fulco, & Merrick, 2018; Vojt et al., 2018). The impact of economic costs that are directly related to the socioeconomic status of individuals poses yet another public health challenge. According to the WHO estimates, the economic burden as a result of depression and anxiety disorders alone cost the global economy USD 1 trillion each year in lost productivity (WHO, 2020). Therefore, financial investments in mental health promotion and prevention could potentially lead to a reduction in the number of postsecondary students that will be needing mental illness services later as adults. This could by extension lead to a reduction in economic cost (Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017).

The unmet mental health needs of university students represent a significant public health concern because the prevalence of students with untreated mental health disorders far exceeds the capacity in most postsecondary institutions to adequately respond to the demand for services (Beiter et al., 2015). Additionally, university students with untreated mild mental disorders are more likely to develop more serious mental, social, and physical health issues later on in life (Galante et al., 2018). This phenomenon often referred to in the literature as the treatment gap, will be a focus of this study (Crowe, Averett, & Glass, 2016). There is a paucity of studies that address the treatment gap. This study is unique because it seeks to deliver a mental health promotion program to a group of underresearched students using an online training module.

The results of this study could conceivably create positive social change at the individual, family, community, and societal levels. There is early evidence supporting the theory that there is a positive correlation between physical health and mental health (Shidhaye, Lund, & Chisholm, 2015). From a public health perspective, improving the mental health of university students could also, by extension, improve both the mental and physical health of their families, communities and the broader society (Shidhaye et al., 2015). The individual health and well-being of students could possibly improve as they demonstrate more of the key characteristics of quality of life such as happiness, high productivity, gainful employment, social belonging, and the ability to enjoy leisure time and recreational activities in a safe environment (Fernandez et al., 2016). Because of the intricate relationship between mental and physical health, improvements in mental health could result in a reduction in youth morbidity due to chronic diseases such as diabetes and obesity and a drop in mortality rates due to suicide (De Luca, Franklin, Yueqi, Johnson, & Brownson, 2016). Since mental illness affects people from all walks of life, maintaining good mental health should be a public health priority for everyone.

This chapter provides background information on the history of mental health and mental disorders. The problem statement provides context and establishes the relevancy by asking “so what” questions as well as anchors the research questions that I sought to answer in the study. The section on the purpose articulates the goals of the study. Having clear goals allowed me to test and validate my own theories as well as the theories of other researchers in their field. The section Nature of the Study provides an overview of the research methodology, which I will further expand on in Chapter 3. This

is followed by an overview of the research questions and the theoretical frameworks used to ground this study. The chapter concludes with a description of the limitations, assumptions, delimitations, and the significance of the study as an instrument for creating positive social change.

Background

A rationale for this study was the prevalence of mental disorders among postsecondary students, and the paucity in the current literature focusing on efficient and effective treatment options. The WHO (2019) defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and can make a contribution to her or his community." Mental health was believed to be a significant predictor of educational attainment for postsecondary students, but for many years there was insufficient research to validate this belief. The WHO World Mental Health Survey Initiative carried out in 21 different countries made a significant contribution that increased the knowledge base in this field of study.

The results of the World Mental Health survey indicated that approximately one fifth (20.3%) of college students had a mental disorder (12-month DSM-IV/CIDI) and 83.1% of these cases had prematriculation onsets(Auerbach et al., 2016). Additionally, the results also indicated that only 16.4% of students received any healthcare treatment for their mental health disorders. Another important finding of this study was that some college students experienced their first mental health disorders before attending college. Untreated mental disorders were cited as a possible contributor to higher college attrition

rates (Auerbach et al., 2016). The global implications of this epidemiological study suggest that public health initiatives targeted at early detection and treatment should be introduced in all postsecondary institutions to reduce attrition and improve the educational and psychosocial functioning of students (Auerbach et al., 2016).

Almost every Canadian will be directly or indirectly impacted by mental health disorders at some point in their life. This includes 10-20% of Canadian youth who are affected by mental illness. Among students attending a postsecondary institution, mental health problems is a growing concern. Many students will only seek help if they are experiencing serious crises. Next to unintentional injury, mental disorders represent the second-highest cost of healthcare expenditure for youth 12-19 years old. It is estimated that in Canada 3.2 million youth struggle with depression and 4,000 die due to suicide each year (CMHA, n.d.). Even more concerning is the fact that only one out of five Canadian youth will receive appropriate care for their mental illness (CMHA,n.d.). Most mental illnesses can be treated and early diagnosis may reduce the economic burden to society.

The complex relationship that exists between the genetic, personal, and environmental factors makes diagnosing and treating mental illness an expensive budget item in many healthcare jurisdictions. According to the CAMH (2020), Canada spent an estimated CAN$51 billion to treat mental illnesses including health care costs, disability, and reductions in health-related quality of life leading to an early death. There is new evidence-based research supporting the benefits of publicly promoting mental health well-being among the population (Gronholm, Henderson, Deb, & Thornicroft, 2017).

Additionally, Kutcher, Wei, and Coniglio (2016) noted the importance of mental health literacy in helping to improve the health outcomes for youth. According to Kutcher et al. (2016), mental health awareness and intervention should include all elements of mental health literacy such as "understanding how to obtain and maintain positive mental health; understanding mental disorders and their treatments; decreasing stigma related to mental disorders; and, enhancing help-seeking efficacy" (Kutcher et al., 2016, p. 155). In order to implement these MHL constructs, public health professionals will have to conceptualize mental health intervention as both an art and a science and create innovative ways, including the use of technology to engage with the young people.

In the two last decades, there has been a rapid increase in the number of youth who can access and use online technologies. Almost all Canadian youth use the internet daily and nearly 50% of youth participate in real-time discussions online (Clarke, Kuosmanen, & Barry, 2014). The widespread use of the internet makes it a potentially ideal channel for online mental health interventions that are designed to progressively reduce the treatment gap (Arjadi, Nauta, Chowdhary, & Bockting, 2015). There are many advantages of online mental health interventions including convenient access to resources, cost-effective, increase privacy, and anonymity (Arjadi et al., 2015). However, there is also the need to standardize mental health online resources to ensure that the information available is evidence-based and represents current best practices to help students make informed choices (Herrero et al., 2019). There is also the need for more studies involving diverse population subgroups to better evaluate the effectiveness of online mental health interventions (Salam, Das, Lassi, & Bhutta, 2016).

Mental health is an important component of public health because of its ability to profoundly affect the overall quality of the health of the population (DeSalvo & Levi, 2019). Good mental health offers protection against physical illness, social inequalities and enhances the capacity to cope with life's challenges and make wise choices (Salam et al., 2016). Despite the growing number of public initiatives promoting mental health awareness, many affected youths do not seek or receive appropriate care for their mental health disorders (Herrero et al., 2019). Although many factors contribute to the help-seeking behavior, the fear of stigmatization and discrimination have been identified as leading barriers to obtaining treatment for mental disorders (Goldie, Elliot, Regan, Bernal, & Makurah, 2016).

The diagnosis and treatment of mental disorders can be a complicated process involving many different healthcare professionals over a long period of time (Shefer et al., 2015). Current research suggests that targeted group-based interventions and cognitive-behavioral therapy (CBT) have been found to be effective ways of preventing or reducing mental health conditions such as depression, anxiety, and suicide ideation (Robinson et al., 2016). According to Crowe et al. (2016), there is an intricate relationship between the concepts of stigma, resilience, and help-seeking. On the one hand, the presence of stigma leads to a decrease in both resilience and help-seeking behavior, whereas engaging in help-seeking behavior increases resilience and decreases stigma. The delivery of mental health awareness programs that seeks to close the existing treatment gaps requires an approach that implements the key principles of public health. This involves key strategies such as collaborative stepped care, allocation

of adequate resources, and integration of mental health into mainstream health care (Shidhaye et al., 2015).

The treatment gap in mental illness care exists because the majority of persons affected do not have access to evidence-based interventions that are tailored to meet their individual needs. On the other hand, as noted by De Savigny and Adam (2009), even in cases where evidence-based interventions are present, they are not always able to deliver the desired results because of the unpredictable behavior of the other systems with which they interact (De Savigny & Adam, 2009). Some of the barriers to effective treatment include the availability of human capital especially mental health professionals like psychiatrists and psychologists, provision of suitable infrastructures such as counseling centers, confidential support services, and accurate information on the diagnosis and treatment of mental illness. Additionally, individual help-seeking behavior and government funding for public mental health initiatives are other factors that contribute to the treatment gap (De Savigny & Adam, 2009).

Contrary to previous practices where mental health care was delivered by single vertical interventions, the current evidence-based research recommends a more horizontal platform that delivers services at different levels of the health care system. This model specifically takes into consideration the settings where the intervention will be delivered, as well as the service providers who will be responsible for delivering the intervention (De Savigny & Adam, 2009). This current model is ideal for institutions such as universities because self-care and informal healthcare interventions can be more easily incorporated into their existing structures. The foundations of self-care and

informal care are based on a working relationship between the mental health care worker and the client/patient. The success of the intervention also depends on individuals with mental illness working along with their family and friends to play a key role in managing their treatment (Jensen & Foster, 2010). As noted in the study conducted by Sontag-Padilla et al. (2018), using peer groups can improve the mental health attitudes, perceived knowledge, and help-seeking behavior of college students. Because many university students move away from home, they tend to rely more on their peers for advice and support. Training students to become mental health peer mentors could play an important role in reducing the mental health treatment gap.

Strengthening mental health awareness is needed because mental illness affects Canadian youth at levels that are now been recognized as a public health crisis. For example, a recent study to examine the academic and mental health concerns of 400 students from a large university in western Canada found that "63.1% of students identified having academic concerns, 36.1% of students identified anxiety as a concern, and 31.9% endorsed depressive symptomology as a mental health concern" (Robinson et al., 2016). Additionally, the same study also reported that there was no significant difference based on gender: 42% of male students and 43% of female students met the criteria for clinical psychological distress, and only a small percentage of either reported accessing counseling services (Robinson et al., 2016). Nationwide, an estimated 3.2 million youth ages 12-19 years are at risk of developing depression, which if recognized early can be successfully treated. In contrast, untreated mental illness can lead to more serious problems later in life. For example, among youth ages 15-24 years, suicide is the

second leading cause of death, and schizophrenia affects one in 100 persons between the ages of 16 to 30 years. Mental health disorders also come with an enormous cost to the health care system, an estimated $51CAN billion per year, due to disability and early death (CAMH, 2020).

Numerous studies have concluded that there is a need for more research providing empirical evidence for the use of different approaches to decreasing the existing treatment gap for individuals with mental illness (Fleming, Edwin, Hayes, Locke, & Lockard, 2018; Werner-Seidler et al., 2017). In this study, I evaluated the effectiveness of an online teaching module as a way of increasing mental health awareness, increasing help-seeking behavior, and by extension reducing stigma and the treatment gap. This could improve the quality of life for university students both now and in the future. Educating students about mental health is one way of unlocking their potential to become successful and start a cycle where today's beneficiaries become the mental health leaders of tomorrow. This way the mental health awareness campaigns will have a long lasting effect not only on individuals but on entire communities and by extension entire cities, country, and the world.

Problem Statement

In the last few decades, there has been a renewed effort to include mental health as a fundamental part of public health because it is a determinant of the quality of physical health that a community experiences (Mantzios, 2019). Recent studies have estimated that one in five Canadian will be affected with a mental health disorder and approximately 70% will experience their first mental illness before they are 40 years old

(CAMH, 2020). Scholars have identified a substantial gap between the need for mental health treatment and the effective and efficient delivery of these services to those who need them. This treatment gap was identified as a phenomenon that requires more research (Crowe et al., 2016). Additionally, there is now a considerable body of knowledge suggesting that mental illness is a huge social and economic cost to society (Faculty of Public Health and Mental Health Foundation, 2016; Suryavanshi & Yang, 2016).

The social costs of poor mental health include the increased use of publicly provided services such as health, housing, education, social care, and criminal justice by individuals diagnosed with mental illness (Henry et al., 2018; Vojt et al., 2018). The WHO estimates that the economic burden as a result of depression and anxiety disorders alone cost the global economy USD 1 trillion each year in lost productivity (WHO, 2020). Therefore, creating mental health interventions that specifically target young adults could reduce the burden of care associated with more serious mental illness as adults.

Mental illness affects people from all races, gender, age, and socioeconomic class, although certain subsectors of the population may be disproportionately affected (Clarke et al., 2014). For example, the prevalence of mental illness such as suicide among First Nations, Inuit, and Métis youth is at least twice that of non-indigenous counterparts (McQuaid et al., 2017). Researchers such as Tekeli-Yesil et al. (2018) and Waitzkin (2016) have hypothesized that the most important determinant of good public mental health is the threefold influences of the family, the environment, and the society

in which a child is born and raised. The transition to university can be a stressful time and many students experience their onset of mental illness at this time. Scholarly evidence indicates that mental health awareness should start early in the life of a child. Bellis et al. (2015) posited that children and youth with good mental health grow up into adults who can manage their individual lives and become productive, creative, and resilient members of society. Enhancing students' mental health should, therefore, be an integral part of any university's mandate.

The high prevalence of mental illness among the youth provides the rationale for researchers to look more broadly at the social determinants of health and design mental health interventions that are tailored towards specific risk factors. Some risk factors are more easily controllable, whereas others may be outside of the individual's control. Examples of risk factors for youth include traumatic life experiences, childhood trauma, feeling alone or isolated, substance abuse, or having a family history of mental illness (O'Neill et al., 2018; Taliaferro & Muehlenkamp, 2015). In many instances, good mental health can be improved by increasing protective factors that help buffer an individual and help them cope. Examples of protective factors include being able to meet basic human needs, having a feeling of belonging, and being able to spend time with people that you love. Unfortunately, many people affected with poor mental health report that fear of stigmatization and negative stereotyping are among the leading causes that prevent them from seeking help (Crowe et al., 2016).

The unmet mental health needs of university students represent a significant public health issue since students with untreated mental health issues are more likely to

face a lifetime of more potentially serious mental, social, and physical health issues (Galante et al., 2018). Providing education that would result in the elimination or reduction in stigma, an increase in help-seeking behavior, and the closing of the treatment gap is the main goal of mental health awareness. In Canada, almost 100% of youth have access to the internet and use at least one social media outlet regularly. Researchers Huggett, Flynn, Jaouich, Taylor-Gates, and Davidson (2017) demonstrated the efficiency of using innovative self- management online tool to empower youth to find and access the right support for mental health challenges. According to Gu, Strauss, Bond, and Cavanagh (2015), there is a need to develop more online mindfulness-based stress reduction and mindfulness-based cognitive therapy for university students. Hence, in this study, I sought to fill a gap in the literature by focusing on research that will seek to improve public mental health awareness and help-seeking behavior using online resources.

Purpose of the Study

The purpose of this quantitative study was to evaluate the benefits of implementing a public health mental awareness intervention for students enrolled in postsecondary education in Eastern Ontario, Canada. The goal was to measure the level of mental health awareness among university students and to determine whether web-based mental health educational intervention was an effective tool with which to increase mental health awareness and help-seeking behaviors. The study hypothesis was that a web-based mental health education program targeting large population groups would result in increased mental health awareness and help-seeking behaviors. This

quantitative study used a three-phase approach comprising demographic and interest surveys and pretest/posttest mental awareness surveys, followed by the completion of Mindsight, an online mental health e-learning module. Mindsight was designed to facilitate a better understanding of basic mental health disorders as well as to provide strategies to cope with mental illnesses. Each module in Mindsight provides an overview of the signs and symptoms of a specific mental health disorder, treatment options, and coping strategies[1] (Mindsight, 2010). The independent variable for this study is mental health awareness measured using knowledge, perception, and attitude scales. Nominal scales of measurement were used to categorize the independent variables. The dependent variables are (a) age, (b) gender, (c) ethnicity/race, (d) degree specialization, (e) number of years in the program, and (f) socioeconomic status (as measured by income). Nominal scales of measurement were also used to categorize the dependent variables.

There is a paucity of studies that address the treatment gap identified in the literature (Crowe et al., 2016). The existence of a large treatment gap may be attributed to the fact that many students feel that they are not able to access evidence-based treatments confidentially (Shidhaye et al., 2015). This study is unique because it addressed an underresearched area in higher education with a group of students who are enrolled in a four-year intensive undergraduate honors degree program.

Research Questions and Hypothesis

The research questions that this study will seek to answer are as follows:

[1] https://mymindsight.ontariotechu.ca/

1. Is there a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module?

   $H_0$1: There is no statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module.

   $H_1$1: There is a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module.

2. Is there a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

   $H_0$2: There is no statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

   $H_1$2: There is a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

3. Is there a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

   $H_0$3: There is no statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

$H_1$3: There is a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

The Theoretical Framework for the Study

The objectives of this study were to strengthen mental health awareness and increase help-seeking behavior so that university students can feel empowered to access appropriate mental health care services when needed. I examined several behavioral change models before selecting the ones that were most suitable for this study. These included the social-ecological model of health (SEM), the health belief model (HBM), the theory of planned behavior (TPB), the help-seeking model (HSM), and the technology acceptance model (TAM). A brief description of each model will follow which justifies the selection of the models that were deemed the most pertinent to underpin this study.

The SEM is founded on the belief that an individual's behavior is affected by the social and physical environment, as well as the institutional and cultural context in which the behavior is taking place (Stokols, 1992). Because this theory addresses the multidirectional complexities across the individual and societal levels, it could be used to plan mental health treatment that intervenes on more than one level (Glanz, Rimer, & Viswanath, 2008). The SEM could address the treatment gap by focusing on protective lifestyle factors such as diet and physical activity or addressing risk factors such as affordable housing and low income. The HBM model posits that individual health behavior is determined by personal evaluation of perceived susceptibility, perceived

severity, perceived benefits, perceived barriers, and cues to action and self-efficacy to disease (Skinner, Tiro, & Champion, 2015). This theory could be applied to the treatment gap in mental health because individuals who view themselves as vulnerable to develop seriousness of mental illness will be motivated to engage in help-seeking behavior for themselves or someone else (Glanz, Rimer, & Viswanath, 2008).

The TPB, widely viewed as an improvement to the HBM, is used to predict the intentions of individuals to change a specific behavior at a certain time or place (Ajzen, 1991). A central factor of the TPB theory is that the intentions to change behavior are preceded by subjective norms and the perceived ability to exercise self-control. The TPB proposed that increasing knowledge can improve a person's attitude towards help-seeking behavior especially when this is combined with changing subjective norms such as mental health stigma. Behavioral intentions, in turn, are influenced by the likelihood that the behavior will have the expected outcome of leading to the actual help-seeking behavioral change(Kauer, Buhagiar, & Sanci, 2017). Within the current literature, there is evidence to suggest that the constructs of the TPB have been used successfully to predict and explain a wide range of health behaviors and intentions including smoking, drinking, and substance abuse (Schomerus, Matschinger, & Angermeyer, 2009a). According to La Morte, the six constructs of the TPB are attitudes, behavioral intention, subjective norms, social norms, perceived power, and perceived behavioral control (La Morte, 2018). Although the TPB is widely utilized in public health it has some limitations because of its inability to consider environmental and economic influences and its assumption that decision-making is a linear process and persons have all the

opportunities and resources to succeed in accomplishing the desired change in behavior (Ajzen, 1991).

The HSM is different from the other three models discussed above because it is specifically related to the help-seeking behavior of young people between the ages of 14-24 years (Rickwood, Deane, Wilson, & Ciarrochi, 2005). According to Rickwood et al. (2005) the constructs of Help- Seeking Model involves 1) " becoming aware of and appraising the problem; (2) expressing the need for support; (3) knowledge of available and accessible sources of help; and (4) being willing to disclose personal information" (Rickwood et al, 2005). One of the strengths of the HSM is that there is a progression from personal interactions between the students and their trusted friends and families to interpersonal interactions with healthcare professionals. One of the challenges of the HSM is ensuring that the information and help that students receive from informal sources such as the internet are comparable to what they would receive from a formal source such as a mental health counselor.

The TAM is used in the field of Information Systems to explain how various aspects of new technologies are received and utilized by people. The model is built on two main factors (a) perceived usefulness which refers to how much the user believes that the technology will help to improve the performance/efficiency and (b) perceived ease of use, which refers to what extent the user is comfortable in using the features of the technology (Davis, Bagozzi, & Warshaw, 1989). In the field of public mental health, the TAM could potentially be used to evaluate the extent to which mental health

clinicians can use eLearning tools to enrich the communication and interactions between clients and care providers.

After careful examination of all five models, the TPB, the HSM, and the TAM were chosen as the guiding frameworks for this study. The decision to use the TPB over the SEM and HBM was based on previous research that found that two-thirds of the studies that used the TPB reported a significant change in behavior (Rickwood et al).

Nature of the Study

This study took a primarily quantitative quasi-experimental approach to data collection and analysis. A quasi-experimental approach was chosen because it allowed me to manipulate the dependent variable without having to randomly assign participants to a group. Additionally, quasi-experiment eliminates the directionality problem but it does not eliminate the problem of confounding variables in research (Creswell & Creswell, 2017). Another advantage of quasi-experiment is that it is ideal for evaluating the effectiveness of a treatment or intervention (Glanz et al., 2008). In this study, I applied a quasi-experimental approach using a pretest/posttest survey to evaluate the impact of an online educational module on the mental health awareness of university students. The independent variable was measured before and after the intervention. The dependent variables were age, gender, ethnicity, degree specialization, number of years in the program, and socioeconomic background. Nominal scales of measurement were also used to categorize both the dependent and independent variables. The online surveys comprised of standardized validated questions that were administered before and after completing the online module Mindsight (Ravitch & Carl, 2016). One

drawback when using pretest/posttest is that researchers have to exercise caution when interpreting results, For example, posttest scores that are better than the pretest scores do not automatically mean that the intervention was responsible for the improvement because other confounding variables could account for the change (Creswell & Creswell, 2017). One additional advantage of the study design was the inclusion of two open-ended questions. This provided the opportunity for participants to share their experience with barriers to mental health treatment and recommendations for improving web-based modules such as Mindsight.

Definition of Terms

The following terms were operationally defined for this study:

Mental health: A state of well-being in which individuals realize their own abilities, learn to cope with the normal stresses of life, work productively, and is able to make a contribution to their community (WHO, 2020).

Mental illness: Mental illness refers to mental disorders that have been clinically diagnosed and usually have significant changes in thinking, emotion, and/or behavior and distress and/or problems functioning in social, work, or family activities(Stewart, 2019).

Stigma: A form of discrimination that is based on objective attributes associated with a particular circumstance, quality, or person. Mental illness stigma often includes labeling or negative stereotyping that makes people with mental health issues feel judged and ashamed (Gaddis, Ramirez & Hernandez, 2018).

Cognitive behavioral therapy (CBT): is a common form of psychotherapy were the individual works with a mental health counselor to treats problems and boosts happiness by modifying dysfunctional emotions, behaviors, and thoughts. CBT is founded on the idea that thoughts and perceptions influence behavior (Psychology Today, n.d.).

Mental health awareness: Involves educating people on what mental illness is. It involves providing instructions on how to prevent it and to remove the stigma that surrounds mental disorders by sharing the experiences of people who live with this condition (CDC, 2018).

Online module: is learning to utilize electronic technologies to access educational curriculum outside of a traditional classroom. In many instances, it refers to a course, program, or degree delivered completely online (eLearningNC.gov, n.d.).

Assumptions

In this study, the students were asked to recall information and self-report. It was assumed that students were able to recall information and that the answers that they provided were accurate and honest.

Scope and Delimitations

The study addressed the level of mental health awareness among university students and whether web-based mental health educational intervention was an effective tool with which to increase mental health awareness and help-seeking behaviors. Only health science students enrolled in an undergraduate program at the university were examined. The students were recruited through email invitations to their personal

university student email address. In keeping with the confidentiality requirement, no private and protected information was included in the dataset. The sample population included all undergraduate students enrolled in four-year health science programs. The study only began after Institutional Review Board (IRB) approvals and students returning to campus in January 2020.

Limitations

The study was conducted on the campus of a public university in Eastern Canada. The study used a convenience sample; therefore, the results will not be generalizable to the entire university or any other postsecondary institution in Canada. The study was based on primary data collected from the individual responses of students. The normal tendency of students to be hesitant in sharing personal experiences even when informed about the confidentiality of their responses may influence the findings of the study. The fact that some students may know me could also influence the findings of the study. However, the responses provided an idea of the students' awareness of mental health issues, their willingness to engage in help-seeking behaviors, and their willingness to use web-based technologies. Another limitation was that the individual responses to survey questions were based on their understanding of what constitutes a mental disorder, and this may have skewed the answers to the survey questions.

Significance of the Study

According to the CAMH, nearly a quarter of Canadian youth are affected by a mental disorder. Next, to nonintentional injury, mental disorders are the second-highest

cost of healthcare expenditure for youth. It is estimated that 3.2 million youth struggle with depression and 4,000 die as a result of suicide each year (CAMH, 2020). The high prevalence of mental illness among university students necessitates greater promotion of public mental health with special emphasis placed on vulnerable groups of students who are enrolled in high-stress programs (Wege, Muth, Li, & Angerer, 2016). The results of this study added to the existing body of knowledge about students' perceptions of their mental health needs. The results of the study extend the empirical evidence that could be used by institutions of higher education to make online mental health services more accessible to all students. The rapid growth in the use of social media and other web-based technologies provides an opportunity to address the treatment gap identified in the literature by providing students with easier access to mental health education and mental health counselors. This could reduce or eliminate the stigmatization that is usually associated with mental illness and improve help-seeking behaviors.

The results of this study can create positive social change at multiple levels in the society. At the individual level, this study could promote mental health awareness by improving the resiliency and help-seeking behavior of students. This study may create positive change in families and the community by encouraging the development of healthy relationships. The findings of this study could be used to inform innovative strategies that promote technology-based interventions supporting mental health awareness and treatment for the entire population. This may reduce the burden of disease, and the money saved could be channeled into more lifestyle prevention programs or programs that influence the social determinant of health. From the clinical

perspective of public mental health, this study could potentially inform the development of interventions that prevent or reduce serious mental illness through early identification of risk factors and the promotion of resilience. There is strong evidence supporting the belief that there is a positive correlation between mental and physical health; therefore, better mental health could potentially improve the physical health of the entire population (Shidhaye et al., 2015).

Summary

The environment that university students face is challenging and can contribute to their declining mental health. Increasingly, more students are experiencing mental health disorders and in many instances, the demand for mental health services exceeds the available resources of universities(Auerbach et al., 2018). Despite public efforts to promote mental health and well-being among young people, there is a dearth of evidence to evaluate the success of these interventions. The purpose of this study was to add to the existing body of knowledge that can be used to better understand the factors that contribute to help-seeking behavior among youth. The results could be used to address the treatment gap and potentially improve mental health outcomes for students. A comprehensive review of the literature will be presented in Chapter 2. This will provide further rationale supporting the efficacy of conducting this research.

Chapter 2: Literature Review

Introduction

Canadian students pursuing postsecondary education have a high prevalence of mental illness (Findlay, 2017). According to the CAMH (2020), in any given year, one in five Canadians will experience a mental illness or substance abuse issue and one in two Canadians will have or have had a mental illness by age 40 years. When compared with any other age groups, young people between the ages of 15 and 24 years are more likely to experience mental illness, and the majority of them have their first onset during childhood or adolescence (CAMH, 2020). For example, a national college student survey conducted by the American College Health Association (2016) found that 37% of students reported experiencing anxiety, and 33% experienced symptoms of depression. Another 9% of college students reported attempting suicide at one point in their life (Robinson et al., 2016). The majority of postsecondary students affected by mental illness do not receive adequate care resulting in a treatment gap (Shidhaye et al., 2015).

Closing the treatment gap for young people has been identified as an area for research because untreated mental illness in youth can result in more serious mental and physical illnesses in adulthood (Crowe et al., 2016). The effects of mental illness are far-reaching and affect personal, family, and community life, making mental illness a growing public health concern (Waddell et al., 2005). The economic burden of mental illness in Canada, which includes health care costs, loss of productivity, and reduction in health-related quality of life, is are estimated at CAN$51 billion annually(CAMH, 2020).

In the current literature, several measures have been reported to be effective in increasing mental health awareness among children and youth. According to Das et al. (2016), introducing mental health education before postsecondary studies is most effective in reducing stigma and increasing help-seeking behavior. This has led to a renewed focus on exploring the benefits of school-based intervention programs. Moreover, the popularity of the internet has made it an ideal channel for mental health promotion. According to Statistic Canada, nearly 100% of Canadian youth have internet access and virtually all youth use social networking sites daily(Statcan, 2019). Therefore web-based learning modules may be an ideal way of delivering mental health content to online learners(Versaevel, 2015). This could catalyze positive social change because according to DeSalvo and Levi (2019), strengthening public health including modernizing and equipping the mental health workforce is urgently needed to reverse the disturbing trends in reduced life expectancy that have now been seen in the United States of America and other countries across the world (DeSalvo & Levi, 2019).

In this chapter, I provide a comprehensive review of the current literature detailing what is known about the prevalence of mental illness among Canadians, specifically focusing on postsecondary university students. To provide context for the study, I present an overview of the social issues such as stigmatization, discrimination, and negative stereotyping and expand on how these things can inform help-seeking behavior. This chapter also presents the advantages and disadvantages of employing web-based mental health education modules such as Mindsight to improve mental health awareness and highlight recommendations from previous studies to close the treatment

gap. I also discuss the TPB, the HSM, and the TAM, which I used as the theoretical frameworks on which to ground this research. Finally, the chapter will close by summarizing the positive social implications that could result from changing individual and public attitudes towards mental illnesses.

Literature Search Strategy

The purpose of the literature review is to provide an overview of the current literature on the mental health of university students, identify current trends and gaps, and offer a rationale for conducting this study. A comprehensive review of the grey and white literature was conducted using the following databases: Medline (EBSCO), PsycINFO, ERIC (EBSCO), and Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, Scopus as well as in a Thoreau multi-database. The following concepts and synonyms/related terms were used to conduct the initial search of the databases:

- Online training module: *web-based, online training, online module or online modules, online course or online courses, e-learning elearning, distance learning, distance education, online learning, online education*
- Mental health: *mental health, mental illness, mental hygiene, mental disorder or mental disorders, wellbeing or well-being*
- Awareness: *aware*, knowledge*, promotion*, prevention, health education, health behavior*

- Students: *university student or university students, college student or college students, undergraduate*, graduate*, postgraduate* or post-graduate*, post-secondary or post-secondary*

The initial search using the EBSCO database on March 18, 2019, produced 281 peer-reviewed articles. The inclusion criteria were applied to retrieve results in the English language and published in 2015 or after. The exclusion criteria were research articles in any other language except English because of the lack of bilingual skills and articles written before 2015 because of information may be outdated. Similar searches were conducted using other databases. Additionally, other publications that were referenced in some of these initial articles were also selected for review. The Mendeley software was employed to save articles that were reviewed in this literature search. To assist in answering the research questions for this study, Chapter 2 is organized based on the emerging themes from the synthesis of the literature as well as the gap identified in previous studies.

Theoretical Foundations

Definition of Mental Health and Mental Health Disorders

The WHO (2014) defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community." This positive dimension of mental health aligns perfectly with the WHO definition of health as " a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2014). Simply stated, there

cannot be good health without mental health, and good mental health is a major public health concern (DeSalvo & Levi, 2019). Good mental health takes into account how a person thinks, feels, and acts. It is important to state that all humans go through high and low periods in their mental health as they cope with the challenges of everyday life. This is considered normal and is not an indication of mental illness.

The terms *mental disorder* and *mental illness* are synonyms defined by WHO (2018) as "some combination of abnormal thoughts, emotions, behavior, and relationship with others" (WHO, 2018). Examples of mental disorders include schizophrenia, depression, intellectual disabilities, and disorders due to drug abuse (WHO, 2018). There is a tendency to use the terms *mental health* and *mental illness* interchangeably; however, the definitions suggest that there is an important difference between them. Mental health refers to a person's well-being and their ability to cope with the stresses of life and reach their goals, whereas mental illness refers to a diagnosable mental condition (CDC, 2018). Just like physical health, people move on a continuum in their mental health.

According to Botella et al. (2016), a person can move from one of the following points on the mental health continuum to another: (a) good mental health with no mental illness, (b) good mental health but also have a mental illness, (c) poor mental health and no mental illness, and (d) mental illness and poor mental health. Furthermore, a person's susceptibility to mental illness depends on the presence of risk factors, some of which may be outside of their control. Risk factors include but are not limited to traumatic life experiences during childhood or later in life, a family history of mental illness,

substance abuse, excessive gambling, and a prolonged period of isolation or feeling alone (Botella et al., 2016).

Diagnosis of mental disorders

Accurately diagnosing mental illness is a major public health concern because of (a) the complexity that it often entails and (b) the perceived stigma that may be associated with a diagnosed mental health disorder. Usually, the first step is a visit to a mental health counselor or a family doctor who will then refer the individual to a mental health professional such as a psychiatrist or a psychologist. The *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-V) is used as a recognized standard worldwide for diagnosing mental illness. The DSM-V replaced the DSM- IV and has several improved features including discarding the multiaxial system of diagnosis and adopting a common language for describing psychopathology, which increases reliability as clinicians can use the same words in the same way to describe persons with mental disorders (Brown & Barlow, 2005). This was an important step to correctly diagnose and treat patients with mental illness. Having access to the key resources of DSM-V is one way of increasing public confidence that effective mental health diagnoses and treatments are being administered.

Mental Illness in Canada

The CMHA (n.d.) reported that almost all Canadians are directly or indirectly affected by mental illness through personal experience, a family member, a friend, or a work colleague. Mental illness affects Canadians of all ages, races, ethnic backgrounds, education levels, income levels, and cultures (Orpana et al., 2016). Every year, one in

five persons in Canada will experience a mental illness, and more than 70% will not receive appropriate treatment for their illness (Kutcher, Wei, & Morgan, 2015). The CMHA estimates that as many as 8% of Canadians will experience major depression and 1% will experience bipolar disorder at some point in their life (CMHA,n.d.). Unlike most chronic physical illnesses, many Canadians are experiencing their first encounter with a mental illness earlier in life. By age 40, more than half the population would have already experienced their first mental illness. Approximately 5% of households reported having mild to severe impairment because of anxiety disorders and suicide continues to be one of the leading causes of death among the adolescence to the middle age group (CMHA, n.d.).

According to CMHA, suicide accounted for 24% of all deaths among youth ages 15-24 years, while among ages 25-44 years, the rate of suicide was 1ower at 16% (CMHA, n.d.). Although suicide rates are undisputable high, what is even more concerning is that suicide mortality rates among men is four times higher than that of women (CMHA, n.d.). For example, in the province of Quebec, Canada, researchers reported that there was a drastic rise in the suicide rate for adult men between 1990 and 2000 which lead to the implementation of masculinity-responsive strategies that received positive response followed by a continuous decline in rates since then (Roy, Tremblay, & Duplessis-Brochu, 2018).

Another example is the high prevalence of mental illness among First Nations, Inuit, and Metis living on and off reserves in Canada that have created a major public health emergency. Roy et al. (2018) found that there was a link between

intergenerational exposure to Indian Residential School (IRS) and the risk for suicidal ideation is at least two times higher for Indigenous youth than their non-Indigenous counterparts (Roy et al., 2018). However, unlike the scenario in Quebec, there is no measurable decline in the prevalence of mental illness among First Nations Peoples(McQuaid et al., 2017). Understanding these nuances makes it essential for public health departments to develop mental health promotion and interventions that are gender and culturally appropriate and address the root causes and risk factors for mental disorders among different sub-groups of the population.

The Public Perception of Canadians about Mental Illness

The attitudes of Canadians towards mental illness is a major concern especially because they hinder the progress of health promotion and prevention campaign in their goal of reducing and eventually eliminating all forms of discrimination and stigmatization. Despite steady progress in recent years, mental illness can still be likened to the final frontier of socially-acceptable discrimination that remains to be conquered. For example, according to CAMH, the 2008 mental health survey found that only 50% of Canadians would confide in a friend, family member, or coworker that they had a mental illness compared with 72% who would disclose a diagnosis of cancer (CAMH, 2020). Almost half of Canadians had doubts about socializing with a person with a mental illness or thought that people use the term mental illness as an excuse for bad behavior (CAMH, 2020). Despite the widely held belief that stigma associated with mental illness had decreased over the years, the 2015 mental health survey found that 64% of persons would be concerned about working with a colleague with a mental

illness. Besides, only 39% would disclose that they had a mental disorder to their manager and 40% of survey respondents reported that they had experienced feelings of anxiety or depression but did not seek medical help for it (CAMH, 2020). These statics reveal that there is a need for more public education to foster a better understanding of the role that stigmatization and discrimination play in the prevention of help-seeking behavior among the entire population.

Definition of Stigmatization

Stigma can be defined as a deeply discrediting trait that makes a person feel tainted or discounted (Goffman, 2009). The idea that stigmatization results in a personal feeling of soiled identity have also been endorsed by other researchers. It is believed that negative views towards a person or group of people with characteristics or behaviors that are viewed as different from or inferior to societal norms can lead to stigmatization (Kosyluk et al., 2016). A systematic review of the literature on the help-seeking behavior of young people with mental illness revealed that stigma was identified as one of the key barriers to obtaining appropriate medical care (Clement et al., 2015). Other barriers that were identified include confidentiality, lack of access, fear about seeking help, self-reliance, and lack of knowledge about mental health services (Clement et al., 2015). Stigmatization, prejudice, and discrimination are considered an important part of the larger network of beliefs that influence help-seeking behavior and therefore provides an excellent stance for a more detailed discussion.

Classification of Stigma

Many different constructs can be used for detailing the multiple pathways through which mental illness stigma develops. According to Jones et al. (1984), there are six dimensions which can either be present together or independently. These were identified as peril, origin, concealability, course, stability, and disruptiveness (Jones et al., 1984). Additionally, Corriigan et al. (2000) added controllability and pity as two new dimensions that provided a consistent base on which to build our understanding of stigma (Corriigan et al., 2000). The dimension of peril otherwise referred to as dangerousness, is important in the development of stigma and is frequently mentioned in the literature. Peril is a term used to describe the general feeling of the public that people with mental disorders are frightening, unpredictable, and strange (Ahmedani, 2011). In many instances, these fear are a result of social cues that based on external signs such as physical appearance, social skills, and psychiatric symptoms which allows a person to be easily and incorrectly labeled as dangerous.

There is evidence suggesting that contrary to popular beliefs, mental illness stigmatization because of peril has not decreased significantly over the last decade. For example, the CAMH reported that in 2015, half of all Canadians surveyed stated that they would not tell a friend, co-worker, or family member if they had a mental illness. Another 42% admitted that they would have problems socializing with a friend who has a mental illness and 55% said they probably would not marry someone with a mental illness. Moreover, 27% of those surveyed said they would be fearful of being around someone with a mental illness and 46% reported that they thought mental illness was

being used as an excuse for bad behavior by some people (CAMH, 2020). It is now apparent that there is a need for more public education to address the unfounded fears of peril that have resulted in mental illness stigmatization. It is inevitable that people form impressions of each other and generally speaking first impressions are usually hard to change. This makes it particularly difficult for people to alter their first negative impression about persons with mental illness to positive ones. This overgeneralization of the association between abnormal behavior and mental illness may result in labeling and avoidance of the person suspected of having mental disorders (Corrigan, Markowitz, Watson, Rowan & Kubiak, 2003). However, this can be overcome with proper education that presents scientific research demonstrating that some mental illnesses are caused by diseases of the brain (Corrigan et al., 2003). There is a plethora of research documenting the existence of mental health stigma and the processes by which it impacts the lives of individuals with mental health problems(Gronholm et al., 2017).

Pescosolido et al. (2010) conducted a study between 1996 and 2006 that examined the attitudes of the public towards persons diagnosed with schizophrenia. The study concluded that advances in public knowledge did not result in a significant decrease in the change in attitudes or public instances of stigmatization towards persons with schizophrenia. On the contrary, the majority of persons surveyed were reluctant to work with, marry, or socialize with a person diagnosed with schizophrenia (Pescosolido et al., 2010). In another study, Schomerus et al. (2016) examined whether mental illness stigma towards persons with schizophrenia or depression could be reduced by providing information on a continuum. The study reached a different conclusion, stating that

providing mental health information on a continuum was one way of improving the attitude of people towards mental illness (Schomerus et al., 2016).

The other two dimensions of the stigma that are often described together are origin and controllability. By way of explanation, most mental disorders are believed to originate from either biological or genetic factors and this affects the ability of the individual to exercise control over their diagnosis. In some cultures, it is believed that individuals have control over their mental illnesses and they are blamed if they are not able to get better on their own efforts (Corrigan et al., 2001). The hypothesis of controllability is used to explain why some mental disorders are more tolerable than others. For example, cocaine dependency and pedophiles are viewed by society as conditions that are more controllable compared to post-traumatic stress disorder (PTSD). As a result, society tends to be more sympathetic to persons with PTSD and they are more likely to receive pity and are often less stigmatized (Corrigan et al., 2000; Corrigan et al., 2001).

Another dimension of the stigma that is closely associated with controllability is concealability. Concealability refers to the extent to which a person shows visible signs of mental illness. This type of stigmatization is more easily demonstrated in attributes that can be easily identified such as race. For example, scholarly research has documented that indigenous youth in Canada experience greater stigma and negative serotype about their mental health based on their race (McQuaid et al., 2017). Within the literature, scholars have also identified that society shows greater stigma towards persons with more visible symptoms of mental disorders such as schizophrenia

compared to persons with anxiety or depression(Gronholm et al., 2017). This is another reason to advocate for early detection and treatment of mental illness before they become more chronic and serious.

The last three stigma dimensions that will be discussed are course, stability, and disruptiveness. The constructs of course and stability are used to address the likelihood that a person will recover and/or benefit from treatment, while disruptiveness assesses the impact of the behavior on society (Corrigan et al., 2001). The level of stability and disruptiveness are sometimes used to measure the probability that a person with mental illness will be able to successfully integrate into society. Generally, mental disorders that are less disruptive are usually perceived as more stable, and individuals are less likely to be stigmatized, however, there is some flexibility with each mental disorder (Ahmedani, 2011). Understanding the different dimensions of stigma is important because university students are often concerned about how a mental illness diagnosis will affect their ability to get employment and engage in healthy relationships.

Levels of Stigma

Within the current literature, scholars have identified that various levels of stigmatization exist. There are different ways that stigma can be categorized including experiential or action-oriented. Experiential stigma distinguishes between whether the stigma is perceived, endorsed, anticipated, or enacted while action-oriented stigma focuses on who gives or receives stigma. Action-oriented can be in the form of public, structural, courtesy, provider-based, and self-stigma (Gronholm et al., 2017). Another

simpler classification of stigma can be made using the three categories of social/public stigma, self-stigma, and professional stigma (Ahmedani, 2011).

Social/public stigma describes the phenomenon where the beliefs that are held by the larger portion of society is used as a basis to make individual or groups feel less equal or inferior. This can lead to inequity in access to treatment, services, and the creation of policies that disproportionately affect people. Within the current literature, researchers have suggested that the socio-economic model is used to justify social injustices and public stigmatization is allowed to develop. For example, labeling and stereotyping people with mental illnesses, who are usually in the lower socio-economic class, allows the society to treat them an unequal (Gronholm et al., 2017). This is an important concept because young adults have identified fear of public stigma as one barrier to help-seeking behavior(Kauer, 2017).

Another important construct is self-stigmatization which describes the process whereby a person with a mental disorder is aware of the public stigma that is associated with their diagnosis, believes and internalizes the publicly held stereotypes and prejudices, and then applies it by behaving as expected (Gronholm et al., 2017). Scholars have shown that self-stigma can negatively affect the self-esteem and self-efficacy of an individual, which results in altered behavioral patterns such as anger, isolation, or embarrassment (Cheng, Wang, McDermott, Kridel, & Rislin, 2018; Corrigan, 2011). Many students enter university at an age where their brains and self-identity are still being developed. They are therefore much more likely to internalized

things and engage the practice of self-stigma as the struggle to fit with their new environment (Crowe et al., 2016).

There is emerging research supporting the actuality of professional stigmatization. This concept is described as prejudice and discrimination towards a stigmatized individual or group by a mental health service provider such as a social worker or another healthcare professional. Several earlier studies have concluded that mental health professionals usually want to maintain the same distance from people with mental illnesses as the general public (Lauber, Nordt, Braunschweig & Rössler, 2006; Nordt, Rössler & Lauber, 2006; Volmer, Mäesalu & Bell, 2008). Moreover, research indicated that there is a higher prevalence of mental illness among mental health professionals than the general public and this could influence their professional practice behavior (Schernhammer, 2005). This is an important concept because students who experience stigma during their treatment may become disenfranchised and prematurely end their treatment (Gronholm et al., 2017). Cultural sensitivity and fear of stigma have been identified as important barriers to help-seeking behaviors among university students (Hartrey, Denieffe, & Wells, 2017). The WHO (2020) has identified that fear of stigma is one of the largest treatment barriers and suggests that health professionals have an ethical responsibility to ensure that professional stigmatization is not an additional barrier for those who are seeking mental health services.

Definition of Discrimination

Within the current literature, there is evidence of the adverse effects of discrimination on mental health. The CMHA defines discrimination as “unfair treatment

due to a person's identity, which includes race, ancestry, place of origin, color, ethnic origin, citizenship, creed, sex, sexual orientation, gender identity, gender expression, age, marital status, family status or disability, including mental disorder" (CMHA, n.d.). In Canada, the *Ontario Human Rights Code* guarantees every person has a right to equal treatment to services, goods, and facilities, without discrimination (Ontario Human Rights Commission, n.d.). Discrimination can be classified as overt when it is obviously displayed in society or covert when it is systematically in embedded laws and practices. Discrimination is different from stigma in that while stigma is a negative serotype, discrimination is the behavior that results from stigmatization (Berry & Hou, 2017).

Living with discrimination can have a negative effect on the mental health of an individual and this effect can be exacerbated if multiple intersecting layers are present. For example, a female First Nations student with mental illness may experience discrimination because of sexism as well as her diagnosis and her race. In studies focused on racial discrimination, scholars in the United Kingdom and the United States have found that there is a strong correlation between the rates of self-reported discrimination and poor mental health (Noonan, Velasco-Mondragon, & Wagner, 2016; Wallace, Nazroo, & Bécares, 2016). Some of the adverse effects include but are limited to low self-esteem, difficulty making friends, trouble finding a job, and problems getting health insurance to cover for medical care (Corrigan et al., 2004). In a longitudinal study conducted in the UK to examine the association between cumulative exposure to racial discrimination and changes in the mental health of ethnic minority people, the

researchers concluded that long-term exposure to racial discrimination had a negative effect on the health of ethnic minority people living in the UK (Wallace, et al., 2016).

In another study conducted in Canada, researchers examined the experiences of discrimination and wellbeing of over 3000 adults who were the second generation of immigrant parents. The study concluded that participants who had integrated into society had a higher level of wellbeing while those who remained separated in their own ethnic group experienced significantly higher levels of discrimination(Berry & Hou, 2017). Studies like these imply that separation and marginalization amplify the effects of discrimination while assimilation into society reduces it. This is an important concept to remember when planning mental health programs and interventions for university students in a multicultural environment where the goal is to achieve acculturation.

Conceptual/ Theoretical Frameworks

The literature review identified the existence of the treatment gap that is experienced by persons with mental illness who tries to access mental health services. A variety of treatment methods and different ways of delivering treatment were explored in the literature. To answer the research questions, special attention was given to the use of CBT using online learning modules. Although most researchers concluded that online learning as an effective way of providing mental health intervention, they also highlighted the need for future longitudinal research to fully explore the impact of different variables such as age, gender, and culture/ethnicity.

Five theoretical frameworks were originally examined as discussed in Chapter 1. However, only three were selected to guide the research process and provide the

underpinnings for use in explaining the results. These three theories are TPB, HSM, and TAM. The reasons for choosing each theory and examples of how it is applicable in answering the research questions will be discussed in greater detail below.

The Theory of Planned Behavior

The TPB was first proposed in 1985 by Icek Ajzen. It was developed to improve the predictive power of the theory of reasoned action (TRA) by including the element of perceived behavioral control as a construct (Ajzen, 1991). When applied to research, the TRA posits that individuals who have a positive attitude towards behaviors and believes that others want them to perform that behavior will be more likely to actually do so. Many research studies have reported a high correlation of attitude and subjective norms with the completion of the desired behavior (Bennett, 2014; Kauer, 2017; Sheppard, Hartwick, & Warshaw, 1988). However, other studies raised questions about the impact of circumstantial limitations, stating that other factors can lead to incompletion even if the behavioral intention and social norms were present(Sheppard et al., 1988). It was these concerns that lead to the creation of the TPB.

The TPB states that the behavior or behavioral intentions of individuals are shaped by their attitude, subjective norms, and “perceived behavioral control”. The TPB theory is a way of simply acknowledging that external factors, as well as objective realities, may help or hinder the person’s ability to adopt a particular health behavior. According to the TPB, people are more likely to engage in a behavior if the behavior is perceived as important or if the subjective norm seems to support the behavior (Ajzen, 1991). The presence of facilitating factors increase the likelihood that a person will

follow through with the desired behavior. For example, extending opening hours for mental health counseling to after 5 p.m. and on weekends would allow more students to make an appointment to see a counselor.

According to Ajzen (1991), the TPB has six constructs that can be used to predict and explain many health-related behaviors. These are (a) Attitudes which refer to the positive or negative views that a person holds when evaluating the behavior of interest and takes into consideration the outcomes of performing the behavior. (b) Behavioral intention refers to the motivational factors that influence a given behavior where the stronger the intention to perform the behavior, the more likely the behavior will be performed. (c) Subjective norms refer to the beliefs that persons hold about whether their behavior will be approved or disapproved by their peers or people of importance in their community (d) Social norms describes the customary codes of behavior in a group of people or a larger cultural context that is considered normal. (e) Perceived power refers to the perceived presence of factors that may help or hinder the performance of behaviors as well as the amount of power that a person has to change those factors (f) Perceived behavioral control refers to a personal perception of the ease or difficulty of performing the behavior of interest. Perceived behavioral control varies across situations and actions, which results in a person having varying perceptions of behavioral control depending on the situation (LaMorte, 2018; Montano & Kasprzyk, 2015).

One of the strengths of TPB is that it takes into account that the non-compliant behavior of some individuals could be attributed to non-volitional. Furthermore, the

TPB helps to explain why health promotion campaigns should include more than just providing information about a subject since increasing knowledge alone does not always lead to a change in behavior(Glanz et al., 2008). Successful mental health promotion campaign should result in a change in attitude and subjective norm and should also include facilitators to improve access to mental health care. The TPB suggests that the more favorable a desire and belief, the more likely that a person will make the change. The constructs of the TPB have been applied to the creation and implementation of numerous public mental health awareness campaigns and is suitable for this study.

There are several limitations of TPB including the assumption that behavior is a linear process and it does not address the period between intent and performing the actual behavior action. The TPB assumes that people have the opportunity and resources needed to successfully act on their intentions and it, therefore, does take into account environmental or economic factors as well as all the other variables such as fear, mood, threats or previous experiences that may influence a student's ability to carry out their intentions (LaMorte, 2018).

Application of the TPB to mental health. Within the current literature, there is scholarly evidence indicating that mental illness in college students is both increasing and becoming more chronic (Robinson et al., 2016). The majority of university students reported experiencing feelings of sadness, depression, and anxiety. More than 70% of individuals affected do not seek or receive appropriate help (Crowe et al., 2016). Research has identified that barriers to treatment occur at the patient, provider, and health system levels. Besides, the literature shows that gaps between diagnosis and help-

seeking behavior can be due to negative attitudes and false beliefs about mental health care. The problems associated with help-seeking behavior can be linked to the TPB because the attitude of students about mental help-seeking behavior, their subjective beliefs about what others think about their behavior, and the degree to which there are perceived barriers, all influence their intention to seek mental health services.

In the past decade, several international studies have examined various aspects of mental health or mental illnesses in young people using the principles of TPB. For example, in Germany, researchers Schomerus, Matschinger, and Angermeyer, (2009a) conducted telephone interviews with participants who were screened for depression. The researchers concluded that the willingness to seek help for mental illnesses, the attitudes and perceptions about seeking mental health services, the perception about the attitude of their peers about seeking mental health services can be explained using the concepts of the TPB. The authors suggested that changing the attitudes and beliefs of the population will likely affect the help-seeking behavior of persons who experience a mental disorder (Schomerus et al., 2009b). In another study involving Chinese residents of Hong Kong, the researchers found that the TPB was used to explain that positive attitudes toward care-seeking, supportive social norms, and strong perceived behavioral control all significantly impacted participants intentions to engage in help-seeking behavior for mental illness (Mo & Mak, 2009). A more recent study conducted in 2016 among university college students in the United States also concluded that consistent with the principles of the TPB, educating students about mental illness and treatment

enhances their knowledge and likelihood of accessing mental health services (Bohon et al., 2016).

The TPB has proven to be efficacious in mental health research that focuses on cognitive-behavioral changes. In light of the current recommendation for more longitudinal research into ways of increasing help-seeking behavior and reducing the treatment gap for university students, the principles of the TPB should continue to be used in public mental health interventions (Bohon et al., 2016). Knowledge about TPB concepts such as attitudes, subjective norms, and perceived behavioral can help university administrators and mental health specialists plan programs that are tailored to encourage students to access mental health services and thus reduce the treatment gaps.

The Help-Seeking Model

The HSM was conceptualized by researchers, Rickwood, Deane, Wilson, and Ciarrochi (2005) to provide a suitable framework to explore the individual and psychological factors that facilitate or inhibit the help-seeking process (Rickwood, Deane, Wilson, & Ciarrochi, 2005). Help-seeking is defined as the process of actively seeking out and utilizing either formal or informal social resources to help with solving intensely personal problems (Rickwood et al., 2005). According to Rickwood et al., (2005) the constructs of the Help- Seeking Model involves: (a) Becoming aware of and appraising the problem (b) Expressing the need for support (c) Knowledge of available and accessible sources of help (d) Being willing to disclose personal information. The process used to guide the HSM is depicted in Figure1.

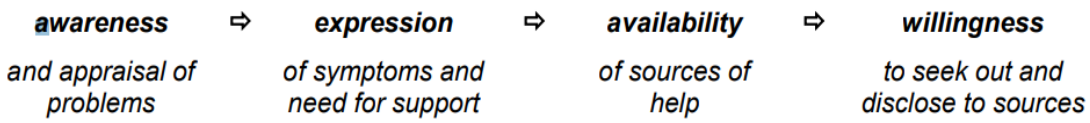

Figure 1. Help-seeking model adopted from Rickwood et al., 2005.

Application of the help-seeking model to mental health. The HSM is considered to be an improvement in previous mental health behavioral frameworks because it conceptualizes help-seeking as a social transaction and it can be specifically related to the help-seeking behavior of young people between the ages of 14-24 years (Rickwood et al, 2005). One of the strengths of the HSM is that there is a progression from personal interactions between the students and their trusted friends and family to interpersonal interactions with healthcare professionals. One of the challenges of the HSM is ensuring that the information and help that students receive from informal sources such as the internet are comparable to what they would receive from a formal source such as a mental health counselor. Another challenge is the need to relate self-seeking behavior to developmental processes that occur as a person ages. For example, during adolescence friends are more influential than parents and for young adults, intimate partners may be more influential than friends (Rickwood et al., 2019).

Within the current literature, there is evidence suggesting that factors such as past experiences, negative attitudes, and beliefs, and fear of stigmatization can act as barriers to help-seeking behaviors. On the other hand, there is also evidence suggesting that mental health interventions can alter these cognitions and provide useful skills that can enhance the health and well-being of university students. The HSM has been

successfully used by researchers to create positive behavioral change and its proponents are advocating for further research to validate their findings. This provides the rationale for its use in this study.

The Technology Acceptance Model

The TAM was formulated by Fred Davis and Richard Bagozzi as a modification of the theory of reasoned action (TRA) which was first posited by Fishbein and Ajzen (Davis et al., 1989). The TAM has been used in the field of Information Systems to explain how various aspects of new technologies are received and utilized by people. The model is built on two main factors (1) Perceived Usefulness (U) which refers to how much the user believes that the technology will help to improve the performance/efficiency and (2) Perceived Ease of Use (E) which refers to what extent the user is comfortable in using the features of the technology(Davis et al., 1989). When combined, these two features determine the attitude of the user towards using the technology. Moreover, the TAM also posits that the intention to use technology is influenced by the perceived usefulness, which in turn influences changes in behavioral attitudes and the actual computer acceptance of the technology (Legris, Ingham, & Collerette, 2003). The relationship that exists between different variables was diagrammatically represented in Figure 2.

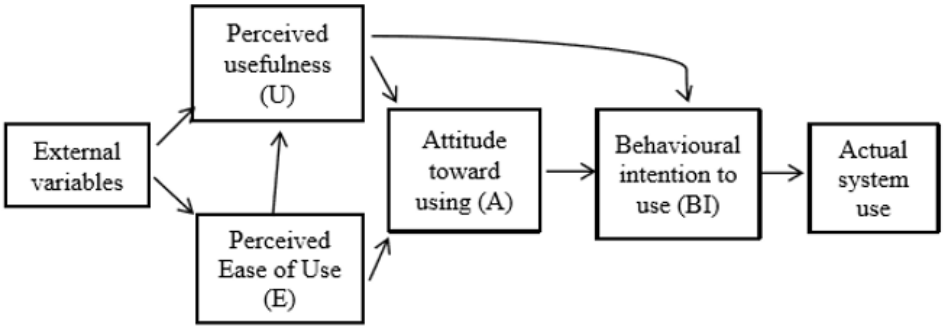

Figure 2. Technology Acceptance Model. Adopted from Legris et al.2003.

Application of the Technology Acceptance Model to mental health.

According to Hu, Chau, Liu Sheng, and Kar Yan (1999), one of the goals of the TAM is to provide an explanation of the factors that influences the behaviors of people that leads to computer acceptance and usage when applied across a broad range of computer technologies and populations. The TAM posits that user acceptance and usage of web-based resources can be predicted based on the four constructs of perceived usefulness, perceived ease of use, attitude toward using, and behavioral intention to use (Hu, Chau, Sheng, & Tam, 1999). In the past few decades, the growth of information and communication technologies have provided a way for researchers to examine how technology is integrated into the private and professional life of people. In a comprehensive review of the literature, scholars examined 85 scientific publications that used TAM. The authors concluded that TAM is an effective method for understanding the factors that predict human behavior towards either accepting or rejecting computer technology(Marangunić & Granić, 2015).

Mental illnesses are highly prevalent among university students(Harrer et al., 2019). One of the research questions that this study seeks to examine is the perception of

university study on the effectiveness of Mindsight as an online educational tool. The TAM will provide the conceptual underpinnings that will anchor the discussions around students' opinions of the use of this online resource in increasing their knowledge and understanding of mental health, the ease of use, and their willingness to recommend this resource to someone else. The growing use of technology by young people will continue to make this an area that requires more research. The university environment could be an optimal setting for the provision of evidence-based mental health care by using the Internet.

Description of Mindsight

The Mindsight online program was developed as an educational resource designed to reduce mental illness stigma by promoting mental health awareness. The program was intentionally designed to create a better understanding of the basic strategies for understanding mental health and share resources to can be used to support persons who may be experiencing a mental health challenge. The contents of the program highlight the signs and symptoms of the common mental illness, self-help strategies, and approaches that can be used for helping others such as friends, family members, or colleagues. The program also provides information on different treatment options that are available in the community[2] (Mindsight, 2010).

Mindsight is a user-friendly module that takes about 2 hours to complete in one sitting. However, users have the option of completing the entire module over an extended period. The module consists of ten sections that cover a specific topic.

[2] https://mymindsight.ontariotechu.ca/

Participants begin their education by clicking on any one of the following headings: depression, anxiety, self-harm, substance use, suicide, psychosis, eating disorders, bipolar disorders, stigma, and trauma. For each heading, the information is obtained by clicking on one of three options: (1) Discovery board (2) Did you Know (3) Support/resources. A variety of learning strategies including video clips, hyperlinks, static text, and quizzes is used to deliver the information. After completing each of the sections, the individual would have received an overview of mental condition, facts and statistics, signs and symptoms, strategies for coping, treatment options, and information on where to obtain additional information or emergency help. Participants who take the optional quizzes and receive a passing mark of 80% are eligible to receive the Mindsight certificate (Mindsight, 2010).

The growing treatment gap for mental illness is a major public health concern because untreated mild mental illness can lead to more serious chronic mental and physical illness later on in life. The literature has established that online mental health interventions have been largely successful. The use of Mindsight as a study guide to access the effectiveness of health promotion and to help with the development of future web-based interventions aligns well with the TPB, HSM, and TAM theoretical frameworks for this study. Mindsight was designed as a promotional tool that can be used to reduce stigma, provide basic self-help strategies, and offer support for individuals who have or know someone who has a mental illness. The incorporation of cultural sensitivity in Mindsight is demonstrated by the inclusion of examples and video clips featuring persons from different racial and cultural backgrounds. Mindsight seeks

to eliminate perceived barriers by including different learning styles and coping strategies and using real-life situations.

Literature Review Related to Key Variables and/or Concepts

Mental Health Education of University Students

The importance of mental health literacy is an evolving construct that arose from health literacy. The definition of mental health literacy has improved over the years to reflect the current concepts as an " understanding how to obtain and maintain positive mental health; understanding mental disorders and their treatments; decreasing stigma related to mental disorders; and, enhancing help-seeking efficacy" (Kutcher, et al., 2016). Within the current literature, there is robust empirical evidence suggesting that there is an interrelationship between mental health knowledge and the persistence of stigma in society (Kelly, Jorm & Wright, 2007; Kutcher & Wei, 2014). Previous studies have concluded that adopting a universal approach to mental health promotion and prevention is an effective way of promoting good mental health for the entire population. Moreover, the evidence suggests that long-term mental health interventions are more effective than short-term prevention programs (Wells, Barlow, & Stewart-Brown, 2003).

Mental health education can be delivered in postsecondary institutions using a variety of approaches. Some programs may target students who have already experienced their first episode of mental disorder. Other programs may choose to focus on students who are at higher risk of developing mental illness. These types of interventions are usually categorized as prevention programs. On the other hand,

promotional programs use the universal approach which aims to develop mental health awareness and improve the mental health of the entire student population (Wells et al., 2003). The popular school of thought is that promotional programs are designed to assess mental illness while prevention programs seek to access positive aspects of mental health such as assertiveness, self-esteem, and resiliency (Rith-Najarian, Boustani, & Chorpita, 2019).

There are some distinct advantages of using the universal approach to mental health education. The universal approach allows for the use of the class-based educational approach in the delivery of a specific curriculum to all students in a class. This approach requires the direct engagement of the university's faculty members. The second approach is changing the ethos of the university which inevitably involves the whole university including faculty, staff, and students (Wells et al., 2003). Mental health education for university students should contain information on how to develop assertiveness, self-confidence, and empathy. It should incorporate creating an environment where the emotional, creative, intellectual, and spiritual capacities of students can be completely developed. A variety of educational pedagogies such as teaching behavioral skills to students, parents, and teachers should be used to deliver mental health interventions. Additionally, different implementation techniques such as in-class, web-based, or community activities should be explored to provide education that will promote good mental health for everyone (Wells et al., 2003).

Within the current literature, scholars have suggested that mental health education should begin early in childhood as this would envisage the display of good

mental health as young adults. It is estimated that $140, 000 CAN could be saved over the lifetime by improving the mental health in childhood or adolescence (The Mental Health Strategy for Canada : A Youth Perspective, n.d.). This information provides a rationale for conducting research that examines the impact of education in improving mental health awareness of university students and knowing when and where to seek help for mental illnesses.

Beliefs and Attitudes of University Students about Mental Health

The attitudes and beliefs that students have about mental health usually originate from different sources such as family, friends, social networks, and their religious affiliations(Bonabi et al., 2016). The personal attitudes of students about mental health are shaped by the public attitude toward mental health (Vogel, Michaels, & Gruss, 2009). Studies have shown that there are discordant views between the beliefs and attitudes of the general public and those held by mental health professionals and many of the signs and symptoms of mental disorders are usually missed by the public(Wahlbeck, 2015). Historically, the majority of the public has viewed psychiatric treatments such as medication and hospitalization as harmful (Jorm et al., 1997). While some studies suggest that there have been overall improvements in mental health literacy, there is still room for improvement(Kutcher et al., 2016). This is especially important because mental health literacy can influence the attitudes and beliefs about mental illnesses, which in turn contributes to the creation of lay appraisals or lay diagnosis (Gibbons, Thorsteinsson, & Loi, 2015).

Lay diagnosis is usually made by the individual, a close friend or associate or family member, and the nature of the diagnosis frequently determines if, when, and how the individual will proceed with treatment for their mental disorder (Gibbons et al., 2015). Scholars have suggested that a large percentage of the undiagnosed and/or untreated mental illnesses can be attributed to lay diagnosis (Burgess et al., 2009; Ketchen Lipson, Gaddis, Heinze, Beck, & Eisenberg, 2015). This is an important concept to bear in mind when designing interventions that seek to address the treatment gap in a multicultural society like Canada where more than 20% of the population was born in another country. Over the past decade, newcomers to Canada represent more two-thirds of the population growth and it is projected that by 2031, immigrants or children born to immigrant parents will make up 78% of the population of Toronto (Zerger et al., 2014). Amid this diversity, there exists a variety of attitudes and beliefs about mental health and mental illness that are all worth exploring.

Within the current literature, studies are suggesting that gender difference exists regarding public attitudes and beliefs towards mental illness (Gibbons et al., 2015). Findings from earlier studies indicated that females were more likely to seek professional help and less likely to face societal rejection because of mental illness than males. Additionally, females were believed to have a higher risk of developing mood and anxiety disorders than males (Alonso, Angermeyer, & Lepine, 2004). Another study also found that females were more informed about mental illness than males and were more likely to be able to conceive when there are psychological problems(Holzinger, Floris, Schomerus, Carta, & Angermeyer, 2012). However, current research is

suggesting that the gender gap for mental health may be much narrower than previously thought.

In Canada, more young and middle-aged men are being treated for mental illness which has served to increase knowledge and awareness among this population. The Statscan Canadian Community Health Survey on Mental health and well-being found that 10% of men surveyed experienced symptoms of mental health disorders and substance dependencies, compared to 11% of women. Additionally, among Canadian males, the rate of suicide is four out of every five deaths representing the fact that young male university students are far more likely to have suicide ideation or commit suicide than females (Men and Mental Illness -CMHA National, n.d.). A similar pattern has been reported in the UK where studies showed that depression was rising in males and decreasing among females (Wang, Hunt, Nazareth, Freemantle, & Petersen, 2013). This represents a major shift in the traditional gender imbalance for depression over previous years.

In Australia, researchers who examined the gender differences and the public attitudes towards various aspects of mental illness found that females exhibited better mental literacy than males, while males were less knowledgeable about mental illness and perceived that they had greater control over mental illness (Gibbons et al., 2015). In light of the strong evidence highlighting the link between gender differences and the beliefs and attitudes on mental health, it is important to raise awareness about the vulnerability of men to mental illness. Scholars have identified the need for further research in this area since a better understanding of gender disparity may play a pivotal

role in guiding educational programs that are tailored to meet the specific mental health needs of each student.

Another contributing factor that the literature identified related to the attitudes and beliefs that students have about mental health based on racial/ethnic background. The current literature suggests that there is inequality in the access and utilization of mental health services based on race and ethnicity. For example, the majority of people who identified as minorities reportedly held negative or stigmatized beliefs about mental illnesses (Liu, Stevens, Wong, Yasui, & Chen, 2019; Wallace et al., 2016; Womack & Sloan, 2017). In a meta-analysis study conducted by Sun, Hoyt, Brockberg, Lam, & Tiwari (2016), the researchers used unidimensional acculturation, bidimensional acculturation, and bidimensional enculturation as predictors of help-seeking attitudes among racial and ethnic minorities. After examining 207 samples drawn from 111 different types of research, the authors concluded that among certain Asian cultures where ideologies such as emotional self-control, conformity to social norms, and socialism, participants reported a negative association with help-seeking attitudes (Sun et al., 2016).

In another study, Mall et al. (2018) conducted a nationwide statistical review of the health outcomes, including the mental health of African Americans, and found that although blacks usually have a similar or lower incidence of substance abuse or mental illness than their white counterparts, they have a much higher prevalence of serious mental illness, and suffer more legal problems because of substance abuse. Additionally, the authors suggested that for many blacks, the root of their mental disorders is

embedded in social structural factors such as poverty, racism, and discrimination (Mall et al., 2018).

In a cross-sectional study done in Ontario, Canada to assess the use of mental health services by recent immigrants from different regions of the world compared with native-born or long-term immigrant residents, researchers found that the use of services was lower for recent immigrants (Durbin, Moineddin, Lin, Steele, & Glazier, 2015). The study involved nearly a million participants from different geographical regions of the world such as Central and Eastern Europe, Middle East and North Africa, Eastern and Southern Africa, Latin America, the Caribbean, South Asia, West and Central Africa, and East Asia and the Pacific. One important finding of this study was that immigrants from North Africa and the Middle East had the highest use of psychiatric and of hospital mental health care, while lowest use was reported for persons from East Asian and Pacific region (Durbin et al., 2015).

Many reasons could be used to explain this difference in mental health service utilization including cultural practices and beliefs. For example, within the African communities, mental illness is sometimes stigmatized because it is seen as a result of demon possession or an act of God (So, Gilbert, & Romero, 2005), while in the Chinese and Korean communities a popular belief is that mental illness is a problem of North American societies and persons seeking help are usually regarded as “weak” (Chen, Kazanjian, & Wong, 2009). Within the East Asian and Pacific communities, the greatest fear is the stigmatization that usually accompanies a diagnosis of mental illness (Dunn & Dyck, 2000). Other factors such as language spoken, exposure to trauma such as war or

starvation, and lack of education about the availability of mental health services could also contribute to this disparity. The use of selective migration in Canada which involves prior screening before entry has been cited as another reason for low mental health utilization among new immigrants since only those who have passed the mental and physical health screening are granted entry into Canada (Durbin et al., 2015).

In the context of mental health awareness, illuminating the impact of global immigration can be critical in providing services that are culturally sensitive and relevant. The province of Ontario Canada is a major destination that welcomes immigrants from every continent. An estimated 27% of the population is foreign-born (Ontario Ministry of Finance, 2008). This demographic is likely reflected in the student population of the universities. In addition, most universities have international students that are present on their campuses. Understanding the individual mental health needs of students and the barriers to care that they experience can help university administrators determine which services should be targeted to meet the needs, beliefs, attitudes of each student instead of using a one-size-fits-all approach.

Gaps in Mental Health Education for University Students

Within the current literature, it is well documented that mental illnesses are among the most prevalent medical condition that results in disabilities for young people (Huang, Nigatu, Smail-Crevier, Zhang, & Wang, 2018). By the age of 25, most young adults will experience their first mental illness which if untreated can lead to chronic negative outcomes in the long-term (Huggett et al., 2017). Over the last few decades, mental health scholars have identified several gaps in mental health education, which if

appropriately addressed could result in a significant decrease in the prevalence of mental illness and the youth. These gaps categorized as, promotion, prevention, intervention, and care, research, and evaluation can be addressed using carefully planned strategic frameworks (Kutcher & McLuckie, 2011).

Low mental health literacy has been identified in the literature as a major knowledge gap in Canadian youth(Kutcher et al., 2016). The promotion of mental health should begin with providing better mental health education for children and youth. This will increase mental health literacy and decrease prejudice, stigma, and discrimination. The promotion of mental health should also include the social determinants of health and provide essential components so that all everyone has an equal opportunity for good health and well-being. Of such strategic mental health promotion to reduce the existing gaps should include developing and instituting mental health awareness campaigns for children, young people, parents, caregivers, educators, healthcare providers, and the general public that have been proven to be effective and that reflect and recognize the unique needs of each client. Another strategy would be the creation of valid sources of information that is easily accessible using traditional media, social media, and online communication modules(Kutcher & McLuckie, 2011).

The need for different types of cost-effective and efficient mental health prevention programs was well documented in the literature(McDaid et al., 2017). Prevention is viewed as a proactive approach to mental health because of its ability to mitigate risk factors and build resilience in young people. An emerging theme within the literature is that mental health prevention can conjure both a positive and negative

reaction among students. When viewed in the positive light, mental illness prevention is perceived as an investment in the future of Canadian children and youth. However, when viewed in the negative light, prevention is seen as an individual choice. To those diagnosed with a mental disorder, this contradicts their lived experiences of many youths feel that there was nothing that they could have done to prevent their mental illness(Kutcher & McLuckie, 2011). Because the prevention of mental illnesses should be the preferred approach, there is a need for more education that is focused on early identification and intervention of risk factors. This would include strategies such as the creation and delivery of mental health programs as part of prenatal education and implementing age-appropriate mental health programs that will empower and enable young people to have immediate access to safe counseling services twenty-four hours every day(Conley, Shapiro, Kirsch, & Durlak, 2017). Scholars have identified that schools and universities are key locations for the implementation of prevention programs (Werner-Seidler et al., 2017). In summary, given the current knowledge that many mental disorders can be prevented, there is an urgent need for increased funding to provide cost-effective and efficient mental health prevention programs.

The treatment gap has been identified as a major concern for mental illness because more than 70% of those diagnosed do not receive appropriate care (Shidhaye et al., 2015). Many young people have reported challenges in accessing mental health services that provide effective and respectful programs as barriers to their help-seeking behaviors (Cadigan, Lee, & Larimer, 2019). Also, the lack of information on transitioning services for youth moving to young adults has been identified as another

concern (Huggett et al., 2017). Strategies for improvement in this area include providing mental health services that are accessible outside of regular operational hours such as after school, weekends, and online. Another suggestion would be to create sufficient community-based rehabilitation services for youth with more serious mental illness such as alcohol and drug abuse and appropriately staffing these facilities(Kutcher & McLuckie, 2011).

The paucity of mental health research on the long-term effectiveness of web-based interventions was identified as a significant gap in the knowledge that is needed to drive evidence-based practice (Jensen & Foster, 2010). Research is vital in establishing proof that mental health prevention and intervention programs work. This is achieved through continuous program evaluations. One of the barriers that students have identified in accessing mental health treatment is that they do not want to be exposed to interventions that do not work or even worse could potentially be more harmful than helpful. Clinically controlled trials provide empirical evidence from programs that are efficacious and safe for clinical practice. One strategy to close this gap would be to provide more support for scholars who are researching this field. Another is to provide education to young people, parents, advocates, and the public on the purpose and benefits of conducting mental health research(Kutcher & McLuckie, 2011).

Intervention Methods for Mental Health Education

Effective interventions that target adolescents and youth aged 11-24 years are essential because of the prevailing burden and negative impact of mental illnesses on this sub-group of the population. According to Das et al. (2016), mental health

interventions are usually categorized as either school-based, community-based, individual/ family-based, or digital platform-based. These four categories have been used in a variety of mental illness intervention programs involving students from this age group but their effectiveness had not been fully studied. However, recent meta-analysis studies have illuminated the body of knowledge about this particular phenomenon. For example, in a systematic review of interventions for adolescent mental health, Das, et al. examined and placed 38 published literature into one of the four categories: school-based interventions (n = 12); community-based interventions (n = 6); digital platforms (n = 8); and individual-/family-based interventions (n = 12). The authors concluded that school-based interventions were effective in reducing symptoms of depression while community-based interventions had positive effects on behavioral changes, self-confidence, self-esteem, levels of knowledge, and physical activity. Studies that focused on individual/ family interventions reported no impact on eating disorders and body mass index, however, improvements were noted in self-esteem and depression scores. Evidence from this study suggested that digital interventions were effective in the prevention and treatment of anxiety and depression (Das et al., 2016).

In another similar meta-analysis study conducted to evaluate the efficacy of six different stress reduction interventions for undergraduate and graduate students, the researcher found that most interventions are effective in decreasing both stress and anxiety in students. However, due to the difference in effectiveness with each technique, the researchers suggest that interventions should be tailored to meet the individual needs of students (Yusufov, Nicoloro-SantaBarbara, Grey, Moyer, & Lobel, 2019). Other

studies have also documented that the school environment provides an ideal environment for the delivery of mental health (Phang, Mukhtar, Ibrahim, Keng, & Mohd. Sidik, 2015; Salam et al., 2016; Werner-Seidler et al., 2017).

Community-based intervention targeting adolescents and youth have been successful in improving mental health. For example, the results of a meta-analysis conducted by Das et al. demonstrated that students who participated in community-based creative activities such as singing, music, drama, and dance reported positive effects such as changes in their self-confidence, behavior, physical activity, and knowledge about mental health. The study also found that parents who took part in social skills training reported a significant reduction in depression symptoms in their children(Das, et al., 2016). These findings have been supported by other researchers who also concluded that although the research evidence is generally considered to be weak, community-based intervention is an effective health-promoting strategy that can be used to increase mental health awareness and positive behavioral changes in young people (Bungay & Vella-Burrows, 2013; Durlak & Wells, 1997). This provides an opportunity for universities to partner with public health departments to build better mental health awareness.

Within the current literature, numerous studies have focused on individual/family interventions. Das et al. (2016) found that these studies usually involve measuring CBT focusing on eating attitudes, physical activities and psychological therapy, and anti-depressant medication. The evidence suggests that a multisystem therapy approach is usually recommended for students who spend a considerable amount of their day in

different environments away from home (Das et al, 2016). The use of digital platforms for mental health intervention is the latest technology that is available to a mental health professional. Currently, there is a growing body of evidence supporting the claims that internet-based prevention and treatment programs are efficacious in treating mild mental illnesses such as depression and anxiety(Kutcher, et al., 2015) Studies from the United States (Rayan et al., 2017) Europe (Botella et al., 2016; Jacobi, 2019), Germany (Harrer et al., 2019), and the WHO (Auerbach et al., 2018) have all concurred that on the benefits of using the internet for mental health education.

The Impact of Internet-based learning technology on Mental Health

Students have indicated that they face many barriers in accessing mental health services on university campuses (Cadigan et al., 2019). Determining students' perception of how these barriers directly or indirectly affect their help-seeking behaviors would allow service providers to implement programs that are tailored to individual needs based on factors such as age, gender, race, and socioeconomic status. Mental health interventions that utilize the principles of self-help allows people to exercise greater autonomy over their own treatment and have been proven to be ideal for university students (Kählke et al., 2019). Traditionally, help-seeking interventions were commonly delivered through traditional mediums such as books, posters, and newspapers, telephone, radio, and television (van Straten, Cuijpers, & Smits, 2008). The invention and now ubiquitous availability of computers have expanded the ways and speed with which mental health information can be communicated. The use of

technology allows youth to be able to anonymously access information and receive support in a stigma-free environment (Richards et al., 2016).

In the past two decades, a large number of studies have reported on the effects of online prevention and treatment interventions for mental health and mental illness. For example, Carlbring et al. (2018) conducted a meta-analysis and systematic review of twenty articles to compare Internet-delivered cognitive behavior therapy (ICBT) to face-to-face cognitive behavior therapy (CBT). The researchers found that the two formats are equally effective in treating mental disorders such as depression, anxiety, and panic disorder (Carlbring, Andersson, Cuijpers, Riper, & Hedman-Lagerlöf, 2018). In another study, examining the effects of the internet and computer-based cognitive-behavioral treatment for youth diagnosed with anxiety and depression, Ebert et al. (2015), reported that computer-based cognitive behavior therapy (cCBT) was effective the in treating youth. However, the researchers identified that one limitation of the study was the lack of long-term follow-up assessments with the treatment versus the control group (Ebert et al., 2015). Several other researchers including Păsărelu, Andersson, Bergman Nordgren., and Dobrean, (2017) and Sander, Rausch, and Baumeister (2016) conducted systematic reviews and meta-analysis which lead them to also conclude that Internet-based interventions are an acceptable approach that can be used in combination with existing methods to prevent or treat mental disorders. However, in both studies, the authors concluded that more research is needed (Păsărelu et al., 2017; Sander et al. 2016).

In response to the calls for an online platform that provides integrated screening and a wide range of tailored interventions that can be implemented and evaluated, the

ICare network composing of seven European countries was launched. The program focused on how different online intervention models were used in the prevention and treatment of common mental health disorders such as depression, anxiety, alcohol- and adjustment disorders, eating disorders, and obesity (Jacobi, 2019). The creation of ICare provided a model that was easily disseminated, flexible, and easily translated for use in different countries. The long-term positive effect is that the implementation of this model can potentially result in lowering the social and economic burdens of mental health services while increasing access to care.

Social media learning and mental health. The inclination of youth towards technology provides an opportunity for using social media to improve mental health. Preliminary results have suggested that using social media interventions that are aimed at building skills is a cost-effective way of improving mental health (Das et al., 2016). According to StatsCan 2016 survey, across all provinces in Canada, nearly 100% of youth aged 15 to 24 years own their smartphone and access the internet daily to follow news and current affairs(Richards, Gellatly, & Statistics Canada., 2018). The 2017 survey by the media lab at the Ted Rogers School of Management, Ryerson University list the six most popular social media networks in Canada as (1) Facebook 84% (2) YouTube 59% (3) LinkedIn 46% (4) Twitter 42% and (5) Pinterest 38% (6) Instagram (Gruzd, Jacobson, Mai, & Dubois, 2017). When it comes to mental health promotion the use of social media by age also matters. The most popular sites for young people are Facebook, Twitter, Instagram, Snapchat, and Reddit (Gruzd et al., 2017). Therefore universities wanting to reach this population should be aiming to get their message out

using these sites.

While there are many advantages to using technology such as easy access to mental health information through many high-quality websites, the use of technology also brings new challenges. These include inaccurate information, anecdotal information that encourages risky behavior such as self-harm and cyberbullying. For example, in the past five years, 15% of youth ages 15 to 34 years reported that they experienced cyberbullying or cyberstalking which could potentially lead to suicidal ideation (Richards & Gellatly, 2018). Also, the posting of inappropriate videos on sites like YouTube may trigger vulnerable youth to commit similar acts.

Gaps in current literature on web-based studies. The use of web-based mental health for self-help is a relatively new phenomenon. Many of the pioneering work in this field involved the use of web-based Cognitive Behavioral Therapy (W-CBT) to research the psychological treatments of students(Bettis et al., 2017). W-CBT has been successfully used to treat many mental disorders including depression, anxiety, and eating disorders (Bamber & Kraenzle Schneider, 2016; Harrer et al., 2019; Stallman, Kavanagh, Arklay, & Bennett-Levy, 2016). Within the current literature, preliminary results suggest that individuals who use web-based self-help programs are more likely to continue doing so, are more likely to seek additional professional help(James & Rimes, 2018). However, despite the positive outlook, several gaps have been identified with self-help mental health services that require urgent attention.

The scarcity of large longitudinal studies that evaluate the effectiveness of online mental health promotional and treatment programs has been identified as a major gap in

the literature(Haidar, de Vries, Karavetian, & El-Rassi, 2018). Similarly, the paucity of research to determine the cost associated with the creation and maintenance of web-based databases and comparisons with the traditional face-to-face method is an area for more research (Frazier et al., 2015). It has been determined that more research is needed to evaluate whether students would prefer to have web-based mental health intervention as an alternative to traditional methods or complementary to traditional methods (Oh, Jorm, & Wright, 2009). The literature has also identified the need for more research that examines the impact of demographic factors such as age, gender, race and socioeconomic factors on the use of web-based interventions (Dumford & Miller, 2018; Holzinger et al., 2012).

Summary

For many students, the years spent in university mark a significant transition from adolescence to young adulthood. This should be a time of positive personal development but unfortunately, this also represents a peak time for the onset of many mental health disorders (Robinson et al., 2016). It is estimated that between 12-46% of university students are affected by mental health disorders (Cuijpers et al., 2019). What is even more concerning for public health is the fact that more than 70% of those affected do not receive appropriate medical care which can result in long-term negative health outcomes for both the individual and the society (Auerbach et al., 2019). The use of the TPB and HSM establishes a theoretical framework to assess the knowledge, attitudes of students about mental health and the use of TAM assesses their perceived value of and willingness to use web-based technologies as a source of mental health

information and treatment. Within the current literature, there is evidence of the potential benefits for the use of the internet to provide mental health education that will increase help-seeking behavior among university students (Harrer et al., 2019; Rayan et al., 2017; Schomerus et al., 2016). Given the rapid pace at which communication technologies are developing and the ubiquitous use of computers and smartphones, there is a need for synthesized information on the impact of online mental health interventions. In this chapter, I presented a concise view of the literature that was used to guide this study. This was used to develop and justify the study design, and study methodology in the next step in the research process. This will be presented in Chapter 3 and I will explain in greater detail how the study was conducted.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to evaluate the benefits of implementing a public health mental awareness intervention for students enrolled in postsecondary education in Eastern Ontario, Canada. The goal was to measure the level of mental health awareness among university students and to determine whether web-based mental health educational intervention was an effective tool with which to increase mental health awareness and help-seeking behaviors. The study hypothesis was that a web-based mental health education targeting large population groups would result in increased mental health awareness and help-seeking behaviors. This chapter includes a description of the design of the study including the rationale for selecting that particular design. The characteristics of the sample, the sample size, as well as the procedures for recruitment and data collection will also be discussed. This chapter will also provide information on the instrumentation and operationalization of variables, threats to validity, and ethical considerations that were applied in conducting this research.

Research Design and Rationale

A quantitative approach utilizing a quasi-experimental design was used to conduct this research. Quasi-experimental designs are ideal for situations where the researcher does not randomly assign subjects to either a control or treatment group but take advantage of groups that already exist (Glanz et al., 2008). Although the use of a control group is not a requirement, the researcher may choose to use a design where pre-

and posttesting is performed on a single study. This design is also known as “within-subjects” and allows for statistical analysis as long as there are no serious threats to validity(Creswell & Creswell, 2017). There are many other benefits to using a quasi-experimental design including that they are less time consuming, more easily replicated, and cost-effective (Glanz et al., 2008). Additionally, Creswell and Creswell (2017) noted that a quasi-experimental design is an effective means of determining causality where a well-designed pre-posttest method is used. On the other hand, one disadvantage of pre-post includes difficulty in discerning if positive changes observed in the posttest were due to the intervention or other factors. Another concern is posttest results may appear to be stronger because of participants who were less motivated dropped out of the study(Creswell & Creswell, 2017). In this study, primary data was collected using both pre and post surveys, so a quasi-experimental design is ideal. This was a cost-efficient way of collecting data because only standardized validated surveys were used and the cost associated with purchasing, administering, and scoring the results were much cheaper than developing and validating a personal survey.

The study hypothesis was that a web-based mental health education program targeting large population groups would result in increased mental health awareness and help-seeking behaviors. The study used a three-phase quantitative approach in data collection. The first phase comprised of a demographic/interest survey to obtain baseline data on students' mental awareness. This was followed by the completion of pretest/posttest surveys using an online mental health e-learning module (Mindsight). The last phase was the completion of an evaluation of Mindsight. The independent

variable was mental health awareness, which was measured using knowledge, perception, and attitude scores. Nominal scales of measurement were used to categorize the independent variables. The dependent variables are (a) age, (b) gender, (c) ethnicity/race, (d) number of years in the program, (e) name of program, and (f) effectiveness of mindsight. Nominal scales of measurement were also used to categorize the dependent variables. This research design allowed me to use the pre-test/ posttest surveys to collect data that was used to answer the three research questions:

1. Is there a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module?
2. Is there a statistically significant difference in the mental health perception of students after completing a web-based mental health educational module?
3. Is there a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

To determine whether there was a statistically significant change in the attitudes, perceptions, and knowledge, students first completed three surveys, followed by the online educational module Mindsight. The posttest was a repeat of the three completed before completing Mindsight. Mindsight was chosen because this e-learning module is designed to facilitate a better understanding of basic mental health disorders as well as to provide strategies to cope with mental illnesses. Each module in Mindsight provides an overview of the signs and symptoms of specific mental health disorders, treatment options, and coping strategies. Mindsight is easily accessible by the internet using a

computer or smartphones and can the completed in privacy on the participant's schedule (Mindsight, 2010).

Methodology

Description of the Target Population

The goal of this study was to evaluate the effectiveness of the online intervention in improving the mental health awareness of university students. The target population for this study was undergraduate students enrolled in one of the following specialized degree programs in the Faculty of Health Sciences:

- Bachelor of Health Science (Honours): Public Health specialization
- Bachelor of Health Science (Honours): Human Health Science specialization
- Kinesiology major
- Bachelor of Health Science (Honours) in Medical Laboratory Science
- Bachelor of Science (Honours) in Nursing
- Bachelor of Allied Health Sciences

According to the Canadian Society for Medical Laboratory Science (CSMLS), most Canadian universities have reported an increase in the number of students requesting academic accommodations that have lead to an average increase of 35% in their budgeted allocations to mental health services (CSMLS, 2020). Students enrolled in postsecondary education have to deal with many issues that can affect their mental health. For example, the transition to postsecondary education can be filled with challenges for students, especially when it involves moving away from home, family, and friends. This can often be compounded by internal and external expectations for

high academic achievement (Crowe et al., 2016). For example, medical laboratory technology and nursing students are being prepared to work in busy high stakes environments and may be prone to experience mental health disorders due to factors such as stress and burnout (CSMLS, 2020; Frögéli, Djordjevic, Rudman, Livheim, & Gustavsson, 2016). This research was unique because it sought to evaluate the perception of an under-researched group of health sciences students on the effectiveness of online education in increasing mental health awareness. The results of the study will provide much needed empirical evidence that can be used by the university to make online mental health education accessible to all students.

Sampling and Sampling Procedures

The nature of this study was a quantitative approach using a convenience sample of students who were currently enrolled in university courses. Convenience sampling is a nonprobability sample in which the study participants are selected because of their accessibility and proximity to the researcher (Creswell & Creswell, 2017). There are many benefits of conducting a quantitative study including the ability to collect a large amount of data from individuals over a short or long period in a cost-effective manner. Moreover, using a quantitative study, researchers can quantify, analyze, aggregate, and present results concisely using visual displays that show the relationship between the variables that were being assessed (Patten, Newhart, & Newhart, 2017). The instrument for data collection was an electronic survey using Survey Monkey (https://www.surveymonkey.com), which is an economical, convenient, easy to use software program that usually has a greater rate of response (Varela et al., 2017). The

study used a three-phase approach including a pretest/posttest sampling method. In the first phase, participants completed an interest/demographic survey. This was followed by the second phase which used three pretest/posttest surveys. These were the Knowledge Test (KT), Help Seeking Attitudes Scale (HSAS), and Attitudes to Mental Illness Questionnaire (AMIQ) surveys and were administered before and after completing Mindsight. This will be followed by Phase 3, which entailed the completion of the Mindsight evaluation survey. Mindsight could be completed in one sitting or multiple sittings. Participants will be encouraged to complete the module within 7 days.

The target sample population was health science students currently enrolled in a four-year undergraduate degree programs. All students were eligible to participate with the only exclusion criterion being any student who had previously completed Mindsight. Students received an invitation letter through their university student email account. The section following will provide more details about the recruiting process. One challenge for many quantitative researchers is determining the acceptable sample size for their study. Guidance on sample size was needed to ensure that the number of participants in the study was sufficient to achieve plausible results. The literature indicated that the sample size is determined by three factors: the alpha level, beta level, and the effect size (Creswell & Creswell, 2017). The statistical software called G*Power was used to calculate the sample size for this study (Universität Düsseldorf: G*Power. (n.d.).

Justification for the sample size, effect size, alpha level, and power level. A power analysis using G*Power 3.1.9.2 was used to help determine the sample size and the power level for the statistical analyses that would be appropriate for this research.

The test family selected was the *z* test, the statistical test was a logistic regression, and the power analysis was a priori: Compute the required sample size. For the sample size and power analyses, the effect size was set at 0.8 and the alpha level was set at 0.05 to limit Type 1 errors. This would also improve external validity by increasing the opportunity to correctly reject the null hypothesis (Creswell & Creswell, 2017). To reduce Type 2 errors, a power level of 80% was selected (Leon-Guerrero & Frankfort-Nachmias, 2017). The results of the power analysis indicated a minimum sample size of 68 was ideal for this research (Creswell & Creswell, 2017; Universität Düsseldorf: G*Power. (n.d.).

Procedures for Recruitment, Participation, and Data Collection

Recruitment and participation. The recruiting of the participant for the study took place during January 2020. The inclusion criteria were 18 years and older, the ability to read English, and access to the Internet. The exclusion criterion was anyone who had previously completed Mindsight. I obtained permission from the dean of the Faculty of Health Science to contact students using their email address (see Appendix G). Starting January 6, 2020, all students enrolled in the health science programs received an initial email invitation to participate in the study. The email provided a brief description of the study as well as attachments containing the consent form and links to each of the following surveys: Interest- demographic, AMIQ, HSAS, the KT, and Evaluation of Mindsight as well as a link to the Mindsight website. The consent form provided a link allowing participants to acknowledge that they read and understood the terms of the research and that by responding to this email by selecting the “I accept”

button, they had given consent to participate in this study and allow me to use their data for analysis of the study. It was noted within the email that by completing the surveys through the attached link of Survey Monkey, individuals were consenting to participate in the study. A second email was sent a week later reminding individuals about the surveys and thanking them if they had already completed them; this email also contained a link to all three of the surveys and the consent form. A final email reminder/thank you were sent at the beginning of the last week of January.

Data collection. For this study, five different surveys were used to collect data from participants: Interest survey, AMIQ, HSAS, KT, and the Evaluation of Mindsight survey. The surveys were deployed using an online survey tool called Survey Monkey from the website surveymonkey.com. Survey Monkey was chosen because of its efficiency and familiarity and ease with which researchers can upload and deploy surveys to participants through email. Based on the literature review, a simple Interest survey was adopted to describe the general background of participants. The survey collected information including gender, age, ethnicity, education, the program of study, number of years in the program, and relationship to mental health/illness. This survey took about five minutes to complete and was comprised of five questions in addition to the demographic questions.

Participants were then asked to complete the AMIQ survey. The AMIQ was chosen because it is a condensed version of Community Attitudes toward Mental Illness (CAMI), and it has been validated as a reliable tool to measure attitudes towards mental health/ illness (Taylor & Dear, 1981). The AMIQ survey consists of a short vignette

describing a fictional character with a mental illness. Participants were required to read the scenario and then responded to five statements (Luty, Fekadu, Umoh, & Gallagher, 2006). The responses to each statement were scored on a five-point Likert scale ranging from strongly agree to strongly disagree and very likely to quite likely with neutral and don't know scored as zero (Luty et al., 2006). The total score for the vignette scenario ranges from -10 to +10 with a positive score indicating a favorable or less stigmatizing attitude towards mental illness. The AMQI survey will take approximately ten minutes to complete online.

The HSAS was designed by Fischer and Farina (1995) as a 10-item scale to measure attitudes toward seeking psychological help. It is a modified one-dimensional version of Fischer and Turner's 29-item scale based on feedback from university students. The HSAS consists of 10 items measured on a 4-point Likert scale. The points on the scale for positive items were *agree* = 3, *partly agree* = 2, *partly disagree* = 1, *disagree* = 0. The scores were reversed for negative items. Participants were able to obtain scores ranging from 0 to 30 based on their responses to the questions. Lower scores indicated an unwillingness to seek professional psychological help, while higher scores indicated more willingness to do so (Fischer & Farina, 1995).

Within the current literature, scholars have identified that knowledge about mental health issues is generally low(Jithoo, 2018; Kutcher et al., 2015). One of the goals of this study is to increase mental health awareness among university students. The purpose of the Knowledge Test was to obtain a baseline assessment of students' general knowledge by asking them to answer questions about common mental illnesses. These

questions were taken from the self-assessment quizzes in the Mindsight module. The decision to only use 10 questions was based on the fact that students were being asked to complete multiple surveys and keeping them short would increase the likelihood that participants would complete all of them (Patten et al., 2017). The same KT was given in the post-Mindsight intervention and the results were statistically analyzed to determine if there were any changes in knowledge following the completion of Mindsight. The AMIQ, KT, and HSAS surveys will constitute the pre-test scores.

Participants who have completed the Interest/ demographic, AMIQ, KT, and HSAS were then directed to complete the Mindsight educational module using the web link provided. The Mindsight module can be classified as a public health intervention that was designed to increase mental health awareness among the population. The resource consists of nine sections that deliver information relating to a specific mental illness using a variety of learning strategies such as video clips, hyperlinks, static text, and quizzes. It took about two hours to complete the entire module in one sitting; however, participants were able to complete it in multiple sitting at the own time and pace. As an incentive, participants could complete the quizzes at the end of each module and apply for a Mindsight certificate after successfully completing all the modules. Participants were compensated in any other way.

Data collection for the posttest comprised of the same AMIQ, the KT, and HSAS and were administered after the completion of Mindsight. This data allowed me to answer the research question examining whether there were changes in the knowledge, views, and attitudes of students about mental health after completing Mindsight.

Completing the Evaluation of Mindsight survey was designed to provide an overall understanding of Mindsight's effectiveness as a web-based educational tool. The questions in the survey were developed to reflect the theoretical frameworks of TAM as well as to measure students' perceptions about the ease, usefulness, and applicability of an online mental health intervention resource. The project timeline for the collection of data for the study was one month. Figure 3 outlines the data collection timeline.

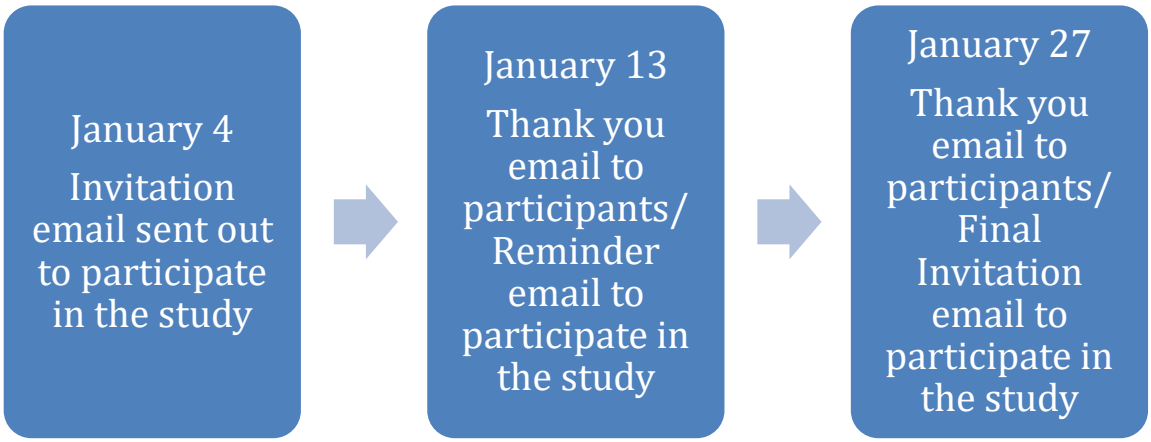

Figure 3. Data collection timeline for the study.

Instrumentation and Operationalization of Constructs

Several measures were employed to access if online intervention is an effective way of improving mental health awareness among university students. These included the Interest Survey, AMIQ (Luty et al., 2006), HSAS (Fischer & Farina, 1995), KT, and Evaluation of Mindsight. The Interest survey allowed me to collect a wide range of demographic information as well as preliminary information about the perceptions of students on mental health and their help-seeking behaviors. This was done in a cost-effective and timely manner (Bowling & Ebrahim, 2005; Creswell, Ivankov, & Piano-

Clark, 2012). The permission to use the HSAS survey is in Appendix C and Appendix D contains permission to use the AMIQ survey.

Different variables were used to operationalize the assessment of mental health, as it relates to university students. In this study, the independent variable was mental health awareness measured using the AMIQ, HSAS, and KT scores. Nominal scales of measurement were used to categorize the independent variables. The dependent variables were (1) age (2) gender (3) ethnicity/ race (4) degree specialization (5) number of years in the program (6) socioeconomic background. Nominal scales of measurement were also used to categorize the dependent variables. The AMIQ pre and post-test scores were used to answer Research Question 1 (RQ1) Is there a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module? This was administered as a 5-item-self-directed Likert scale with the lower scores indicated more negative attitudes towards mental illness. The HSAS pre and post-test scores were used to answer Research Question 2 (RQ2) Is there a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module? This was administered as a 10-item HSAS consisted of statements on a 4-point Likert scale and was administered as a self-directed scale. The KT pre- and posttest scores were used to answer Research Question 3 (RQ3) Is there a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module? This was administered as a 10-item KT scale and was administered as a self-directed scale. I used the paired *t* test and the value of $p < 0.05$ was used to determine statistical

significance. Additionally, the Mindsight online module was introduced as an intervention and its effectiveness was accessed using the Mindsight Evaluation survey. The inclusion of two open-ended questions at the end of the survey allowed me to collect additional responses. This allowed me to determine if Mindsight was an effective way of disseminating mental health knowledge.

Data Analysis Plan

The Statistical Package for Social Science (SPSS) version IBM was used to perform statistical analysis. SPSS was used to run both the descriptive and inferential analyses. The descriptive statistics included the calculation of percentages, means, and graphs to provide a general characterization of the primary dataset. The dependent or paired *t* test was used to test the difference in mean scores between pre and posttest surveys. The one-way analysis of variance test (ANOVA) was used to determine if there was a statistically significant difference in the population means (Frankfort-Nachmias & Leon-Guerrero, 2018).

Data cleaning is an important step when conducting scientific research because it allows the researcher to identify and remove incomplete or inaccurate data before performing statistical analysis. In this study, data cleaning was performed because primary data was collected. Data was exported from Survey Monkey into Microsoft Excel. All incomplete responses were removed before statistical analysis. This was necessary to produce high-quality data and improve overall productivity.

Research questions and hypotheses. The research questions that this study will seek to answer are:

1. Is there a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module?

   $H_0$1: There is no statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module.

   $H_1$1: There is a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module.

2. Is there a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

   $H_0$2: There is no statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

   $H_1$2: There is a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

3. Is there a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

   $H_0$3: There is no statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

$H_1$3: There is a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

Statistical tests. The data from this quantitative study was analyzed using SPSS descriptive and analytical statistical software. Descriptive questionnaires were used to collect information that defines the population, establish trends, and make associations between the different variables one at a time (Bowling & Ebrahim, 2005). A one-way analysis of variance (ANOVA) was used to test all three hypotheses and compare the frequencies between the various groups of health science students. Before conducting the analysis, all data were examined for outliers, skewness, and kurtosis, and any outliers were removed. The data were examined to ensure that the assumptions of all statistical tests such as homoscedasticity and normal distribution are met before analysis. Statistical test results will be considered significant when $p < 0.05$ (Bowling & Ebrahim, 2005).

Threats to Validity

In quantitative research, the term validity is used to describe the extent to which the research actually measures what it was intended to measure. This includes both internal and external validity. Internal validity refers to whether the findings or results of the research are caused by the phenomena under investigation or by other plausible rivals explanations that could not be eliminated (Onwuegbuzie, n.d.). As noted by Winter (2000), many factors pose a threat to internal validity such as the maturation, previous experiences, loss of data, the effects of the test itself, or regression to the mean

due to outliers. In this quasi-experimental study, many challenges also threaten internal validity, and the research was designed with certain measures to minimize or eliminated these threats.

For this study, I collected primary data, so there is the potential for errors in the collection and entry of data into the database. This risk was mitigated by double-checking that the data entry was accurately done. The voluntary nature of the study presents a potential sample bias as individuals with a vested interest in the topic may be more likely to participate in the study. This could also result in response bias as answers provided may be shewed to one side of the spectrum based on the perceived views of participants about the topic. Although existing research shows that youth tend to answer anonymous surveys honestly and truthfully (Ramo, Hall, & Prochaska, 2011), there is the possibility that self-reporting may have resulted in reporting bias. According to Ramo et al. (2011), when using self-reporting surveys, the response of individuals can vary greatly depending on other factors such as their lived experiences, gender, and age.

Another threat to internal validity is researcher bias where the researcher's prior knowledge of the participants could potentially influence their responses. This was mitigated by including in the confidentiality letter that participants' responses will remain anonymous to the researcher. Additionally, the fact that every student had an equal opportunity to participate and the choice to opt-out helped to strengthen the internal validity of the study.

External validity can be defined as the extent to which the results of a study can be generalized to and across populations, settings, and times(Creswell & Creswell,

2017). Threats to external validity can be classified as population validity, ecological validity, and external validity of operations (Onwuegbuzie, n.d.). In this study, population validity refers to the extent to which the finding from this study can be generalized to the rest of students in the university or the general population is a major concern. The small nonrandom sample size of the targeted population, as well as the possibility of lack of representative from different subpopulations, may prevent the researcher from over-generalizing the conclusions. It is possible for threats to internal and external validity to occur at the research design, data collection, data analysis, and data interpretation, stages of the research process. This study took all possible steps to increase the validity and acknowledge any limitations present that may affect validity.

Ethical Procedures

Before conducting this study, I obtained approval from the IRB of Walden University to comply with the university's ethical standards as well as US federal regulations, IRB File # 12-12-19-0665041. I also obtained approval from the Ontario Tech University Research Ethics Board (REB) requirements to meet the Canadian Tri-Council Policy, REB File # 15597. This included informed written consent forms to disclose the risks and benefits of the study. All participants were made aware of privacy and confidentiality and were required to sign an informed consent form before participating in the study. The names or any other personal identifications of the participants were collected. Participants' privacy was protected, and only I and my supervisors have to access the raw data, which is stored in the password-protected

computer and this will be kept for the required time set by each institution after which they will be destroyed.

This study was conducted at the university where I am currently employed and the faculty in which I teach. As the researcher, I strictly adhered to the terms and conditions of the IRB and REB outlined in the applications once approval was granted. I do not have any other conflict of interest to declare. Another ethical procedure that was adhered to obtain written permission to reuse validated surveys from the original creators. This was properly documented in the Appendix section of this paper.

Summary

The purpose of this chapter was to provide an overview of the research methodology that was used to design and conduct this study. The sampling method was a convenience non-random sample and participants were recruited from the Faculty of Health Sciences at the University. The study utilized a three-phase approach for quantitative data collection. The first phase comprised of demographic information and mental health awareness questions. The second phase comprised of pre and post AMIQ, HSAS and KT surveys, and an online mental health intervention-Mindsight. The last phase involved the evaluation of Mindsight as an online educational module. The data were analyzed using the latest version of SPSS (Version 25). Details were provided in this chapter about how the instrumentation and operationalization of the variables assisted in answering the research questions. The chapter ended with a focus on how ethical principles were achieved and maintained during and after conducting the research.

The next Chapter 4 will present details of the data collection, data analysis, and preliminary analysis. The data analysis presents the finding from each phase using statistical measures such as tables, graphs, and charts. This will provide the foundation for evidence-based assumptions that will be discussed in greater detail in Chapter 5.

Chapter 4: Results

Introduction

The purpose of this study was to evaluate the benefits of implementing a public mental health awareness intervention for students enrolled in postsecondary education. The goal was to measure the level of mental health awareness among university students and to determine whether a web-based mental health educational intervention was an effective tool with which to increase mental health awareness and help-seeking behaviors. The study hypothesis was that a web-based mental health education would result in increased mental health awareness and help-seeking behaviors. This study used a three-phase approach comprised of (a) interest/demographic questionnaires, (b) pretest/ posttest surveys, and (c) Mindsight educational module. In this study, the main research questions and hypotheses were tested using appropriate statistical methods. Additionally, sub-research questions and sub-hypotheses were tested. The primary formulated research questions and their respective hypotheses are the following:

1. Is there a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module?

   $H_0$1: There is no statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module.

   $H_1$1: There is a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module.

2. Is there a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

   $H_0$2: There is no statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

   $H_1$2: There is a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

3. Is there a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

   $H_0$3: There is no statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

   $H_1$3: There is a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

This chapter begins with a description of the data collection method including the descriptive and demographic characteristics of the sample population. This will be followed by an overview of the results and findings of various statistical analyses. The chapter will conclude with a summary of how the data was utilized in answering the research questions.

Data Collection

This quantitative study collected primary data using a convenience sample of students who were currently enrolled in the Faculty of Health Sciences at a public university in Eastern Ontario Canada. Data collection took place from January 6 to 31, 2020. Permission was obtained from the interim dean of the Faculty of Health Sciences to contact students using their university email address. Additionally, I sent all faculty members an email asking them to place an announcement about the study in their Blackboard courses (see Appendix I). Starting on January 6, 2020, all 1922 students enrolled in the health science programs received a personal invitation in their university email to participate in the study. The email provided a brief description of the study and an attachment to the consent form. The consent form contained links to the validated pre and post surveys and Mindsight. Of the 356 participants who responded to the study invitation, 355 gave consent to the survey and one participant declined. A total of 131 students completed the survey in the first week. A computer-generated thank-you letter was sent to those participants. A reminder email was sent on January 13 to all non-responders. An additional 66 students subsequently completed the survey, and a thank-you letter was sent to those who responded. A final reminder informing students that the study would be closing in one week was sent out on January 27. An additional 159 students then completed the study. The total study participants were 355, which was above the minimum sample size of 68 determined using G*Power 3.1.9.2 power of analysis. The response rate of the study was 19%, which is consistent with the general response rate of university students to surveys which can vary from 14% to 70%

(Fosnacht, Sarraf, Howe, & Peck, 2017; Porter & Umbach, n.d.) For reliability of analyses, I used IBM SPSS (Version 25) to perform screening of the dataset for any outliers before proceeding with statistical analysis.

Results

Test for Outliers

To determine whether there were univariate outliers in the dataset, a statistical test was conducted, and cases that exceeded the established value were deemed to be statistically insignificant and removed from the dataset. No outliers were detected in this dataset. I conducted data cleaning and 26 participants were removed because of missing or incomplete data.

Descriptive Statistic for Student Demographics

Data from the remaining 329 participants were analyzed in this first phase of the study. The descriptive demographic characteristics of the sample are reported in this section. The demographic characteristics of the sample consisted of gender, age, ethnicity/race, family income, degree specialization, and years of study. All of the participants met the inclusion criteria. The demographic characteristics are presented through frequency tables in Tables 1 to 6. Please see Appendix J for the full SPSS printout.

Table 1

Frequency Table for Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	285	86.6	86.6	86.6
Male	44	13.4	13.4	100.0
Total	329	100.0	100.0	

As observed, 13.4% (n = 44) of the participants were male, and 86.6% (n = 285) of the participants were female. The smaller representation of male participants is consistent with the enroll in the faculty of health science as well the fact that university male students are less likely to seek support for mental health issues compared with their female counterparts (Oh, Jorm, & Wright, 2009).

Table 2

Frequency Table for Age Range

Age range	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	248	75.4	75.4	75.4
26-35	62	18.8	18.8	94.2
36-45	17	5.2	5.2	99.4
over 45	2	.6	.6	100.0
Total	329	100.0	100.0	

The majority of participants in this study were in the 18-25 age range which is consistent with the age that most students attend university(Kwan, Arbour-Nicitopoulos, Duku, & Faulkner, 2016).

Table 3

Frequency Table for Socio-Economic Status Measured Through Income Level

Income	Frequency	Percent	Valid Percent	Cumulative Percent
$20,000 - $50,000	88	26.1	26.1	26.7
$51, 000 - $100,000	130	39.5	39.5	66.3
Less than $20, 000	39	11.9	11.9	78.1
More than $100,000	72	21.9	21.9	100.0
Total	329	100.0	100.0	

Most participants could be considered to belong to middle-income families with income between Can$51,000- $100, 00.

Table 4

Frequency Table for Ethnic/ Racial Group

Group	Frequency	Percent	Valid Percent	Cumulative Percent
African	11	3.3	3.3	3.3
Caribbean	25	7.6	7.6	10.9
Caucasian	178	54.1	54.1	65.0
East Asian	23	7.0	7.0	72.0
Latino/ Hispanic	2	.6	.6	72.6
Middle Eastern	15	4.6	4.6	77.2
South Asian	49	14.9	14.9	82.1
Other (please specify)	10	3.0	3.0	100.0
Total	329	100.0	100.0	

More than half of the participants (54%) identified as Caucasian. This is consistent with the demographics of the region and the presence of other ethnic groups reflects the diversity of the population (Durham Regional Municipality, 2017). The

participants who identified as “Other” specified their ethnicity as European, Filipino, Caribbean & Canadian, West Asian, Southeast Asian, Indian & Hispanic from the Caribbean and Black.

Table 5

Frequency Table for Academic Program Enrolled in

Program	Frequency	Percent	Valid Percent	Cumulative Percent
Bachelor of Allied Health Sciences	18	5.5	5.5	5.5
Bachelor of Health Science (Honours)	47	14.3	14.3	19.8
Bachelor of Health Science (Honours) in Medical Laboratory Science	39	11.9	11.9	31.6
Bachelor of Science (Honours) in Nursing	127	38.6	38.6	70.2
Human Health Science specialization	30	9.1	9.1	79.3
Kinesiology Major	53	16.1	16.1	95.4
Public Health specialization	15	4.6	4.6	100.0
Total	329	100.0	100.0	

As observed, 39 % of the participants were nursing students. Generally speaking, nurses are directly involved in patient care and take a more holistic approach to health. It is therefore not surprising that nursing students would have an interest in mental health issues (McDaid et al., 2017; Shefer et al., 2015).

Table 6

Frequency Table for Current Year in Program

Year	Frequency	Percent	Valid Percent	Cumulative Percent
1-year	73	22.2	22.2	22.2
2-year	62	18.8	18.8	41.0
3-year	111	33.7	33.7	74.8
4-year	72	21.9	21.9	96.7
More than 4 years	11	3.3	3.3	100.0
Total	329	100.0	100.0	

The data shows that overall there was an even distribution of participants from year one to year four. The smaller number (3.3%) of students with more than four years is reflective of the fact that most students complete their undergraduate degree in four years.

The Results of Participants Opinion about Mental Health Issues

Participants were asked four questions to gauge their interest in mental health. Tables 7 to 11 presents the frequencies for each question.

Table 7

Frequency Table for Mental Health Education as an Important Factor in Success at School

Success at School	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	85	25.8	25.8	25.8
Disagree	5	1.5	1.5	27.4
Neutral	15	4.6	4.6	31.9
Strongly agree	206	62.6	62.6	94.5
Strongly disagree	18	5.5	5.5	100.0
Total	329	100.0	100.0	

The majority of participants (88%) either agreed or strongly agreed that mental health education was important to their academic success at school. This finding is consistent with current literature. A study found that only one-in-ten students without mental illness symptoms were dissatisfied with their academic experience, compared to one-in-four students with symptoms (Lipson & Eisenberg, 2018).

Table 8

Frequency Table for the Method of Mental Health Education Most Likely to be used

Method	Frequency	Percent	Valid Percent	Cumulative Percent
Accessing information from a family doctor	24	7.3	7.3	7.3
Going to a professional therapist(face-to-face)	167	50.8	50.8	58.1
Other (please specify)	7	2.1	2.1	60.2
Reading material from a book	23	7.0	7.0	67.2
Web-based educational program	108	32.8	32.8	100.0
Total	329	100.0	100.0	

The majority of participants (51%) would prefer to access mental health education through face-to-face communication with a therapist. This was a surprising finding given that the literature points to the preference of young people to use web-based material and their trust in technology for health information (Cornish et al., 2017; Nguyen-Feng, Greer, & Frazier, 2017; Spijkerman, Pots, & Bohlmeijer, 2016). This finding could support the need for mental health counselors on university campuses.

Table 9

Frequency Table for Other Methods of Mental Health Education Most Likely to be used

Method	Frequency	Percent	Valid Percent	Cumulative Percent
	322	97.9	97.9	97.9
All	1	.3	.3	98.2
combination of methods: web-based program and accessing information via a family doctor	1	.3	.3	98.5
Idk	1	.3	.3	98.8
Mixed	1	.3	.3	99.1
Reading resources (book or web) in combination with free access to therapy online (I.e. email or chat based)	1	.3	.3	99.4
Seminar	1	.3	.3	99.7
yoga, exercise	1	.3	.3	100.0
Total	329	100.0	100.0	

A small number of participants indicated that they would prefer a combination of methods or additional methods such as yoga and exercise classes. This kind of information should be taken into account when developing mental health programs because the one-size-fits-all approach may not effective in reaching the entire student population.

Table 10

Frequency Table for Experienced, or Thought you Might be Experiencing Mental Health Issues at any Point in Your Life

Mental Health Issues	Frequency	Percent	Valid Percent	Cumulative Percent
No, I never had this concern	34	10.3	10.3	10.9
Yes, I had these concerns but no longer do	95	28.9	28.9	39.8
Yes, I still continue to have these concerns	198	60.2	60.2	100.0
Total	329	100.0	100.0	

As observed, 90% of the participants either had a concern about experiencing mental health issues in the past or continue to have a concern currently. This finding is consistent with the current literature indicating that 20 % of university students struggle with mental health disorders (Auerbach et al., 2016).

Table 11

Frequency Table for Accessed Mental Health Educational Services at any Point in Your Life

Services	Frequency	Percent	Valid Percent	Cumulative Percent
No	152	45.9	45.9	46.2
Yes	177	53.8	53.8	100.0
Total	329	100.0	100.0	

Compared with the 90% of participants indicating concerns about their mental health, only 54% of respondents indicated that they had accessed mental health education at some point in their life. This finding is consistent with the previous studies by Tjia, Givens, and Shea (2005) suggesting that even when they think that they have mental health issues, students are still not accessing mental health services. This gap in numbers suggests that there is a need for more mental health awareness programs on university campuses.

The Results of Pretest/ Posttest Surveys

This section will present the statistical analysis of the dependent and independent variables of the study. The independent variables were attitude, perceptions, and knowledge about mental health/ mental illness. The dependent variables were gender, age, ethnicity/race, family income, degree specialization, years of study. The independent variable of attitude was measured using the pre and post scores for the AMIQ survey. The independent variable of perceptions was measured using the HSAS while knowledge was measured using the KT scores. In this second phase of the study, data from 51 participants who completed all the questions in the pre and post surveys were analyzed. After determining that there was no outlier, statistical analyses were performed using SPSS.

Results of the AMIQ Test for mental health attitude. The AMIQ used a 5-item self-administered Likert scale (from -2 to +2, indicating *strongly agree* to *strongly disagree*; the range for the total score was -10 to +10). In the normative sample, the mean AMIQ score was -1.86 (Luty et al., 2006). To obtain the data to be used for

statistical analyses, the mean of the responses from the pre and post AMIQ scores was taken. Higher scores for the dependent variables are indicative of more positive mental health attitudes. Appendix J contains the detailed results from the SPSS analysis. A dependent/ paired-samples *t* test was conducted to compare the attitude towards mental health before and after an online teaching module. The result of the *t* test is presented separately in Table 12 to 14.

Table 12

Paired Samples Statistics for AMIQ

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Amiq- pre score	-4.35	51	2.162	.303
	Amiq post score	-4.04	51	3.752	.525

Table 13

Paired Samples Correlations for AMIQ

		N	Correlation	Sig.
Pair 1	Amiq- pre score & Amiq post score	51	-.061	.671

Table 14

Paired Samples Test for AMIQ

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Amiq- pre score - Amiq post score	-.314	4.443	.622	-1.563	.936	-.504	50	.616

The correlation between the two scores was estimated at r = -0.061, p = 0.671, suggesting that participants who score low in the pretest also score low at the posttest. The scores for pretest AMIQ was M = -4.35, SD = 2.16, and the posttest AMIQ was M = -4.04, SD = 3.75; t (50) = -0.504, p = 0.616. This indicated that participants in both the pre and post sample had a more positive view of mental illness when compared to the normative sample value of -1.86. The p value is 0.616, therefore, the null hypothesis should be accepted. There is no statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module.

Results of the HSAS Test for mental health perception. The HSAS used a 4-point Likert scale (*agree* = 0, *partly agree* = 1, *partly disagree* = 2, *disagree* = 3). The scores were reversed for positive items. The range for the total score of the scale was 0 to 30. In the normative sample, scores on the HSAS had a mean score of 17.45 (Fischer & Farina, 1995). A dependent/ paired-samples *t* test was conducted to compare the perceptions about mental health before and after an online teaching module. The result of the t-test is presented in Table 15 to 17.

Table 15

Paired Samples Statistics for HSAS

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	HSAS pre-score	20.96	51	5.586	.782
	HSAS post-score	22.88	51	4.811	.674

Table 16

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	HSAS pre-score & HSAS post-score	51	.714	.000

Table 17

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	HSAS pre-score - HSAS post-score	-1.922	3.994	.559	-3.045	-.798	-3.436	50	.001

The correlation between the two scores was estimated at $r = 0.714$, $p = 0.000$ suggesting that the paired sample t-test was appropriate for this analysis. There was a statistically significant difference in the scores for pretest HSAS, $M = 20.96$, $SD = 5.586$ and posttest HSAS, $M = 22.88$, $SD = 4.811$; $t\ (50) = -3.436$, $p = 0.001$. Both scores were higher than the normative sample mean. The p value is 0.001 therefore, the null hypothesis should be rejected. There is a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module.

Results of the Knowledge Test for mental health knowledge. The KT comprised of the same 10 questions in the pretest and posttest surveys. There was no normative data for the KT. Appendix J contains the detailed results from the SPSS

analysis. A dependent/ paired-samples *t* test was conducted to compare the knowledge of mental health before and after an online educational module. The result of the KT *t* test is presented in Table 18 to 20.

Table 18

Paired Samples Statistics for KT

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	KT pre-score	6.33	51	1.143	.160
	KT post-score	6.96	51	2.323	.325

Table 19

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	KT pre-score & KT post-score	51	.141	.325

Table 20

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	KT pre-score - KT post-score	-.627	2.441	.342	-1.314	.059	-1.836	50	.072

The correlation between the two scores was estimated at r = 0 .141, $p = 0.325$ suggesting that the paired sample t-test was appropriate for this analysis. The scores for pretest KT was, M=6.33, SD=1.143 and posttest KT was M=6.96, SD=2.323; t (50) =-

1.836, p = 0.072. Therefore, the null hypothesis should be accepted. There is no statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module.

Inferential Analyses

The one-way analysis of variance test (ANOVA) is a parametric test that compares the means of two or more independent groups to determine if there is a statistically significant difference in the population means. For the test to be valid, the data set must meet certain requirements. These include having a dependent variable that is continuous and independent variable that is categorical. There should be a normal distribution of sample that was randomly collected and there should homogeneity of variances and no outliers. All of these requirements were met in this dataset. The results of ANOVA for both pre and post surveys are presented in Table 21 to Table 32.

One-way ANOVA for Pre-Survey

Table 21

Descriptives

					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
AMIQ	51	-4.35	2.162	.303	-4.96	-3.74	-8	1
HSAS	51	20.96	5.586	.782	19.39	22.53	8	30
KT	51	6.33	1.143	.160	6.01	6.65	4	9
Total	153	7.65	10.982	.888	5.89	9.40	-8	30

Table 22

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
mental health	Based on Mean	40.907	2	150	.000
	Based on Median	39.393	2	150	.000
	Based on Median and with adjusted df	39.393	2	74.813	.000
	Based on trimmed mean	42.006	2	150	.000

Table 23

ANOVA

mental health

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16472.039	2	8236.020	664.587	.000
Within Groups	1858.902	150	12.393		
Total	18330.941	152			

Table 24

Robust Tests of Equality of Means

mental health

	Statistic[a]	df1	df2	Sig.
Welch	708.976	2	82.386	.000
Brown-Forsythe	664.587	2	69.326	.000

a. Asymptotically F distributed.

Table 25

Multiple Comparisons

Dependent Variable: mental health

Tukey HSD

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
AMIQ	HSAS	-25.314*	.697	.000	-26.96	-23.66
	KT	-10.686*	.697	.000	-12.34	-9.04
HSAS	AMIQ	25.314*	.697	.000	23.66	26.96
	KT	14.627*	.697	.000	12.98	16.28
KT	AMIQ	10.686*	.697	.000	9.04	12.34
	HSAS	-14.627*	.697	.000	-16.28	-12.98

*. The mean difference is significant at the 0.05 level.

Table 26

Tukey HSD[a]

Groups	N	Subset for alpha = 0.05		
		1	2	3
AMIQ	51	-4.35		
KT	51		6.33	
HSAS	51			20.96
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 51.000.

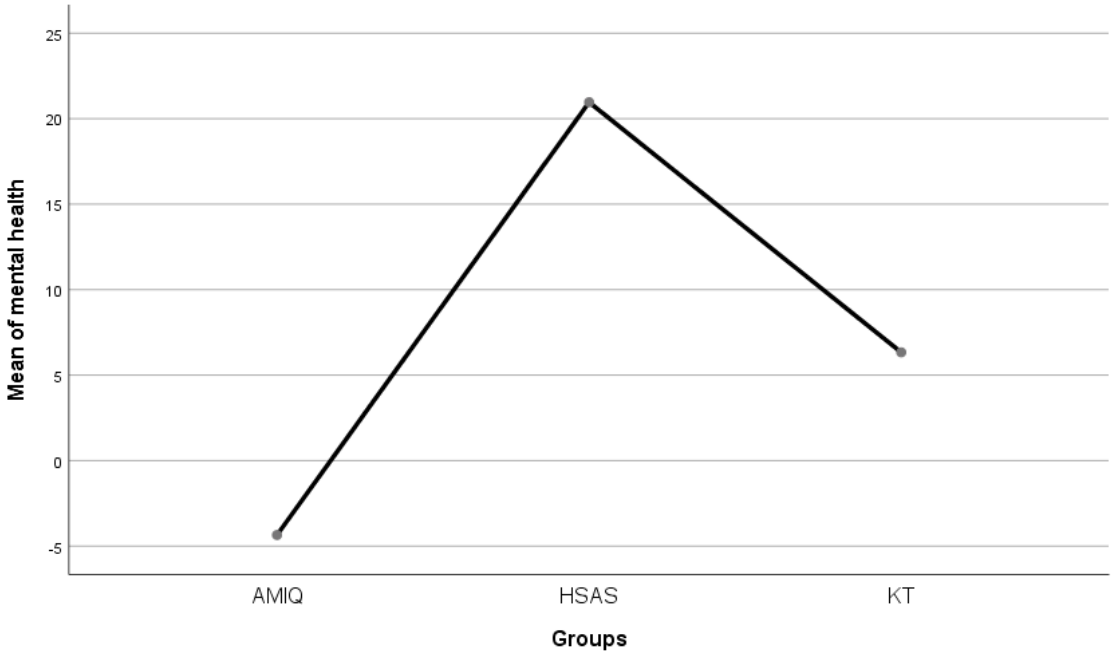

Figure 4: *Mean Plots of Mental Health-pre survey*

A one-way between-subjects ANOVA was conducted to evaluate the null hypothesis that there is no difference in mental health awareness before the completion of an online educational module (Mindsight). The independent variable, mental health awareness included three groups; AMIQ (M= -4.35, SD=2.16), HSAS (M=20.96, SD=5.59), KT (M=6.33, SD=1.14). The assumption of normality was evaluated using histograms and was found to be tenable for all groups. The assumption of homogeneity of variance was tested and found to be tenable using Levene's Test F (2,150, 665.56, p=0.000). The ANOVA was significant, F (2,150) =664.587, *p*=0.000. Post hoc comparisons using the Tukey HSD test indicated that the mean score for the AMIQ (M = -4.35, SD = 2.16), HSAS (M = 20.96, SD = 5.59) and KT (M=6.33, SD= 1.14) was statistically significantly different at all three levels at *p*=0.000, therefore the null

hypothesis should be rejected. There is a statistically significant difference in the population mean scores before the completion of an educational module.

One-way ANOVA for Post-Survey

Table 27

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
AMIQ-POST	51	-4.04	3.752	.525	-5.09	-2.98	-10	4
HSAS-POST	51	22.88	4.811	.674	21.53	24.24	7	30
KT-POST	51	6.76	1.716	.240	6.28	7.25	3	10
Total	153	8.54	11.678	.944	6.67	10.40	-10	30

Table 28

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Mental health -post	Based on Mean	14.619	2	150	.000
	Based on Median	14.263	2	150	.000
	Based on Median and with adjusted df	14.263	2	101.453	.000
	Based on trimmed mean	14.504	2	150	.000

Table 29

ANOVA

Mental health -post

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18721.660	2	9360.830	699.129	.000
Within Groups	2008.392	150	13.389		
Total	20730.052	152			

Table 30

Robust Tests of Equality of Means

Mental health -post

	Statistic[a]	df1	df2	Sig.
Welch	493.406	2	83.669	.000
Brown-Forsythe	699.129	2	108.636	.000

a. Asymptotically F distributed.

Table 31

Multiple Comparisons

Dependent Variable: Mental health -post

Tukey HSD

		Mean Difference			95% Confidence Interval	
(I) Groups	(J) Groups	(I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
AMIQ-POST	HSAS-POST	-26.922*	.725	.000	-28.64	-25.21
	KT-POST	-10.804*	.725	.000	-12.52	-9.09
HSAS-POST	AMIQ-POST	26.922*	.725	.000	25.21	28.64
	KT-POST	16.118*	.725	.000	14.40	17.83
KT-POST	AMIQ-POST	10.804*	.725	.000	9.09	12.52
	HSAS-POST	-16.118*	.725	.000	-17.83	-14.40

*. The mean difference is significant at the 0.05 level.

Table 32

Tukey HSD[a]

		Subset for alpha = 0.05		
Groups	N	1	2	3
AMIQ-POST	51	-4.04		
KT-POST	51		6.76	
HSAS-POST	51			22.88
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 51.000.

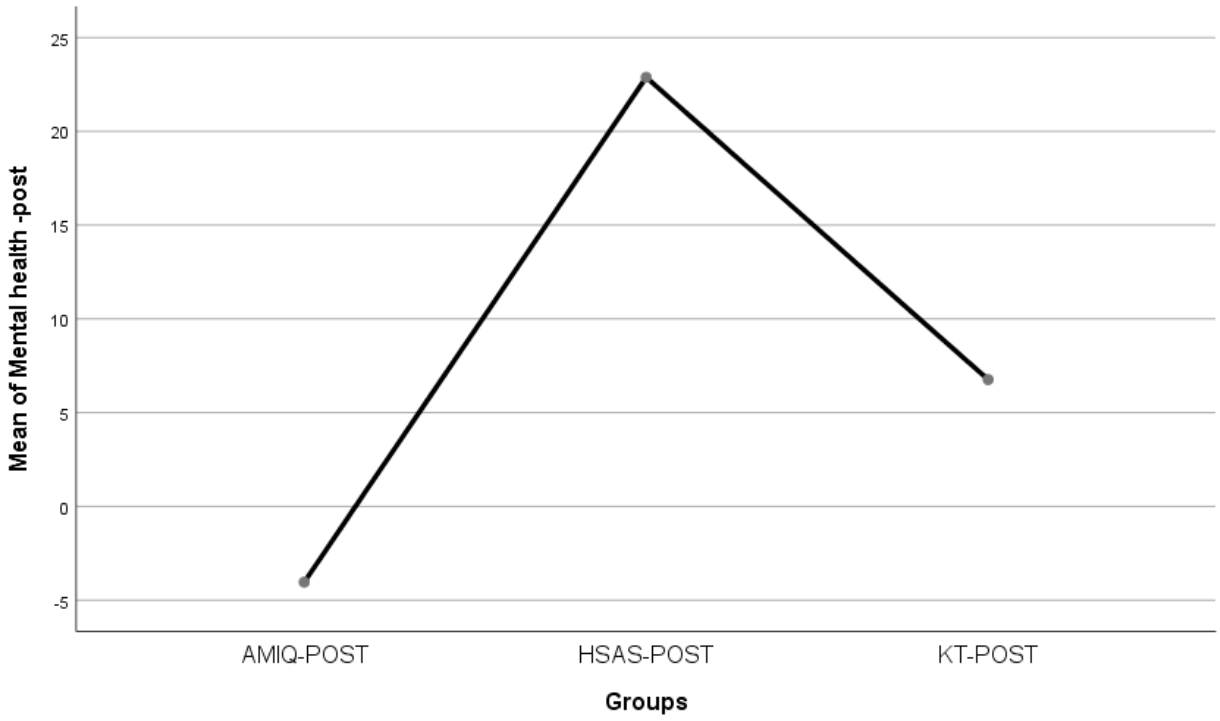

Figure 5: *Mean Plots of Mental Health-post survey*

A one-way between-subjects ANOVA was conducted to evaluate the null hypothesis that there is no difference in mental health awareness after the completion of an online educational module (Mindsight). The independent variable, mental health

awareness included three groups; AMIQ (M= -4.04, SD=3.75), HSAS (M=22.88, SD=4.81), KT (M=6.76, SD=1.72). The assumption of normality was evaluated using histograms and was found to be tenable for all groups. The assumption of homogeneity of variance was tested and found to be tenable using Levene's Test F (2,150, 699.13, p=0.000). The ANOVA was significant, F (2,150) =699.13, *p*=0.000. Post hoc comparisons using the Tukey HSD test indicated that the mean score for the AMIQ (M = -4.04, SD = 3.75), HSAS (M = 22.88, SD = 4.81) and KT (M=6.76, SD= 1.72) was statistically significantly different at three levels at *p*=0.000, therefore the null hypothesis should be rejected. There is a statistically significant difference in the population mean scores after the completion of an educational module. These results suggest that the completion of an online educational module affected mental health awareness.

Test for Normality of Data

To test for normality of data, I conducted a Shapiro-Wilk's test for normality. The results of the test for normality are presented in Table 33 and supplemented by histograms with normal curves in Figures 6 to 11. The variable VAR00001represents the pre-survey AMIQ test scores, showing skewness towards the right. The variable VAR00002 represents the pre-survey HSAS test scores. The variable VAR00003 represents the pre-survey KT test scores. The variable VAR00004 represents the post-survey AMIQ test scores. The variable VAR00005 represents the post-survey HSAS test scores. The variable VAR00006 represents the post-survey KT test scores.

Table 33

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
VAR00001	.340	5	.060	.695	5	.009
VAR00002	.232	5	.200*	.901	5	.415
VAR00003	.208	5	.200*	.906	5	.445
VAR00004	.233	5	.200*	.905	5	.439
VAR00005	.296	5	.175	.861	5	.232
VAR00006	.210	5	.200*	.922	5	.545

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

For the study variables, only pre-survey AMIQ test scores were found to be not normally distributed (p = 0.009). The HSAS and KT test scores were normally distributed (p = 0.445 and 0.232 respectively). For the post-survey, all three variables; AMIQ, HSAS, and KT scores were normally distributed (p=0.415, 0.439, and 0.545 respectively).

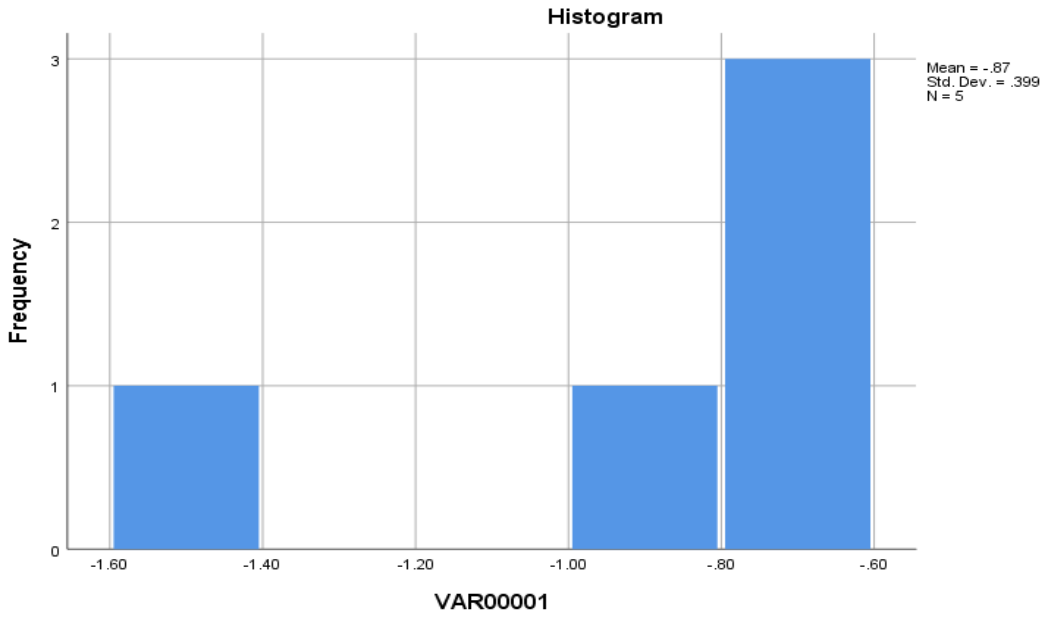

Figure 6. Histogram of pre-survey AMIQ with an abnormal curve.

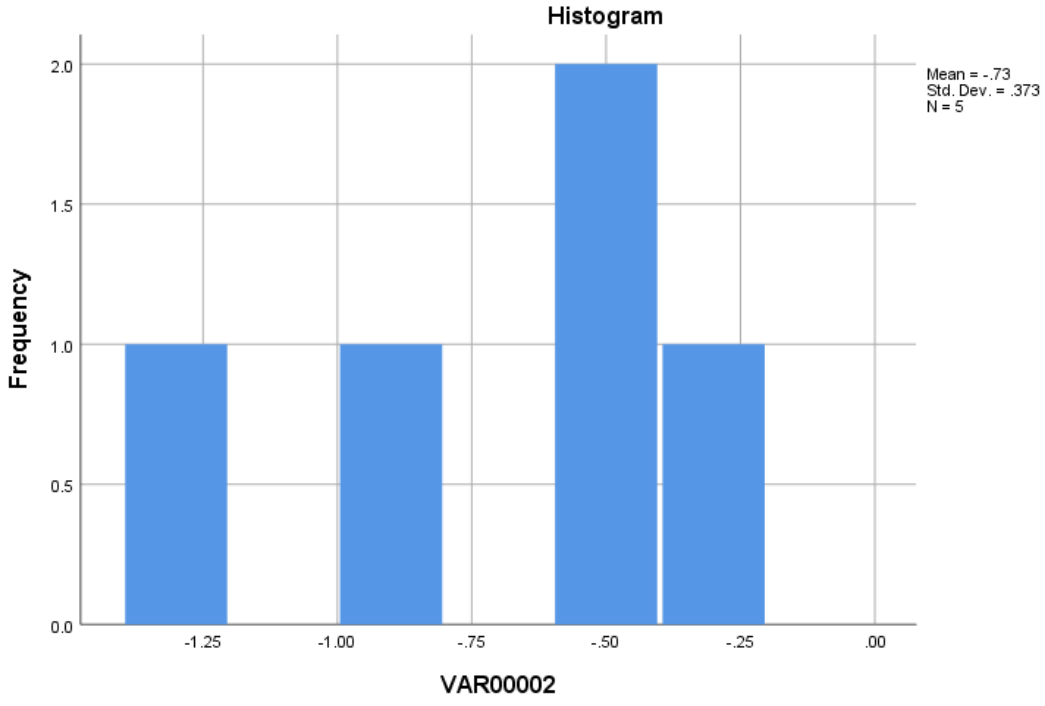

Figure 7. Histogram of pre-survey HSAS with a normal curve.

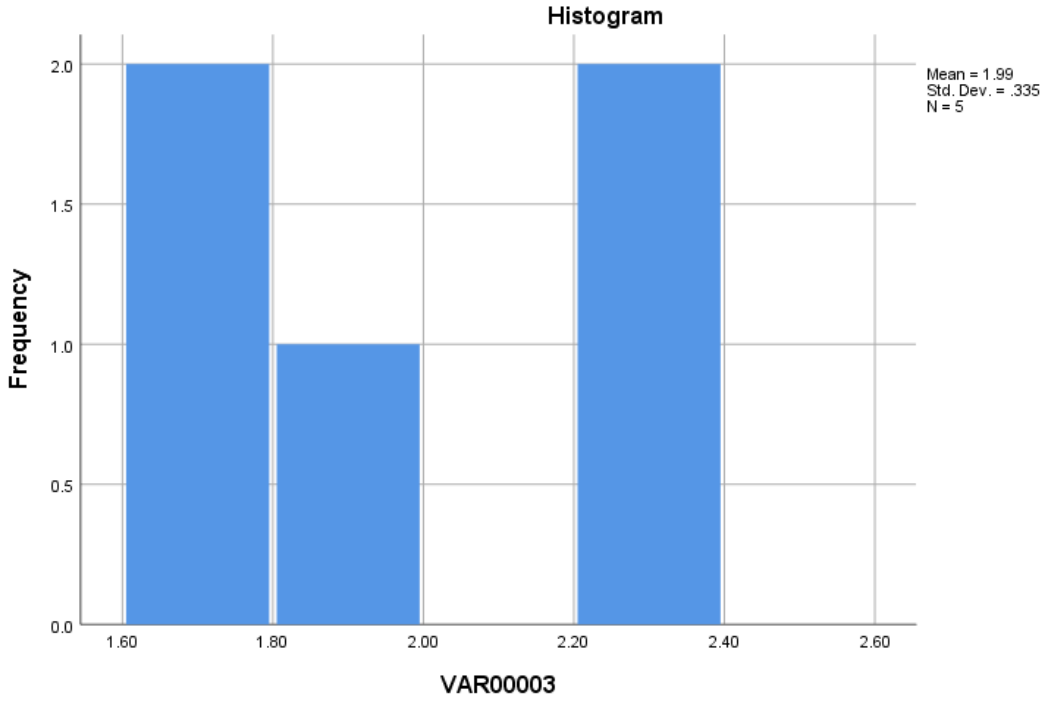

Figure 8. Histogram of pre-survey KT with a normal curve.

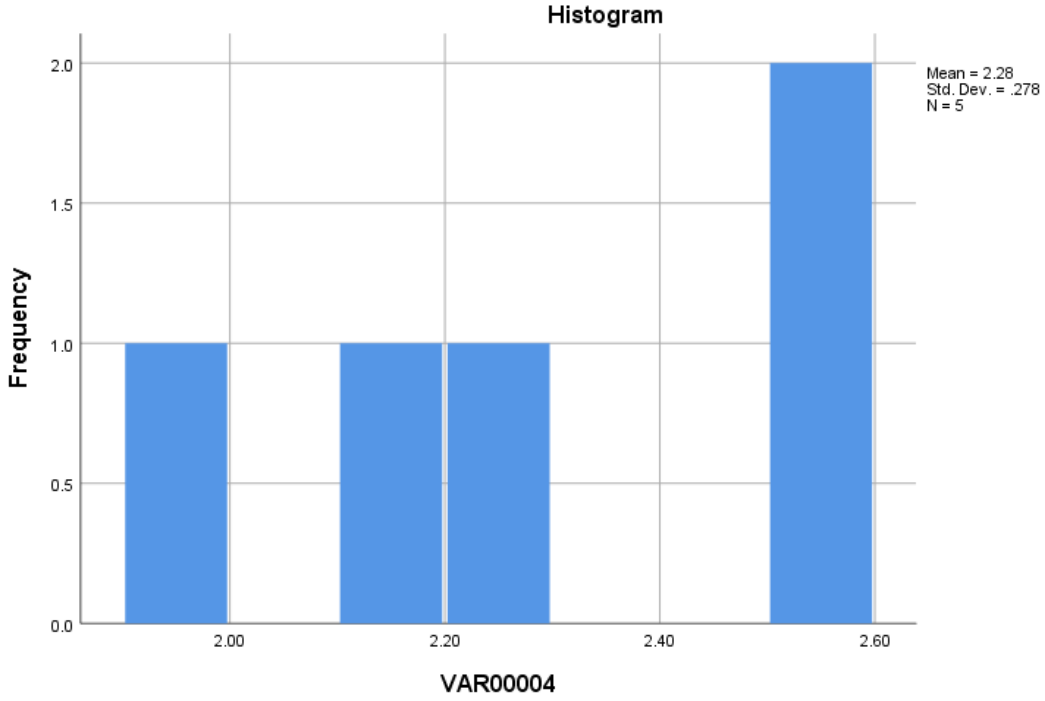

Figure 9. Histogram of post-survey AMIQ with a normal curve.

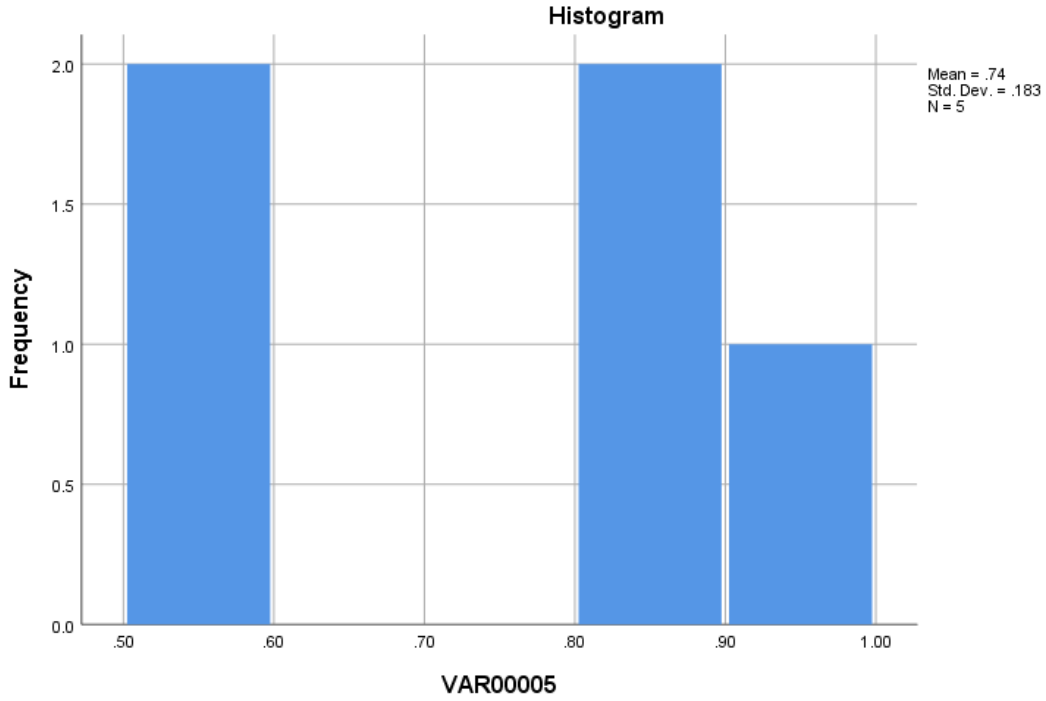

Figure 10. Histogram of post-survey HSAS with a normal curve.

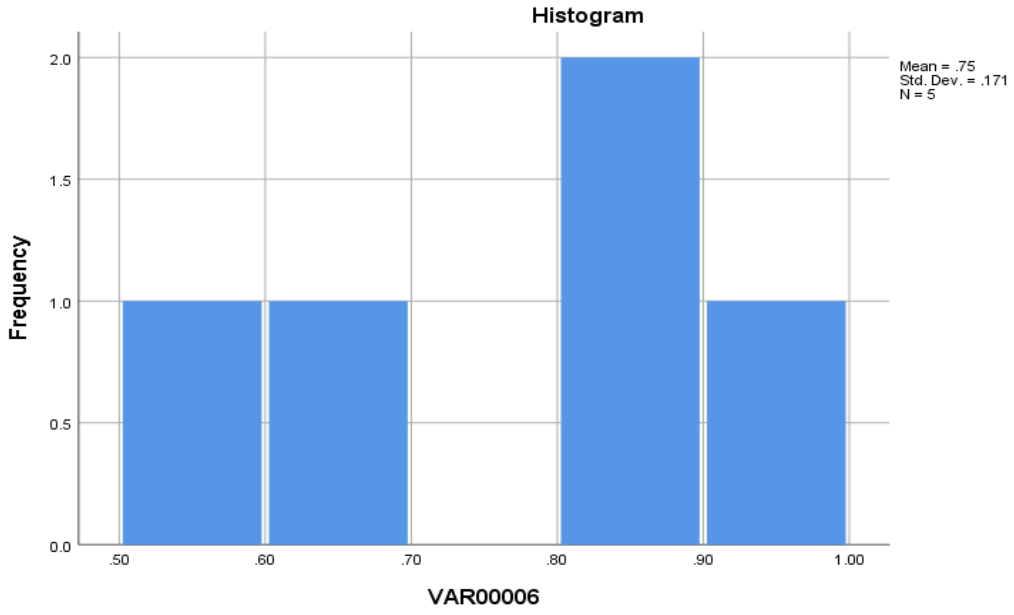

Figure 11. Histogram of post-survey KT with a normal curve.

Evaluation of Mindsight

The purpose of the Mindsight evaluation survey was to garner the opinions of the participants on the effectiveness and overall usability of this tool for the acquisition of mental health knowledge. The responses to the questions were analyzed using SPSS are displayed below in Tables 34 to 43.

Table 34

Mindsight is a Useful Online Resource for Promoting Mental Health/Illness Awareness

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	22	39.3	39.3	39.3
Disagree	1	1.8	1.8	41.1
Strongly Agree	21	37.5	37.5	78.6
Undecided	12	21.4	21.4	100.0
Total	56	100.0	100.0	

As observed, 76.8% of participants either agreed or strongly agreed that Mindsight was a useful resource for promoting mental health education. This finding is consistent with previous research suggesting that on-line programs that are blended with face-to-face sessions could well be an effective alternative to enhancing the mental health awareness of university students(Räsänen, Lappalainen, Muotka, Tolvanen, & Lappalainen, 2016).

Table 35

Having Completed Mindsight, I Have a Greater Understanding of Mental Illness and Some of the Self-help Strategies.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	23	41.1	41.1	41.1
Disagree	2	3.6	3.6	44.6
Strongly Agree	18	32.1	32.1	76.8
Undecided	13	23.2	23.2	100.0
Total	56	100.0	100.0	

The majority of participants (73.2%) reported having a better understanding of mental illness after the completion of Mindsight. This could be attributed to the fact that the information was organized, simple and well presented.

Table 36

Having Completed Mindsight, I Have a Greater Understanding of Resources and Supports That are Available in the Community.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	19	32.1	32.1	33.9
Disagree	1	1.8	1.8	35.7
Strongly Agree	18	32.1	32.1	67.9
Strongly Disagree	1	1.8	1.8	69.6
Undecided	17	30.4	30.4	100.0
Total	56	100.0	100.0	

More than half (64.2%) responded positively to this question. In the current literature, mental health literacy was identified as a barrier to help-seeking behavior among the youth, On the other hand, providing education and access to resources could improve help-seeking and reduce the treatment gap(Cheng et al., 2018).

Table 37

I am Able to Apply Some of the Knowledge I Gained From Completing Mindsight in my Everyday Life (Work life, Personal life, etc.)

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	26	44.6	44.6	46.4
Strongly Agree	16	28.6	28.6	75.0
Undecided	14	25.0	25.0	100.0
Total	56	100.0	100.0	

One significant finding of this study was that the majority of respondents (73.2%) said that they would be applying the knowledge gained into their everyday life.

Table 38

I Will Recommend Mindsight to Other Individuals who are Looking for a Mental Health/Illness Awareness Resource.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	17	30.4	30.4	30.4
Disagree	4	7.1	7.1	37.5
Strongly Agree	17	30.4	30.4	67.9
Strongly Disagree	1	1.8	1.8	69.6
Undecided	17	30.4	30.4	100.0
Total	56	100.0	100.0	

Likewise the majority of respondents (60.8%) said that they would recommend Mindsight to someone else.

Table 39

I Found Mindsight to be a Relatively Easy Resource to Navigate Through.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	19	33.9	33.9	33.9
Disagree	3	5.4	5.4	39.3
Strongly Agree	17	30.4	30.4	69.6
Strongly Disagree	2	3.6	3.6	73.2
Undecided	15	26.8	26.8	100.0
Total	56	100.0	100.0	

Within the current literature, researchers have suggested that online resources should be easy to use to increase their early adoption (Marangunić & Granić, 2015). In this study, 64.3% found Mindsight easy to navigate which means that this module could be beneficial to the wider university community.

Table 40

Overall, my Completion of Mindsight has had a Positive Impact on my Attitudes Towards Individuals With Mental Illness.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	20	35.7	35.7	35.7
Disagree	2	3.6	3.6	39.3
Strongly Agree	18	32.1	32.1	71.4
Strongly Disagree	1	1.8	1.8	73.2
Undecided	15	26.8	26.8	100.0
Total	56	100.0	100.0	

The majority of respondents (67.8%) thought that completing Mindsight resulted in positive change in the attitudes toward people with mental illness. This finding is

consistent with the literature indicating that while cognitive behavioral therapy may be effective in reducing the symptoms of mental illness, they are less likely to change the attitudes of individuals, especially in the short term (Das et al., 2016).

Table 41

I Think Mindsight is a Useful Mental Health/Illness Awareness Resource for University Students From Different Ethnic Backgrounds.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	21	37.5	37.5	37.5
Disagree	1	1.8	1.8	39.3
Strongly Agree	21	37.5	37.5	76.8
Strongly Disagree	1	1.8	1.8	78.6
Undecided	12	21.4	21.4	100.0
Total	56	100.0	100.0	

Providing mental health information that is culturally sensitive was identified as a potential barrier to treatment within the current literature. Of such mental health promotion should seek to target population subgroups with culturally appropriate programs (Picco et al., 2016). Although the participants came from diverse racial/ethnic backgrounds, the majority (75%) found Mindsight resources to be useful.

Table 42

The Format of Mindsight Takes Into Consideration the Different Learning Styles of Students.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	27	48.2	48.2	48.2
Disagree	2	3.6	3.6	51.8
Strongly Agree	11	19.6	19.6	71.4
Strongly Disagree	1	1.8	1.8	73.2
Undecided	15	26.8	26.8	100.0
Total	56	100.0	100.0	

As observed, most of the participants (67.8%) affirmed that the different kinds of activities in Mindsight catered to their different learning styles.

Table 43

I Frequently Consult and am Comfortable With Using Web-based Materials for Information.

	Frequency	Percent	Valid Percent	Cumulative Percent
Agree	27	48.2	48.2	48.2
Disagree	3	5.4	5.4	53.6
Strongly Agree	15	26.8	26.8	80.4
Undecided	11	19.6	19.6	100.0
Total	56	100.0	100.0	

Only 25% of respondents said that they were either not comfortable or undecided on the issue of using the web-based module to access materials for mental health information. This number appears to be higher in light of current research indicating that young people are accessing a variety of information using web-based

platforms such as computers and cell phones(Clarke et al., 2014). Additionally, participants in previous studies have identified concerns about confidentiality as a barrier to accessing mental health information online (Chan, Farrer, Gulliver, Bennett, & Griffiths, 2016; Wells, Mitchell, Finkelhor, & Becker-Blease, 2007). Therefore, this should be included when designing all online mental health educational modules.

Responses to the two Open-ended Questions

The results from the quantitative data analysis provided information about the knowledge and attitude of participants about mental health. Even though a quantitative study was useful in collecting data, one of the disadvantages was that it did not allow participants to speak about their experience in their own words. To address this disadvantage and make the research more robust, participants were invited to answer two open-ended questions. One unique feature of using this approach is that the hypotheses are generated from the data analysis. I sought to gain access to the participants' views of their own wording without making any value judgments. These two research sub-questions focused on the lived experiences of the individual and the ultimate goal was to be able to use ethnographic and ethnomethodological approaches to connect the experiences of people with existing theories as well as the possible emergence of new theories (Bowling & Ebrahim, 2005).

Forty-eight (48) participants responded to the first open-ended question. To determine the categories and concepts that emerged from the data, the researcher read the response multiple times and then grouped the responses into main themes (Ravitch & Carl, 2016). The first question asked the participants "What do you think are barriers

that prevent students from accessing mental health services on campus?" The respondents identified barriers that were coded by the researcher into five main categories: stigma, cost, time, wait times, and systemic barriers. The majority of respondents stated that stigma was the number one barrier to accessing mental health services. For example, one respondent stated "Being afraid of stigmatizing, not understood. May believe that nothing could help". Another student alluded to the self-stigmatization in their response stating that "stigma. Mental health is just the more positive way of saying mental illness. It affects the way self and others look at the student. People may not want to 'advertise' their problems". Within the current literature the existence of self, family, public and ethnic stigma is well documented (Corrigan et al., 2016; Wada et al., 2019). This finding has important implications because the fear of stigmatization can become a barrier to getting proper diagnosis and treatment for mental illnesses. The hope is that online mental health education can help minimize the barriers created by stigma and improve help-seeking behavior.

Many respondents identified the cost of mental health services as a significant barrier. One student stated that "Cost/ doctors notes/ intake questionnaire's exclusion criteria (i actually had to lie to get into the CBT program on campus). Another student noted that "Thinking it will cost them a lot of money The location of the services may be inaccessible to some (ie. an out of the way location; different campus)". These views are in accordance with the current literature that identified the lack of access to insurance coverage as one reason young people do not use mental health services (Dunley & Papadopoulos, 2019).

Another theme that emerged was the lack of time. One student noted that “Time. I strongly feel that time management is so difficult especially during your first year of uni. Personally, I feel so overwhelmed with course load, trying to make myself + parents proud, worried about failing because I’ll look dumb and the list goes on, that I forget my mental health matters. With that being said, even if I did remember to put my mental health first, utilizing the health services on campus would be difficult because of how little time I already have to juggle through the list of things I need to get done daily.” Similar views were expressed by another student who said one barrier was “Too busy with school work. May feel like there’s not enough time to focus on oneself”. These findings are consistent with what was found in the literature. For example, in one study that examined mental health treatment barriers following intake at a counseling center among racially/ethnically diverse college students, the researchers found that providing flexible scheduling or time-limited options was an effective way of improving help-seeking behavior and decreasing stigma(Miranda, Soffer, Polanco-Roman, Wheeler, & Moore, 2015).

The issue of wait times is a very contentious one for the Canadian healthcare system. It was therefore not surprising that many respondents cited the existence of long wait times as a barrier to accessing mental health services. In the words of one respondent “Time is the biggest barrier -- as a Nursing student, I rarely have extra time, and especially during the business hours for the mental health counselling. I have tried to access this service in the past but it never seems to be able to accommodate my busy schedule”. Another student stated that “Lack of appointment availability for counselling

sessions - the counselors on staff are fantastic but with the amount of students that need/want to be seen it is hard to get an appointment. This same sentiment of “Too long of wait times to see a counsellor” was cited by many respondents. Within the current literature, there is a multiplicity of research highlighting the urgent need to close the existing treatment gap for mental illness treatment (Shidhaye et al., 2015). There are also numerous recommendations for strengthening existing health care platforms as well as creating new strategies for diagnosis and treatment. This could potentially involve the integration of evidence-based online interventions that are easily accessible and confidential.

Some respondents mentioned hindrances that prevent students from accessing mental health services that were categorized by the researcher as systemic barriers. In the words of one student “ Our school doesn't do a lot to address what mental health is, therefore a lot of students don't know when to access mental health services or why they would need to. The lack of insight on what mental health services on campus can do for students turns students away from seeking help or advice. The lack of insight/education on what mental health is and what it looks like, results in students questioning if they should or shouldn't access services because they are unaware of what they should seek mental health services for e.g.- anxieties, stress, depression, being overwhelmed, mindfulness strategies, ways to cope with minor anxieties etc”.

The challenges that many students face as they try to navigate their way was described by one respondent as “administrative hurdles.” Addressing the lack of knowledge about mental health services, one student noted that for students “Not

knowing what is available to them, and feeling embarrassed to accept that they might need help" could also be a significant barrier. These findings are keeping in line with what was reported in the current literature. According to (Shidhaye et al., 2015), some of the systematic barriers to improving coverage for mental health services may be addressed using new information enabled technology. This includes utilizing platforms such as Skype, Facebook, and WhatsApp to communicate with students or to link them with an online mental health specialist. Additionally, cloud-based electronic health records can be used by authorizes health care providers to access, update, and store records. Implementing these simple measures could potentially lower the systemic barriers that prevent some students from accessing the services that they need.

Thirty-six (36) participants responded to the open-ended Question 2: Do you have any suggestions for improving web-based educational modules such as Mindsight? The respondents made suggestions that were coded by the researcher into three main categories: accessibility, the use of technology, and content. The increasing accessibility of the Internet has led to the growth of its use in interventions for various psychopathological problems (Saleh, Camart, Sbeira, & Romo, 2018). However, many factors should be taken into consideration when designing a web-based intervention, including the ease with which users can access information. Obtaining the feedback of respondents on this issue provided an opportunity for improvement to the current module. Commenting on the module, one respondent stated that "There's a lot of personal information asked just to register an account. A lot of people would probably not want to share their personal address, phone number etc. The sign up should only be

for email and username and pw if you want to encourage more people to sign up". Another respondent expressed similar concerns about gaining access to the module asserting that participation "Do not require the use of an account. I think that training like this should be more widely available without registering, which can deter people from signing up and then coming back if they forget their login information. Make training 'skippable', so that returning users can return to where they left off. If the training is required for work, then an account can be used as an alternative, where training is linear and a certificate of completion is awarded at the end". The TAM posits that perceived ease of use, which refers to what extent the user is comfortable in using the features of the technology, could determine the attitude of the user towards using the technology (Davis et al., 1989). Since many students are already concerned about the confidentiality of their information on the internet (Saleh et al., 2018), collecting too much personal information could potentially become a deterrent to ease accessibility.

One of the challenges of a web-based educational module is keeping up-to-date with the latest advancements in technology. Several respondents indicated that this was a problem with the module. One person stated that was a need for "Cleaner interfaces. A lot of mental health resources look like they're from the 80's". Another respondent echoed similar sentiments stating that "Improved interface, Easier access to modules, finding relevance of viewing modules to academic achievement" were all measured that could improve the module. Commenting on this question, one student expressed the idea of expanding the use of the current module stating that it should be "More user friendly for cell phones as pjones are more often used by students".

Respondents also commented on the actual content of this educational module. The responses varied from some students affirming “Great so far!”, to some insightful recommendations. For example, one student stated that the module should “Include additional web-based resources with information on other disorders and coping strategies” and another student suggested that “yes, add some self help plan of care ideas for students that are stressed out about too many homework and projects”. Other recommendations for improvement included “Offer in other languages - leave a comment option, public or private”, “Be open to learn from the individual, not just teach them” and “not to overwhelm the user with too many questions. make smaller modules”. The TAM posits that user acceptance and usage of web-based resources can be predicted based on the four constructs of perceived usefulness, perceived ease of use, attitude toward using, and behavioral intention to use (Hu et al., 1999). The feedback received from respondents can be used to make this module a more effective mental health intervention tool.

The majority of participants in this study (81%) acknowledged that they would be comfortable accessing information about mental health online, however, there were some important suggestions for improving web-based educational modules. Participants' made suggestions such as greater confidentiality, easier accessibility, the use of the latest technologies, and presentation of information in a culturally sensitive manner. All of these suggestions are important since research has shown that people with mental illnesses cut across all races, ethnicities, religions, and social classes. An effective

mental health awareness program should aim to reach the entire population (Vidourek & Burbage, 2019).

Summary

This quantitative semi-quasi experimental study was conducted to measure the level of mental health awareness among university students and to determine whether a web-based mental health educational intervention was an effective tool with which to increase mental health awareness and help-seeking behaviors. The first null hypothesis was tested using a dependent/ paired t-test and was accepted; there is no statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module. The second null hypothesis was tested using a dependent/paired t-test and was rejected; there is a statistically significant difference in the mental health perception of students after completing a web-based mental health educational module. The third null hypothesis was tested using a dependent/paired t-test and was accepted; there is no statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module. In the next chapter, I will interpret the findings, after which, I will discuss the study limitations, implications for social change, and recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The prevalence of mental illness in adolescents and young adults is a growing public health problem. The CHMA (2020) reported that, since 2014, there had been a 29% increase in the number of youth accessing mental health services in the Durham Region of southern Ontario. The goal of this study was to measure the level of mental health awareness among undergraduate students at a public university in the Durham Region and to determine whether a web-based mental health educational intervention was an effective tool with which to increase mental health awareness and help-seeking behaviors. A primarily quantitative quasi-experimental approach using pretest/posttest surveys was used to evaluate students' knowledge and perception of mental health before and after an online mental health educational module.

The previous chapter presented detailed findings from the data collection and analysis, which were used to answer the three main research questions. The first research question was to determine whether there was a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module. This was computed using the pretest and posttest scores from the AMIQ surveys that measured how the participants reacted given a situation with mentally ill patients. I found there was no statistically significant difference in AMIQ scores after the completion of Mindsight. The second research question was to determine whether there was a statistically significant difference in the mental health perception of students after completing a web-based mental health educational module.

This was measured using the pre and posttest scores from the HSAS survey. I found there was a statistically significant difference in HSAS scores after the completion of Mindsight. The third research question was to determine whether there is a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module. This was measured using the responses to questions in the KT survey. There was no statistically significant difference in the KT scores after the completion of Mindsight.

There are five sections in this chapter. The first section presents an interpretation of the findings in the context of what has been found in the peer-reviewed literature as well as in the context of the theoretical frameworks for this study. The second section is a discussion of the limitations to generalizability, validity, and reliability that arose from the execution of this study. In the third section, I provide recommendations for future research that are grounded in the strengths and limitations of the current study. The fourth section presents implications for the potential impact for positive social change at the individual, family, organizational, and societal levels. Finally, I present the conclusions based on the findings from this study.

Interpretation of the Findings

The theoretical frameworks that grounded the study were used to analyze and interpret the findings. These findings may assist in the development and implementation of mental health awareness programs in the university setting and beyond.

Analysis and Interpretation of the Findings in the Context of the Literature Review

Research Question 1: Is there a statistically significant difference in the mental health attitude of students after completing a web-based mental health educational module?

The first hypothesis examined the relationship between mental health attitudes with completing a web-based mental health educational module. The independent variable was mental health attitude and the dependent variable was the completion of a web-based educational module. The results from the AMIQ revealed that there is no statistically significant difference in mental health attitude and the completion of the web-based educational module. The null hypothesis was therefore accepted.

The finding from this study extends the knowledge about the effectiveness of a web-based intervention to change attitudes about mental health among university students. The findings are consistent with previous studies on mental health attitudes. For example, according to Pescosolido et al. (2010), significant changes in a person's attitude towards mental illness usually occurs over an extended time and changing negative mental health attitudes is generally difficult to achieve. The ability or willingness to change a person's attitude usually involves several factors and generally, this change does not occur spontaneously (Wood, 2000). The process of change requires a personal approach and high emotional engagement. However, there is empirical evidence supporting the benefits of such changes. In one study conducted by Rosvall and Carlson (2017), the researchers found that registered nurses were able to provide better support for patients starting a smoking cessation program after completing a web-

based program that enhanced their self-efficacy and understanding of the topic. There is also empirical evidence suggesting that the use of emerging technologies such as the Internet-based mindfulness training program (iMIND) and cognitive-behavioral training program (iCBT) were efficacious in improving positive attitudes towards mental health (Mak, Chio, Chan, Lui, & Wu, 2017).

Improving the mental health attitude of healthcare professionals is important because the healthcare system is one of the main environments where persons are most likely to experience stigma and discrimination because of their mental illness (Ungar, Knaak, & Szeto, 2016). Even though participants in this study scored above the normal range, there was no statistically significant gain after completing an educational module. These findings further highlight the need for continuous mental health awareness programs and more longitudinal research that monitors changes in attitudes toward mental health.

Research Question 2: Is there a statistically significant difference in the mental health perceptions of students after completing a web-based mental health educational module?

The second research hypothesis examined the relationship between mental health perceptions and completing a web-based mental health educational module. The independent variable was mental health perceptions and the dependent variable was the completion of a web-based educational module. The results from the HSAS revealed that there was a statistically significant difference between mental health perceptions and

the completion of a web-based educational module. The null hypothesis was therefore rejected.

There is a growing body of research indicating that university students experience high levels of mental health problems but the majority of them did not seek professional help (Gulliver et al., 2018). There is reason to believe that a change in perceptions about mental illness could result in more students accessing mental health services that they require. In one study, researchers used a randomized trial of web-based stress management programs that were focused on improving the perceptions that students have about their ability to control mental health stressors. The authors concluded that all participants demonstrated reductions in perceived stress and distress symptoms from pre-intervention to post-intervention and a 3-week follow-up (Meredith & Frazier, 2019). Many other researchers have reached similar conclusions about the effectiveness of using web-based interventions in improving mental health perceptions and attitudes (Cook, Mostazir, & Watkins, 2019; Hennemann et al., 2018; Levin, Hayes, Pistorello, & Seeley, 2016; Musiat et al., 2019; Stallman, Ohan, & Chiera, 2019; Viskovich & Pakenham, 2018). These studies provided evidence that web-based mental health interventions have proven to be efficacious in improving the mental health perceptions of postsecondary students. The finding of this study indicated that the perceptions of students changed significantly after completing an online educational module. This reiterates the need for greater mental health awareness. When students have a good perception of mental health, they are more likely to engage in help-seeking behaviors and less likely to engage in activities that result in stigmatization or

discrimination. Additionally, a change in perception usually precedes a change in attitude towards people with mental illness.

These findings are consistent with the current report from the CMHA (n.d.) stating that one in four individuals were afraid to be around someone suffering from a serious mental illness. This is due mainly to the incorrect perception that persons with mental illness are incompetent, unpredictable, and dangerous (CMHA, n.d.). These false perceptions about mental illness usually result in stigmatization and failure to seek psychological care. Even though some persons believe that perceptions and attitudes about mental health are changing, recent statistics indicate a different picture. In Canada, 500,000 persons do not go to work every day because of psychiatric reasons, and for most individuals, and according to the Mental Health Commission of Canada (MHCC) living with the stigma of their illness is worse than the illness itself because it presents a barrier to diagnosis, proper care, and acceptance in society (MHCC, 2014).

Research Question 3: Is there a statistically significant difference in the mental health knowledge of students after completing a web-based mental health educational module?

The third hypothesis examined the relationship between mental health knowledge and completing a web-based mental health educational module. The independent variable was mental health knowledge and the dependent variable was the completion of a web-based educational module. The results of the KT revealed that there is no statistical significance between mental health knowledge and completing a web-based educational module. The null hypothesis was therefore accepted. This finding

extends the knowledge on what is known about the ability of a web-based learning module to improve mental health knowledge.

Within the current literature, inadequate mental health knowledge was identified as a major cause of the low help-seeking behavior of Canadian youth (Kutcher et al., 2016). Recent studies that focused on increasing mental health awareness have explored the efficacy of using the Internet as a means of dispersing knowledge about mental health. Sontag-Padilla et al. (2018) examined the relationship between students completing online surveys and their mental health knowledge, awareness, and help-seeking behaviors. Overall, the results revealed that the completion of the online module Active Minds was associated with increased perceived mental health knowledge, decreased stigma, and improvement in a range of help-seeking behaviors. In another study involving a systematic review of the evidence on the effectiveness of online mental health interventions for youth aged 12–25 years, the researchers concluded that there was potential for promoting youth wellbeing and reducing mental health problems using online technologies. Additionally, the study also reported that there were significant positive results when computerized cognitive behavioral therapy was used to treat adolescents and young adults with anxiety and depression symptoms (Clarke et al., 2014, p. 90). The findings of this study, in which the majority of participants (70%) indicated that they would prefer to access mental health knowledge online, support the findings in the literature.

The use of web-based programs is a relatively new approach to mental health promotion and prevention. The majority of web-based materials use the Cognitive

Behavioral Therapy (W-CBT) or Computerized Cognitive Behavioral Therapy (CCBT) approach for psychological treatment (Bennett, 2014; James & Rimes, 2018). For example, Oh et al. (2009) reported that the use of W-CBT through interactive modules such as MoodGYM and BluePages was successful in improving mental health literacy and reducing mental illness symptoms. In another study involving college students and young working adults, the researchers examined the efficacy of an Internet-based mindfulness training program in comparison with the well-established Internet-based cognitive-behavioral training program in promoting mental health. The authors concluded that both programs showed potential in improving mental health knowledge and the improvements were sustained after a 3-month follow-up period (Mak, Chio, Chan, Lui, & Wu, 2017).

Researchers have suggested that interaction with persons with mental illness is one way of obtaining knowledge to reduce some of the stigmas that are associated with mental illnesses (Chung, Chen, & Liu, 2001). However, in many instances, direct contact with persons experiencing severe forms of mental illness may not always be feasible due to ethical or other reasons. In such instances, simulated web-based programs such as case studies and videos can be used to increase knowledge (Finkelstein, Lapshin, & Wasserman, 2007). This study utilized multiple measures including case studies and videos to share knowledge about different mental illnesses. The findings of this study support the use of web-based programs to educate students about mental health. The majority of participants (78%) indicated that they have a greater understanding of mental illness and some of the self-help strategies after

completing the module. Even though the finding was not statistically significant (p = 0.07), the researcher suggests that there is a need for continued educations using a wider variety of mediums.

Analysis and Interpretation of the Findings in the Context of the Theoretical Framework

The conceptual framework for this study was based on three theories namely, the TPB(Ajzen, 1991), HSM(Davis et al, 1989), and TAM (Rickwood et al., 2005). According to the TPB, people are more likely to engage in a behavior if the behavior is perceived as important or if the subjective norm seems to support the behavior.

Additionally, the TPB helps to explain why providing knowledge alone does not automatically lead to the desired change in attitudes and behavior (Pescosolido et al., 2010). For example, despite the widely held belief that mental illness stigma is decreasing, as many as 64% of Canadians were concerned about working with a colleague who has a mental illness (CAMH, 2020). In this study, the changes in the pre and post AMIQ scores were small (pretest AMIQ was M= -0.8700 and posttest was AMIQ M= -.7260), indicating acquiring mental health knowledge did not eliminate negative attitudes. These results suggest that mental health promotion campaigns should include more than just providing information about the subject since increasing knowledge alone does not always lead to an immediate change in behavior. The research findings imply that continuous monitoring captured through longitudinal studies are necessary to document the effects of behavioral attitudes of people towards those with a mental health disorder.

The HSM was an important framework for this study because it conceptualizes the help-seeking behavior of young people between the ages of 14-24 years. The framework takes into consideration the following processes: becoming aware of and appraising the problem, expressing the need for support, knowledge of available and accessible sources of help, and being willing to disclose personal information (Rickwood et al, 2005). Within the current literature, the gap between diagnosis and treatment has been identified as a significant public health concern. In this current study, the help-seeking behavior of participants was measured using pre and post HSAS scores. The results indicate that there was a significant difference in the intentions of students to access mental health services after completion of Mindsight. The results from the current study are consistent with the results of previous studies conducted at this university (Syed, 2012). The majority of participants (90%) acknowledged that they wondered about having a mental health issue at some point within the last year and yet less than half (54%) indicated that they had accessed mental health services at any point in their life. These results are consistent with the reality that even though students are identifying that they have mental health issues, they are not accessing mental health services at the same level.

The TAM uses the principles of perceived usefulness and perceived ease of use to explain how individuals adapt to new technologies in Information Systems. In this study, approximately 80% of participants acknowledged that they were comfortable using web-based media to access mental health information. In a previous study at this university, only 55% of participants reported that they would prefer to use the mental

health resources that are available online (Syed, 2012). Even though web-based technologies are relatively new, previous studies have found that they are useful in changing perceptions and attitudes about mental health (van Bastelaar et al., 2008; Li et al., 2018; Christensen et al., 2006; Chan et al., 2016). Online resources are now widely regarded as useful educational tools compared to traditional educational means such as books, lectures, and community resources (Edwards et al., 2019). Additionally, web-based technology is proving to be effective among certain sub-sectors of the population such as those from ethnic minority groups (Syed, 2012), postsecondary students (Levin et al., 2016) and the sub-sections of the population who are comfortable using web-based technology (Fernandes, 2016; Jacobi, 2019).

The TAM has evolved as the model that can be used to predict whether people will potentially accept and integrate the use of technology into their individual and professional life or reject the use of technology (Marangunić & Granić, 2015). Computers and smartphones provide access to the World Wide Web and are becoming ubiquitous in both developing and developed countries. In many developed countries, it is estimated that 80% of Internet users search the web for health information relating to symptoms and treatments of medical conditions (Reavley & Jorm, 2011). In Canada, nearly 100% of youth aged 15 to 24 years own their smartphone and uses it to access the internet daily(Richards, Gellatly, & Statistics Canada., 2018). The findings from this study provide evidence that online technologies can increase mental health awareness among university students.

Limitations of the Study

In the execution of this study, I identified several limitations that could potentially affect the internal and external validity and the extent to which the findings can be generalized. First, both the population and the sample size limited the study. I recruited only a purposeful sample of students ages 18 years or older who were currently enrolled in one of the undergraduate degree specializations in the Faculty of Health Sciences in a public university in southern Ontario. Because the participants were self-selected, this could likely result in selection bias (Creswell, 2009). Also, students studying health sciences are more likely to be knowledgeable about mental health issues than students in other faculties. As such, the results of the study cannot be generalizable to all students in this university or students in any other university. The sample size was small and homogenous and therefore has a potential for sampling bias resulting in low external validity (Bowling & Ebrahim, 2005). There is a possibility that the multi-phase research approach contributed to the smaller sample size and low response rate (19 %) because potential participants may not have been willing to be part of a study that took so much time (about 2 hours) to complete. This possible source of selection bias may have affected the validity of the findings.

The use of a quasi-experimental research design had the potential to bias the results. The use of self-administered surveys is subjective based on how participants understand the question and the accuracy of the answer that they provide (Creswell, 2009). Moreover, because the surveys were not piloted, there is a possibility that the questions were not clear to all participants. Individuals with more positive attitudes

toward mental illness could likely have chosen to participate in the surveys, while those with more negative attitudes towards mental health could have chosen not to participate, which could skew the results.

Another limitation is the period that the surveys were administered. Participants were asked to complete the survey during the first four weeks of the semester at their own convenient time and location. The perceived level of stress of students may vary and this could influence the way that that they answered the questions. There is the possibility that the students' perception of their mental health at that time may have been different than if the surveys were done closer to the end of the semester.

Other limitations were the response rate based on gender and degree specialization. The sample was mostly comprised of female students. The response rate was 87% female and 13% male. However, the gender differences noted in this study sample were comparable to that of the undergraduate population of the Faculty of Health Sciences which is 76% female. Additionally, other universities have also reported both low response rates and underrepresentation of males in mental health studies (Goodwin, Behan, Kelly, McCarthy, & Horgan, 2016; Kwan et al., 2016). The higher response rates from nursing students (37%) may be attributed to the fact that nursing students are more concerned about mental health issues from personal or patient-centered care perspectives. The ability to replicate these findings across a sample size that is more representative of the university's population could improve the validity and generalizability of the results in future studies.

The multi-phase nature of the research was a potential source of data collection bias. The researcher collected demographic information from participants in the pre-survey but did not collect demographic information from those who did the post-survey. Because the data collection was anonymous and there was a big difference in the number of participants (pre-survey = 329 and post-survey = 72), it was very difficult to match individual pre and post responses. This was only possible because I was able to match the IP address of participants. Future studies should ensure that the data collection design includes measures that allow the researcher can match individual pre and post responses. Response bias is also possible as the participants completing the post knowledge test may have referenced Mindsight which could have skewed the results of the analysis resulting in a false positive gain in knowledge.

The study was also limited because by using only the quantitative design the researcher could not infer a causal relationship between the independent variables and mental health awareness. Finally, another limitation was that this was not a longitudinal study, therefore the possibility exists that responses of participants may change over a longer period than the one week allocated (Cozby, 2009). It would have been beneficial to know if participants' responses would have been different over an extended time if data was collected at the end of the semester, school year, or end of their program of study.

Recommendations

Based on the results of the data analysis and the limitations of this study, I would like to propose several recommendations for future research. First, future researchers

could expand the sample size of the study by including all undergraduate and post-graduate students in all faculties at the university. Increasing the sample size could potentially create stronger significant relationships between the independent and dependent variables. Additionally, future researchers could replicate the study to other geographic locations or other sub-groups within another population. This could potentially increase the external validity of the study and also make the results generalizable to more students across different universities.

Second, future research should include a mixed-method approach. The inclusion of a qualitative approach would likely add breadth and depth to the research exploring the perceptions and feelings of the students regarding the use of web-based in accessing mental health resources. The acquisition of qualitative data could also help to contextualize problems such as stigmatization. Face-to-face interviews could provide rich and detailed information about the barriers and enablers that influence younger adults' help-seeking behavior in accessing mental health care.

Lastly, future researchers could also conduct a more longitudinal study to obtain a better understanding of how the perceptions of participants changes with time. For example, the level of stress and anxiety that students experience preparing for final exams could be factors that influence their decision to access mental health resources, therefore data collection should include this variable. The data collection design should include an additional step to match the responses of pre and post responses of each participant.

Implications

According to the TPB, the behavior or behavioral intentions of individuals are shaped by their attitude, subjective norms and perceived behavioral control, therefore persons more likely to engage in a behavior if the behavior is perceived as important or if the subjective norm seems to support the behavior (Ajzen, 1991). Given the high prevalence of mental illness among students in postsecondary institutions, with suicide being the most common cause of death in this population (CAMH, 2020), the results of this study could conceivably create positive social change at the individual, family, community, and societal levels.

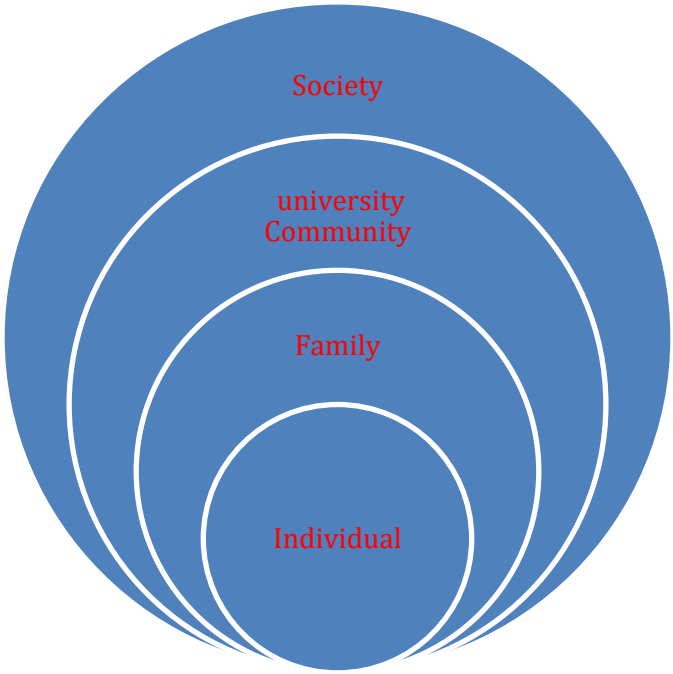

Figure 12. Impact of positive social change.

The general health and well-being of students could be improved at the individual level by them acquiring knowledge of modifiable lifestyle behaviors through a mental health awareness campaign. This could provide students with the tools that will

inform prevention efforts, eliminate negative stereotyping, stigmatization, and facilitate help-seeking behavior. By learning to identify the modifiable factors that are usually associated with decreased coping abilities, students can learn to build psychological resilience that will allow them to bounce back in difficult situations. By sharing their knowledge and experience, students can help change the attitudes of their friends and family towards mental illness. According to data from the American College Health Association (ACHA), the university has a young (80% under 25 years of age) and diverse (55% belong to a visible minority, and 5.7% have a disability) student population (ACHA, 2013; ACHA; 2016). The diversity present on the campus is also a reflection of the homes from which the students come. In many cultures, mental illness is highly taboo, therefore educating students about mental health issues has the potential of changing the future perceptions of an ethnically diverse population. This proactive measure could result in a significant reduction in stigmatization, as students can educate themselves and their families about mental health.

There are many opportunities for this study to advance positive social change in the university community where most students spend a significant portion of their day. Within the current literature, there is evidence suggesting that many mental illnesses result from complex interactions between a person's genetic make-up and their environment (Malla, Joober, & Garcia, 2015). Additionally, there is evidence indicating that there is a relationship between students' mental health and their academic achievement(Lipson & Eisenberg, 2018). There is a myriad of ways that the university

can seek to improve students' mental health including developing a culture that fosters psychological resilience and reducing academic stressors.

Developing a culture of student psychological resilience on campus would allow staff, faculty, and students to connect with resources that promote good mental health. This would also promote an environment where students with warning signs of difficulty coping are identified early and supported. The combined efforts of peer and faculty support could potentially reduce the treatment gap. There are many ways that faculty can help to reduce academic stress like developing clear course outlines and pacing assignments to avoid overlapping of major assignments in different classes at the same time. Professors could also distribute marks equally throughout the semester to reduce anxieties associated with the final exams. Where possible faculty should provide tutorial and office hours for students who need extra help. Also developing an on-line mental health course like Mindsight that is mandatory for all new students would ensure that students have easy and confidential access to mental health resources at all times.

Mental illness affects people from all walks of life. According to the Center for Addiction and Mental Health, one out of every five Canadian will experience their first mental illness before 40 years old (CAMH, 2020). Developing strong partnerships between the university and external community stakeholders is another way that this study may be used to influence positive social change. On the one hand, the university could collaborate with regional high school boards to develop a curriculum designed to better support the transition of students from high school to university. For many first-year students navigating all the life changes that are associated with attending university

can be a very stressful time in their life (Crowe et al., 2016). On the other hand, the university could work with Durham Regional public health department to develop best practices and policies for mental health and to seamlessly refer students who may need external mental health care. While the physical, emotional, and financial cost of undiagnosed and untreated mental illness is astronomical, early mental health protection and prevention could help by potentially reducing health-risk behavior, reducing health inequalities, improving physical health, increasing life expectancy and the overall quality of life.

The results of this study directly address one of the prioritized action items from the university's strategic vision because it connects with efforts to raise mental health awareness among students. Additionally, as a technology-driven university, the use of an online module to provide mental education fits the mandate of the university. Implementing the results and recommendations from this study has the possibility of improving the mental health of university students and by extension, improve both the mental and physical health of the entire population.

One of the goals of conducting mental health research is to assists in the development of evidence-based policies and best practices that will improve the health and well-being of society. A successful program should involve engaging all community stakeholders that have an interest in mental health. A first step would be to bring together student representatives, academic partners, and community leaders to brainstorm and formulate short and long-term strategies. The nature of this research would include a network of knowledge users that would include the following: Student

Mental Health Services, Student Outreach Services (Indigenous, Women's Centre, Pride and LGBTQ, Sexual Health Resource Centre, Campus Security, and Campus Food Centre), Provost / senior university administrators, campus health and recreational centers, Durham Region Public Health Department, CMHA-Durham Region, Ontario Shores Centre for Mental Health Sciences, Durham Public and Catholic District School Board and Durham Region Police Service. The recommendations from this group should be used to implement programs that will increase mental health awareness, improve psychological resilience, and improve the general health and well-being of the entire society.

Conclusion

The purpose of this quantitative cross-sectional study was to evaluate the benefits of implementing a public health mental awareness intervention for students enrolled in postsecondary education in Eastern Ontario, Canada. The goal was to measure the level of mental health awareness among university students and to determine whether web-based mental health educational intervention is an effective tool with which to increase mental health awareness and help-seeking behaviors. I used surveys to gather primary data for the analyses of potential relationships. I expected that exposure to a web-based mental health education targeting university students would result in increased mental health awareness and help-seeking behaviors following the TPB, the HSM, and the TAM models. The data analysis showed a statistically significant increase in mental health perception after completion of an online mental health educational module but the results were not statistically significant for mental

health attitudes and knowledge. Overall, the results of this study indicated that exposure to mental health through Mindsight was associated with increases in the perceptions, knowledge, and attitude towards persons with mental illness, which increases the likelihood of engagement in help-seeking behavior.

The findings of this study extend the body of literature regarding the use of an online training module to strengthen mental health awareness among university students. These findings may assist university administrators to develop and implement mental illness prevention strategies that build the resilience of students. Providing education about mental illness may lead to the decrease and eventual elimination of stigmatization. It could also result in early detection of vulnerable students and the provision of early intervention which could result in a reduction of the existing treatment gap. By addressing the mental health issues early in their university years, students are more likely to experience improvement in their overall health and academic achievement and be better prepared for future successes in life. Future researchers could expand the sample size of the study, expand the geographic location of the study, and use a mixed methodology to add more breadth and depth and improve on the validity, reliability, and generalizability of their study.

Mental health is a public health priority now. An effective public mental health action is needed to reduce the burden of disease and the cost of mental illness now and in the future. Mental wellness is just as important as physical wellness. Stopping the stigma about mental illness should be the prerogative of everyone.

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Appendix A: Help Seeking Attitudes Scale (HSAS)

The following are some attitudes toward seeking psychological help (professional assistance for emotional problems with a social worker, psychiatrist, psychologist, counselor, etc.). Please check whether you agree, partly agree, partly disagree, or disagree with each statement.

1. If I believed I was having a mental breakdown, my first inclination would be to get professional attention.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

2. The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

3. If I were experiencing a serious emotional crisis at this point in my life, I would be confident that I could find relief in psychotherapy.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

4. There is something admirable in the attitude of a person who is willing to cope with his or her conflicts and fears without resorting to professional help.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

5. I would want to get psychological help if I were worried or upset for a long period of time.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

6. I might want to have psychological counseling in the future.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

7. A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

8. Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

9. A person should work out his or her own problems; getting psychological counseling should be a last resort.

   □ Agree □ Partly agree □ Partly disagree □ Disagree

10. Personal and emotional troubles, like many things, tend to work themselves out.

    □ Agree □ Partly agree □ Partly disagree □ Disagree

Re: Permission to use Help-Seeking Attitudes Scale

To whom it may concern,
My name is Lavern Bourne a doctoral student at Walden University in the USA and I am requesting permission to use the Help-Seeking Attitudes Scale(HSAS) in my dissertation.
Please see attachment of the HSAS scale that I would like to use in my research.
Thank you for your attention in this matter and I look forward to your response.

Sincerely,

Lavern Bourne
Ph. D. Public Health (candidate)
Walden University
Email: xxx@xxx

Reply Reply All Forward IM

Sun 9/8/2019 1:03 PM

Tricia Fechter Gates <pfechter@acpa.nche.edu>

Fwd: Request permission

To Lavern Bourne; ACPA Info

If there are problems with how this message is displayed, click here to view it in a web browser.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

Appendix C HSAS.docx
13 KB

Bing Maps + Get more apps

Hi Lavern -

Permission is granted. Please cite accordingly.

Best of luck with your dissertation!

Sincerely,
Tricia

Appendix B: Attitudes Toward Mental Illness Questionnaire (AMIQ)

Please read the following statement: John has been injecting heroin daily for 1 year. Please select the answer which best reflects your views:

1. Do you think that this would damage John's career?
    a. Strongly agree -2
    b. Agree -1
    c. Neutral 0
    d. Disagree +1
    e. Strongly disagree +2
    f. Don't know 0

2. I would be comfortable if John was my colleague at work?
    a. Strongly agree +2
    b. Agree +1
    c. Neutral 0
    d. Disagree -1
    e. Strongly disagree -2
    f. Don't know 0

3. I would be comfortable about inviting John to a dinner party?
    a. Strongly agree +2
    b. Agree +1
    c. Neutral 0
    d. Disagree -1
    e. Strongly disagree -2
    f. Don't know 0

4. How likely do you think it would be for John's wife to leave him?
    a. Very likely -2
    b. Quite likely -1
    c. Neutral 0
    d. Unlikely +1
    e. Very unlikely +2
    f. Don't know 0

5. How likely do you think it would be for John to get in trouble with the law?
    a. Very likely -2
    b. Quite likely -1
    c. Neutral 0
    d. Unlikely +1
    e. Very unlikely +2
    f. Don't know 0

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Appendix C: Interest and Demographics Questionnaire

1. Choose the answer that best describes your gender?

    a. Male

    b. Female

    c. Other

2. Choose the answer that best fits your age range?

    a. 18-25

    b. 26-35

    c. 36-45

    d. over 45

3. What is your family income?

    a. Less than $20, 000

    b. $20,000 - $50,000

    c. $51, 000 - $100,000

    d. More than $100,000

4. Which of the following ethnic/ racial group that best applies to you?

    a. Caucasian

    b. Latino/ Hispanic

    c. Middle Eastern

    d. African

    e. Caribbean

    f. South Asian

g. East Asian

h. Mixed

i. Other (specify) _____

5. Which of the following program are enrolled in?

- Bachelor of Health Science (Honours)
  - Public Health specialization
  - Human Health Science specialization
- Kinesiology Major
- Bachelor of Health Science (Honours) in Medical Laboratory Science
- Bachelor of Science (Honours) in Nursing
- Bachelor of Allied Health Sciences

6. What is your current year in your program?

a. 1-year

b. 2-year

c. 3-year

c. 4-year

d. More than 4 years

7. Do you think mental health education is an important factor for your success at school?

a. Strongly disagree

b. Disagree

c. Neutral

d. Agree

e. Strongly agree

8. What method of mental health education would you most likely use?

a. Web-based educational program

b. Reading material from a book

c. Going to a professional therapist (face-to-face)

d. Accessing information from a family doctor

e. Other (please specify) _____

9. Have you experienced, or thought you might be experiencing mental health issues at any point in your life?

a. Yes, I had these concerns but no longer do

b. No, I never had this concern

c. Yes, I still continue to have these concerns

10. Have you accessed mental health educational services at any point in your life?

a. Yes

b. No

Appendix D: Knowledge Test

Instructions: For each of the questions below select the best answer.

1. Which of the following is a self-help strategy for managing an anxiety disorder?
   a) Make an effort to avoid stressful situations
   b) Engage in regular, strenuous exercise to facilitate sleep
   c) Spend time reflecting on the illogical nature of your worries
   d) **Turn your negative thinking into positive statements**

2. Which of the following are common signs and symptoms of depression?
   a) Hopelessness/helplessness; lack of energy; eating/sleeping difficulties
   b) Extreme boredom; pacing back and forth; difficulty with decision- making
   c) Apathy; feelings of guilt; frequent crying
   d) Highs/lows; irritability; low self-esteem

3. Which of the following is the primary reason why Individuals engage in self-harming behaviors?
   a) Control their feelings of anger
   b) Gain the attention of people around them
   c) Cope with their emotional pain
   d) Punish themselves for their negative thinking

4. What is one of the main risk factors for developing an eating disorder?
   a) An obsession with physical activity
   b) Adhering to a strict vegetarian diet
   c) Low socioeconomic status
   d) A family history of an eating disorder

5. What is the best way that you can help an individual who may be experiencing a psychotic episode?
   a) Pointing out the illogical nature of their thoughts
   b) Encouraging them to develop a healthier lifestyle
   c) Focusing away from their bizarre behavior
   d) Assisting them in obtaining professional help early

6. Which of the following is one of the most serious consequences of the stigma associated with mental illness?
   a) Individuals may delay in seeking assistance/treatment
   b) Media exaggerates/distorts incidents involving mentally ill individuals
   c) Mental illness is associated with violence
   d) Individuals are labeled according to their illness

7. What can you do to help someone who may have a substance use disorder?
   a) Recognize that the individual is not responsible for his/her behavior
   b) Consistently remind the person of the many consequences of having an addiction
   c) Focus on the positives; even small gains are steps forward
   d) Give the individual a specific timeline for his/her recovery

8. What can you do to help someone who may be thinking of suicide?
   a) Respect the person's right to privacy
   b) Ask the person directly if he/she is thinking of suicide
   c) Make every effort to brighten the person's mood
   d) Remind the person that everyone feels down at times

9. What can you do if you think you have been traumatized?
   a) Help yourself regain a sense of control by making as many daily decisions as possible
   b) Take as much time as you need to reflect on the factors that contributed to the traumatic event
   c) Allow people who care about you to relieve you of the stress of making daily decisions
   d) Be kind to yourself and don't push yourself to get back into a daily routine

10. Which of the following is an accurate description of bipolar disorder?
   a) A brain disorder characterized by mood swings from severely depressed to wildly manic
   b) A medical condition that causes a person to experience periods of extreme elation
   c) A brain illness that causes a person to be unable to determine what's real and what's not
   d) A medical condition with changes in brain function leading to dramatic, abnormal mood swings

Appendix E: Evaluation of Mindsight

Instruction: Select the answer that best reflects your views

1. Mindsight is a useful online resource for promoting mental health/illness awareness.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

2. Having completed Mindsight, I have a greater understanding of mental illness and some of the self-help strategies.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

3. Having completed Mindsight, I have a greater understanding of resources and supports that are available in the community.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

4. I am able to apply some of the knowledge I gained from completing Mindsight in my everyday life (work life, personal life, etc.)
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

5. I will recommend Mindsight to other individuals who are looking for a mental health/illness awareness resource.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

6. I found Mindsight to be a relatively easy resource to navigate through.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

7. Overall, my completion of Mindsight has had a positive impact on my attitudes towards individuals with mental illness.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

8. I think Mindsight is a useful mental health/illness awareness resource for university students from different ethnic backgrounds.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

9. The format of Mindsight takes into consideration the different learning styles of students.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

10. I frequently consult and am comfortable with using web-based materials for information.
   a) Strongly Agree
   b) Agree
   c) Undecided
   d) Disagree
   e) Strongly Disagree

11. What do you think are barriers that prevent students from accessing mental health services on campus?

12. Do you have any suggestions for improving web-based educational modules such as Mindsight?

Appendix F: Thank You Letter

Dear Student,

Thank you very much for participating in the study entitled “Strengthening Mental Health Awareness of University Students using an Online Training Module”. I appreciate the time you took from your schedule to complete the surveys and provide me with feedback to support this important research. The information you shared will be very helpful in supporting the mental health education of future allied health professionals. Please remember that any data pertaining to you as an individual participant will be kept confidential.

Sincerely,

Lavern Bourne

Appendix G: Dean Permission Letter

[redacted]

[redacted]

My name is Lavern Bourne and I am a doctoral student pursuing a degree in Public Health at Walden University, U.S.A. I am required to complete a final research project as a part of the graduation requirement. As a faculty member, I am excited about the opportunity to complete my research with students from my faculty. My dissertation title is “Strengthening Mental Health Awareness of University Students using an Online Training Module”. This study will utilize students enrolled in health science undergraduate degrees. The research methodology will involve a three-phase approach. The first phase will be the pretest during which participants will complete online surveys. This will be followed by the second phase which is an educational intervention using Mindsight. The last phase will be posttest online surveys.

The research will take place over a period of four weeks in November. Participants' time commitment is approximately 2 hours and the study may be completed in one sitting or multiple sitting over one week. All these activities will occur outside regular class time. The data collection will be anonymous, informed consent will be obtained and students’ confidentiality will be protected. I will need access to the ontariotechu.net email address of the students over the age of 18 years to be invited to participate in this research. I am currently in the process of submitting ethic approval from REB at Ontario Tech University and IRB at Walden University. I will be happy to supply you with notification of approval and any other supporting documents that you may deem to be necessary once they are completed.

I am looking forward to conducting this research and hereby request written permission to do so. Thanks for your generous help.

Sincerely,

Lavern Bourne

Dean's Response Letter

Reply Reply All Forward IM

Thu 10/10/2019 5:31 PM

Bernadette Murphy

RE: Request Permission

To Lavern Bourne

You replied to this message on 10/10/2019 5:54 PM.

Appendix I Dean permission Ontario Tech University.docx
24 KB

Hi Lavern,
You have my approval (I made a few minor corrections to your letter in case you need to submit it as part of your PhD). I have a few questions/suggestions:
1) Does Wendy Stanyon know you are doing this work?
2) You are much more likely to be successful recruiting students in class and/or via a Blackboard announcement with the instructor's approval than sending students emails. They don't usually answer them.
Alternately, have you thought about approaching Adam Cole about making this part of his first year course in Health Promotion and Healthy Active Living? It would be good material to include in that course-this is just one idea.

Good luck,

Bernadette

From: Lavern Bourne <Lavern.Bourne@uoit.ca>
Sent: Thursday, October 10, 2019 1:07 PM
To: Bernadette Murphy <Bernadette.Murphy@uoit.ca>
Subject: Request Permission

Hi Dr. Murphy,
I just wanted to update you on my dissertation progress. I am at the point of the REB application. I would greatly appreciate your permission to invite the Faculty of Health Sciences students to participate in my research. I have attached a request letter with detail information.
I will be happy to provide any answers to any questions that you have.

Happy Thanksgiving!

Best Regards
Lavern

Lavern Bourne, PhD.(c), MHSc, MLT
Associate Teaching Professor - Faculty of Health Sciences

Appendix H: Permission to use Mindsight

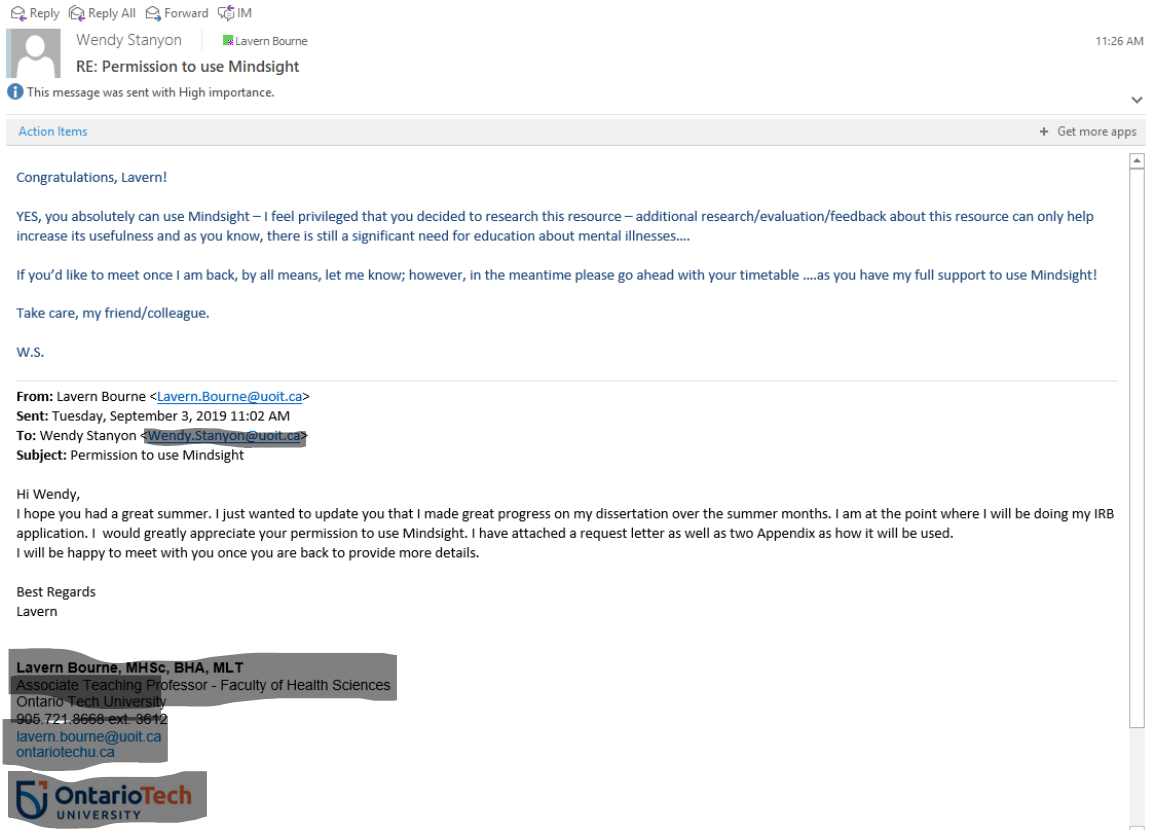
Ontario Tech University
2000 Simcoe Street North
Oshawa, Ontario
L1G 0C5
September 3, 2019

Re: Permission to use Mindsight

Dear Dr. Stanyon,
My name is Lavern Bourne a doctoral student at Walden University in the USA and I am requesting permission to use the education instrument Mindsight in my dissertation. I would also like to use ten questions from the modules as a knowledge pre/post-test (Please see attachment Appendix F) and conduct a participant evaluation of Mindsight (Please see attachment Appendix G).
Thank you for your attention in this matter and I look forward to your response.

Sincerely,

Lavern Bourne
Ph. D. Public Health (candidate)
Walden University



Reply Reply All Forward IM

Wendy Stanyon | Lavern Bourne 11:26 AM

RE: Permission to use Mindsight

This message was sent with High importance.

Action Items + Get more apps

Congratulations, Lavern!

YES, you absolutely can use Mindsight – I feel privileged that you decided to research this resource – additional research/evaluation/feedback about this resource can only help increase its usefulness and as you know, there is still a significant need for education about mental illnesses....

If you'd like to meet once I am back, by all means, let me know; however, in the meantime please go ahead with your timetable ....as you have my full support to use Mindsight!

Take care, my friend/colleague.

W.S.

From: Lavern Bourne <Lavern.Bourne@uoit.ca>
Sent: Tuesday, September 3, 2019 11:02 AM
To: Wendy Stanyon <Wendy.Stanyon@uoit.ca>
Subject: Permission to use Mindsight

Hi Wendy,
I hope you had a great summer. I just wanted to update you that I made great progress on my dissertation over the summer months. I am at the point where I will be doing my IRB application. I would greatly appreciate your permission to use Mindsight. I have attached a request letter as well as two Appendix as how it will be used.
I will be happy to meet with you once you are back to provide more details.

Best Regards
Lavern

[redacted]

Appendix I: Letter to Faculty

Faculty of Health Science
Ontario Tech University

Dear Colleagues,
I am pursuing a doctoral degree in Public Health at Walden University. As a faculty member, I am excited about the opportunity to complete my research with students from my faculty using the Mindsight module developed by Dr. Wendy Stanyon. My dissertation title is "Strengthening Mental Health Awareness of University Students using an Online Training Module". All students received an invitation in their ontariotechu email address but I would greatly appreciate it if you would also post the link below to the survey in your Blackboard courses. Thank you.
Sincerely,
Lavern Bourne

Dear Student,
You are invited to participate in a study on mental health awareness. Please click on the link below for more information and to access the survey.
https://www.surveymonkey.com/r/YKH7NZ8

Faculty of Health Science
Ontario Tech University

Dear Colleagues,
I am pursuing a doctoral degree in Public Health at Walden University. As a faculty member, I am excited about the opportunity to complete my research with students from my faculty using the Mindsight module developed by Dr. Wendy Stanyon. My dissertation title is "Strengthening Mental Health Awareness of University Students using an Online Training Module". All students received an invitation in their ontariotechu email address but I would greatly appreciate it if you would also post the link below to the survey in your Blackboard courses. Thank you.
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Appendix J: SPSS Results of Pre and Post survey analysis

```
GET
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UNIVERSITY\SURVEYMONKEY DATA COLLECTION FILES\post survey
data.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
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Choosetheanswerthatbestfitsyouragerange
    Whatisyourfamilyincome Whichofthefollowingethnicracialgroupthatbestappliestoyou
V16
    Whichofthefollowingprogramareenrolledin Whatisyourcurrentyearinyourprogram
    Doyouthinkmentalhealtheducationisanimportantfactorforyoursuccess
    Whatmethodofmentalhealtheducationwouldyoumostlikelyuse V21
    Haveyouexperiencedorthoughtyoumightbeexperiencingmentalhealthiss
    Haveyouaccessedmentalhealtheducationalservicesatanypointinyourli
    Doyouthinkthatthiswoulddamage John’scareer
IwouldbecomfortableifJohnwasmycolleagueatwork
    IwouldbecomfortableaboutinvitingJohntoadinnerparty
    HowlikelydoyouthinkitwouldbeforJohn’swifetoleavehim
    HowlikelydoyouthinkitwouldbeforJohntogetintroublewiththelaw
    IfIbelievedIwashavingamentalbreakdownmyfirstinclinationwouldbeto
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MEAN SKEWNESS SESKEW KURTOSIS SEKURT
  /ORDER=ANALYSIS.
```

Frequencies

[DataSet1] C:\Users\100382790\Documents\Documents\WALDEN UNIVERSITY\SURVEYMONKEY DATA COLLECTION FILES\post survey data.sav

Statistics

		I agree with the secondary use of research data for future purposes	Choose the answer that best describes your gender?	Choose the answer that best fits your age range?	What is your family income?	Which of the following ethnic/ racial group that best applies to you?
N	Valid	330	330	330	330	330
	Missing	0	0	0	0	0

Statistics

		V16	Which of the following program are enrolled in?	What is your current year in your program?	Do you think mental health education is an important factor for your success at school?	What method of mental health education would you most likely use?
N	Valid	330	330	330	330	330
	Missing	0	0	0	0	0

Statistics

		V21	Have you experienced, or thought you might be experiencing mental health issues at any point in your life?	Have you accessed mental health educational services at any point in your life?	Do you think that this would damage John's career?	I would be comfortable if John was my colleague at work?
N	Valid	330	330	330	330	330
	Missing	0	0	0	0	0

Statistics

		I would be comfortable about inviting John to a dinner party?	How likely do you think it would be for John's wife to leave him?	How likely do you think it would be for John to get in trouble with the law?	If I believed I was having a mental breakdown, my first inclination would be to get professional attention.	The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.
N	Valid	330	330	330	330	330
	Missing	0	0	0	0	0

Statistics

		If I were experiencing a serious emotional crisis at this point in my life, I would be confident that I could find relief in psychotherapy.	There is something admirable in the attitude of a person who is willing to cope with his or her conflicts and fears without resorting to professional help.	I would want to get psychological help if I were worried or upset for a long period of time.	I might want to have psychological counseling in the future.	A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help.
N	Valid	330	330	330	330	330
	Missing	0	0	0	0	0

Frequency Table

I agree with the secondary use of research data for future purposes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	.3	.3	.3
	No	9	2.7	2.7	3.0
	Response	1	.3	.3	3.3
	Yes	319	96.7	96.7	100.0
	Total	330	100.0	100.0	

Choose the answer that best describes your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	285	86.4	86.4	86.4
	Male	44	13.3	13.3	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

Choose the answer that best fits your age range?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	248	75.2	75.2	75.2
	26-35	62	18.8	18.8	93.9
	36-45	17	5.2	5.2	99.1
	over 45	2	.6	.6	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

What is your family income?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	.6	.6	.6
	$20,000 - $50,000	86	26.1	26.1	26.7
	$51, 000 - $100,000	130	39.4	39.4	66.1
	Less than $20, 000	39	11.8	11.8	77.9
	More than $100,000	72	21.8	21.8	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

Which of the following ethnic/ racial group that best applies to you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	African	11	3.3	3.3	3.3
	Caribbean	25	7.6	7.6	10.9
	Caucasian	178	53.9	53.9	64.8
	East Asian	23	7.0	7.0	71.8
	Latino/ Hispanic	2	.6	.6	72.4
	Middle Eastern	15	4.5	4.5	77.0
	Mixed	16	4.8	4.8	81.8
	Other (please specify)	10	3.0	3.0	84.8
	Response	1	.3	.3	85.2
	South Asian	49	14.8	14.8	100.0
	Total	330	100.0	100.0	

V16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		319	96.7	96.7	96.7
	Black	1	.3	.3	97.0
	Carribean and Canadian	1	.3	.3	97.3
	ethnically Indian & hispanic from the caribbean	1	.3	.3	97.6
	european	1	.3	.3	97.9
	European/South African	1	.3	.3	98.2
	filipino	1	.3	.3	98.5
	Native American	1	.3	.3	98.8
	Other (please specify)	1	.3	.3	99.1
	south east asian	1	.3	.3	99.4
	Southeast Asian	1	.3	.3	99.7
	West asian	1	.3	.3	100.0
	Total	330	100.0	100.0	

Which of the following program are enrolled in?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor of Allied Health Sciences	18	5.5	5.5	5.5
	Bachelor of Health Science (Honours)	47	14.2	14.2	19.7
	Bachelor of Health Science (Honours) in Medical Laboratory Science	39	11.8	11.8	31.5
	Bachelor of Science (Honours) in Nursing	127	38.5	38.5	70.0
	Human Health Science specialization	30	9.1	9.1	79.1
	Kinesiology Major	53	16.1	16.1	95.2
	Public Health specialization	15	4.5	4.5	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

What is your current year in your program?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-year	73	22.1	22.1	22.1
	2-year	62	18.8	18.8	40.9
	3-year	111	33.6	33.6	74.5
	4-year	72	21.8	21.8	96.4
	More than 4 years	11	3.3	3.3	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

Do you think mental health education is an important factor for your success at school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	85	25.8	25.8	25.8
	Disagree	5	1.5	1.5	27.3
	Neutral	15	4.5	4.5	31.8
	Response	1	.3	.3	32.1
	Strongly agree	206	62.4	62.4	94.5
	Strongly disagree	18	5.5	5.5	100.0
	Total	330	100.0	100.0	

What method of mental health education would you most likely use?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Accessing information from a family doctor	24	7.3	7.3	7.3
	Going to a professional therapist(face-to-face)	167	50.6	50.6	57.9
	Other (please specify)	7	2.1	2.1	60.0
	Reading material from a book	23	7.0	7.0	67.0
	Response	1	.3	.3	67.3
	Web-based educational program	108	32.7	32.7	100.0
	Total	330	100.0	100.0	

V21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		322	97.6	97.6	97.6
	All	1	.3	.3	97.9
	combination of methods: web-based program and accessing information via a family doctor	1	.3	.3	98.2
	Idk	1	.3	.3	98.5
	Mixed	1	.3	.3	98.8
	Other (please specify)	1	.3	.3	99.1
	Reading resources (book or web) in combination with free access to therapy online (I.e. email or chat based)	1	.3	.3	99.4
	Seminar	1	.3	.3	99.7
	yoga, exercise	1	.3	.3	100.0
	Total	330	100.0	100.0	

Have you experienced, or thought you might be experiencing mental health issues at any point in your life?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	.6	.6	.6
	No, I never had this concern	34	10.3	10.3	10.9
	Response	1	.3	.3	11.2
	Yes, I had these concerns but no longer do	95	28.8	28.8	40.0
	Yes, I still continue to have these concerns	198	60.0	60.0	100.0
	Total	330	100.0	100.0	

Have you accessed mental health educational services at any point in your life?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	.3	.3	.3
	No	151	45.8	45.8	46.1
	Response	1	.3	.3	46.4
	Yes	177	53.6	53.6	100.0
	Total	330	100.0	100.0	

Do you think that this would damage John's career?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.5	1.5	1.5
	Agree	107	32.4	32.4	33.9
	Disagree	4	1.2	1.2	35.2
	Don't know	4	1.2	1.2	36.4
	Neutral	6	1.8	1.8	38.2
	Response	1	.3	.3	38.5
	Strongly agree	201	60.9	60.9	99.4
	Strongly disagree	2	.6	.6	100.0
	Total	330	100.0	100.0	

I would be comfortable if John was my colleague at work?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		6	1.8	1.8	1.8
	Agree	32	9.7	9.7	11.5
	Disagree	101	30.6	30.6	42.1
	Don't know	16	4.8	4.8	47.0
	Neutral	96	29.1	29.1	76.1
	Response	1	.3	.3	76.4
	Strongly agree	5	1.5	1.5	77.9
	Strongly disagree	73	22.1	22.1	100.0
	Total	330	100.0	100.0	

I would be comfortable about inviting John to a dinner party?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.5	1.5	1.5
	Agree	33	10.0	10.0	11.5
	Disagree	120	36.4	36.4	47.9
	Don't know	13	3.9	3.9	51.8
	Neutral	83	25.2	25.2	77.0
	Response	1	.3	.3	77.3
	Strongly agree	5	1.5	1.5	78.8
	Strongly disagree	70	21.2	21.2	100.0
	Total	330	100.0	100.0	

How likely do you think it would be for John's wife to leave him?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.5	1.5	1.5
	Don't know	33	10.0	10.0	11.5
	Neutral	60	18.2	18.2	29.7
	Quite likely	165	50.0	50.0	79.7
	Response	1	.3	.3	80.0
	Unlikely	6	1.8	1.8	81.8
	Very likely	58	17.6	17.6	99.4
	Very unlikely	2	.6	.6	100.0
	Total	330	100.0	100.0	

How likely do you think it would be for John to get in trouble with the law?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.5	1.5	1.5
	Don't know	6	1.8	1.8	3.3
	Neutral	32	9.7	9.7	13.0
	Quite likely	150	45.5	45.5	58.5
	Response	1	.3	.3	58.8
	Unlikely	5	1.5	1.5	60.3
	Very likely	129	39.1	39.1	99.4
	Very unlikely	2	.6	.6	100.0
	Total	330	100.0	100.0	

If I believed I was having a mental breakdown, my first inclination would be to get professional attention.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		24	7.3	7.3	7.3
	Agree	78	23.6	23.6	30.9
	Disagree	55	16.7	16.7	47.6
	Partly agree	108	32.7	32.7	80.3
	Partly disagree	64	19.4	19.4	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		23	7.0	7.0	7.0
	Agree	13	3.9	3.9	10.9
	Disagree	148	44.8	44.8	55.8
	Partly agree	40	12.1	12.1	67.9
	Partly disagree	105	31.8	31.8	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

If I were experiencing a serious emotional crisis at this point in my life, I would be confident that I could find relief in psychotherapy.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		25	7.6	7.6	7.6
	Agree	78	23.6	23.6	31.2
	Disagree	18	5.5	5.5	36.7
	Partly agree	152	46.1	46.1	82.7
	Partly disagree	56	17.0	17.0	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

There is something admirable in the attitude of a person who is willing to cope with his or her conflicts and fears without resorting to professional help.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		23	7.0	7.0	7.0
	Agree	57	17.3	17.3	24.2
	Disagree	82	24.8	24.8	49.1
	Partly agree	83	25.2	25.2	74.2
	Partly disagree	84	25.5	25.5	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

I would want to get psychological help if I were worried or upset for a long period of time.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		23	7.0	7.0	7.0
	Agree	166	50.3	50.3	57.3
	Disagree	12	3.6	3.6	60.9
	Partly agree	96	29.1	29.1	90.0
	Partly disagree	32	9.7	9.7	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

I might want to have psychological counseling in the future.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		22	6.7	6.7	6.7
	Agree	171	51.8	51.8	58.5
	Disagree	11	3.3	3.3	61.8
	Partly agree	86	26.1	26.1	87.9
	Partly disagree	39	11.8	11.8	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		23	7.0	7.0	7.0
	Agree	70	21.2	21.2	28.2
	Disagree	20	6.1	6.1	34.2
	Partly agree	153	46.4	46.4	80.6
	Partly disagree	63	19.1	19.1	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

SPSS Results

Frequencies

Statistics

		Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.	A person should work out his or her own problems; getting psychological counseling should be a last resort.	Personal and emotional troubles, like many things, tend to work themselves out.	Which of the following is a self-help strategy for managing an anxiety disorder?	Which of the following are common signs and symptoms of depression?
N	Valid	330	330	330	330	330
	Missing	0	0	0	0	0

Statistics

		Which of the following is the primary reason why Individuals engage in self-harming behaviors?	What is one of the main risk factors for developing an eating disorder?	What is the best way that you can help an individual who may be experiencing a psychotic episode?	Which of the following is one of the most serious consequences of the stigma associated with mental illness?	What can you do to help someone who may have a substance use disorder?
N	Valid	330	330	330	330	330
	Missing	0	0	0	0	0

Statistics

		What can you do to help someone who may be thinking of suicide?	What can you do if you think you have been traumatized?	Which of the following is an accurate description of bipolar disorder?
N	Valid	330	330	330
	Missing	0	0	0

Frequency Table

Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		23	7.0	7.0	7.0
	Agree	30	9.1	9.1	16.1
	Disagree	80	24.2	24.2	40.3
	Partly agree	106	32.1	32.1	72.4
	Partly disagree	90	27.3	27.3	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

A person should work out his or her own problems; getting psychological counseling should be a last resort.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		22	6.7	6.7	6.7
	Agree	14	4.2	4.2	10.9
	Disagree	167	50.6	50.6	61.5
	Partly agree	23	7.0	7.0	68.5
	Partly disagree	103	31.2	31.2	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

Personal and emotional troubles, like many things, tend to work themselves out.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		22	6.7	6.7	6.7
	Agree	7	2.1	2.1	8.8
	Disagree	106	32.1	32.1	40.9
	Partly agree	60	18.2	18.2	59.1
	Partly disagree	134	40.6	40.6	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

Which of the following is a self-help strategy for managing an anxiety disorder?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		33	10.0	10.0	10.0
	Engage in regular, strenuous exercise to facilitate sleep	65	19.7	19.7	29.7
	Make an effort to avoid stressful situations	26	7.9	7.9	37.6
	Response	1	.3	.3	37.9
	Spend time reflecting on the illogical nature of your worries	36	10.9	10.9	48.8
	Turn your negative thinking into positive statements	169	51.2	51.2	100.0
	Total	330	100.0	100.0	

Which of the following are common signs and symptoms of depression?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		34	10.3	10.3	10.3
	Apathy; feelings of guilt; frequent crying	10	3.0	3.0	13.3
	Extreme boredom; pacing back and forth; difficulty with decision- making	1	.3	.3	13.6
	Highs/lows; irritability; low self-esteem	14	4.2	4.2	17.9
	Hopelessness/helplessness; lack of energy; eating/sleeping difficulties	270	81.8	81.8	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

Which of the following is the primary reason why Individuals engage in self-harming behaviors?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		34	10.3	10.3	10.3
	Control their feelings of anger	9	2.7	2.7	13.0
	Cope with their emotional pain	250	75.8	75.8	88.8
	Gain the attention of people around them	9	2.7	2.7	91.5
	Punish themselves for their negative thinking	27	8.2	8.2	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

What is one of the main risk factors for developing an eating disorder?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		33	10.0	10.0	10.0
	A family history of an eating disorder	149	45.2	45.2	55.2
	Adhering to a strict vegetarian diet	8	2.4	2.4	57.6
	An obsession with physical activity	81	24.5	24.5	82.1
	Low socioeconomic status	58	17.6	17.6	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

What is the best way that you can help an individual who may be experiencing a psychotic episode?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		33	10.0	10.0	10.0
	Assisting them in obtaining professional help early	246	74.5	74.5	84.5
	Encouraging them to develop a healthier lifestyle	13	3.9	3.9	88.5
	Focusing away from their bizarre behavior	30	9.1	9.1	97.6
	Pointing out the illogical nature of their thoughts	7	2.1	2.1	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

Which of the following is one of the most serious consequences of the stigma associated with mental illness?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		33	10.0	10.0	10.0
	Individuals are labeled according to their illness	72	21.8	21.8	31.8
	Individuals may delay in seeking assistance/treatment	172	52.1	52.1	83.9
	Media exaggerates/distorts incidents involving mentally ill individuals	28	8.5	8.5	92.4
	Mental illness is associated with violence	24	7.3	7.3	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

What can you do to help someone who may have a substance use disorder?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		34	10.3	10.3	10.3
	Consistently remind the person of the many consequences of having an addiction	24	7.3	7.3	17.6
	Focus on the positives; even small gains are steps forward	207	62.7	62.7	80.3
	Give the individual a specific timeline for his/her recovery	14	4.2	4.2	84.5
	Recognize that the individual is not responsible for his/her behavior	50	15.2	15.2	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

What can you do to help someone who may be thinking of suicide?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		34	10.3	10.3	10.3
	Ask the person directly if he/she is thinking of suicide	185	56.1	56.1	66.4
	Make every effort to brighten the person's mood	71	21.5	21.5	87.9
	Remind the person that everyone feels down at times	33	10.0	10.0	97.9
	Respect the person's right to privacy	6	1.8	1.8	99.7
	Response	1	.3	.3	100.0
	Total	330	100.0	100.0	

What can you do if you think you have been traumatized?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		33	10.0	10.0	10.0
	Allow people who care about you to relieve you of the stress of making daily decisions	20	6.1	6.1	16.1
	Be kind to yourself and don't push yourself to get back into a daily routine	101	30.6	30.6	46.7
	Help yourself regain a sense of control by making as many daily decisions as possible	57	17.3	17.3	63.9
	Response	1	.3	.3	64.2
	Take as much time as you need to reflect on the factors that contributed to the traumatic event	118	35.8	35.8	100.0
	Total	330	100.0	100.0	

Which of the following is an accurate description of bipolar disorder?

	Frequency	Percent	Valid Percent	Cumulative Percent
	33	10.0	10.0	10.0
A brain disorder characterized by mood swings from severely depressed to wildly manic	175	53.0	53.0	63.0
A brain illness that causes a person to be unable to determine what's real and what's not	4	1.2	1.2	64.2
A medical condition that causes a person to experience periods of extreme elation	14	4.2	4.2	68.5
A medical condition with changes in brain function leading to dramatic, abnormal mood swings	103	31.2	31.2	99.7
Response	1	.3	.3	100.0
Total	330	100.0	100.0	

SET
TLook='C:\PROGRA~1\IBM\SPSS\STATIS~1\25\Looks\APA_TimesRoma_12pt.stt'
Small=0.0001 SUMMARY=None THREADS=AUTO TFit=Both
DIGITGROUPING=No LEADZERO=No TABLERENDER=light.

Appendix K: Response to 2 Open-Ended Questions

Question 1: What do you think are barriers that prevent students from accessing mental health services on campus?"

1. Thinking it will cost them a lot of money The location of the services may be inaccessible to some (ie. an out of the way location; different campus) unsure if their use of the service will be confidential/kept private Time management (ie. services are not available
2. Stigma, and time. It can be difficult to fit accessing resources into an academic schedule.
3. - Feeling fearful that others may judge them - The worry that comes along with speaking to someone about extremely personal issues
4. stigma, lack of time, expense
5. -lack of time -stigma
6. wait times to see a counsellor
7. Our school doesn't do a lot to address what mental health is, therefore a lot of students don't know when to access mental health services or why they would need to. The lack of insight on what mental health services on campus can do for students turns students away from seeking help or advice. The lack of insight/education on what mental health is and what it looks like, results in students questioning if they should or shouldn't access services because they are unaware of what they should seek mental health services for e.g.- anxieties, stress, depression, being overwhelmed, mindfulness strategies, ways to cope with minor anxieties etc.

8. May be they do not know that they really need help
9. Stigma
10. Wait lists, available time around school and studying, motivation to go
11. First leaning about where and how to get to mental health services, and how to do so anonymously
12. Cost/ doctors notes/ intake questionnaire's exclusion criteria (i actually had to lie to get into the CBT program on campus)
13. stigma Mental health is just the more positive way of saying mental illness. It affects the way self and others look at the student. People may not want to 'advertise' their problems.
14. Since it's on campus, students are afraid that the school might know about their mental status and have any disadvantages. Or maybe afraid that any of their friends or classmates know about their mental illness.
15. Not knowing where to find resources
16. Money, time, mental health getting in the way of commitments/appts.
17. Stigma, school schedule
18. stigma and cost
19. Time and money. Solutions are not timely and appear irrelevant to student goals
20. Being afraid of stigmatizing, not understood. May believe that nothing could help
21. Fear

22. Wait times, confusion in regard to who offers what services and what services help with what issues. School not wanting to be involved with student non academic lives
23. Stigma
24. They feel they’re going to be judged for doing so
25. Not knowing what is available to them, and feeling embarrassed to accept that they might need help
26. Too busy with school work. May feel like there’s not enough time to focus on oneself
27. Embarrassment / self denial
28. Fears of being judged. Fear that people who are close to them will find out. Fear that their reputations will get tarnished.
29. The "it will not happen to me" attitude or thinking they can deal with it by themselves. Lack of reaching put for help, last thing you feel like doing is surrounding yourself with someone- which is counterproductive... but thinking is skewed when you're in that state.
30. stigma and the thought of letting other people know
31. Time is the biggest barrier -- as a Nursing student, I rarely have extra time, and especially during the business hours for the mental health counselling. I have tried to access this service in the past but it never seems to be able to accommodate my busy schedule.
32. Lack of availability -- crisis appointment needed, but no spots until next month.

33. Time and Money
34. The stigma that surrounds mental health issues.
35. Stigma
36. The stigma. Also some people may not think they are not “unwell” enough.
37. Lack of appointment availability for counselling sessions - the counselors on staff are fantastic but with the amount of students that need/want to be seen it is hard to get an appointment.
38. Time. I strongly feel that time management is so difficult especially during your first year of uni. Personally, I feel so overwhelmed with course load, trying to make myself + parents proud, worried about failing because I’ll look dumb and the list goes on, that I forget my mental health matters. With that being said, even if I did remember to put my mental health first, utilizing the health services on campus would be difficult because of how little time I already have to juggle through the list of things I need to get done daily.
39. administrative hurdles
40. time, not aware that there is help available
41. judgement from others
42. stigma, limited time, having to schedule and go on campus if they are an online student who is also working, fear of not being heard, and a lack of resources (i.e., must work).
43. Stigma around poor mental health.
44. Not enough counselors leading to long wait times for appointments

45. Stigma
46. the wait times it takes to actually see a guidance counsellor
47. Too long of wait times to see a counsellor.
48. Stigma and social pressures to fit in.

Question 2: Do you have any suggestions for improving web-based educational modules such as Mindsight?

1. More interactive aspects! The matching activity was nice but I couldn't get it to work on my PC (couldn't drag and drop as the instructions said). The option to ask questions to mental health professionals, like a forum? Or and FAQ page.
2. Do not require the use of an account. I think that training like this should be more widely available without registering, which can deter people from signing up and then coming back if they forget their login information. Make training 'skippable', so that returning users can return to where they left off. If the training is required for work, then an account can be used as an alternative, where training is linear and a certificate of completion is awarded at the end.
3. include questions regarding other mental illnesses as well
4. I didn't complete the Mindsight portion
5. advertise more
6. N/A
7. no
8. No
9. N/A

10. N/A
11. Offer in other languages - leave a comment option, public or private.
12. Be open to learn from the individual, not just teach them.
13. It would be better we didn’t have to give personal info (ex. Phone number, address) when we sign up.
14. More user friendly for cell phones as pjones are more often used by students.
15. NA
16. Improved interface, Easier access to modules, finding relevance of viewing modules to academic achievement.
17. I did not start Mindsight yet
18. Not sure
19. Better navigation
20. No
21. No
22. No
23. N/A
24. There's a lot of personal information asked just to register an account. A lot of people would probably not want to share their personal address, phone number etc. The sign up should only be for email and username and pw if you want to encourage more people to sign up.
25. No
26. No, I do not

27. None at this time.
28. N/A
29. Include additional web-based resources with information on other disorders and coping strategies
30. Not as of right now. Great so far!
31. not to overwhelm the user with too many questions. make smaller modules
32. yes, add some self help plan of care ideas for students that are stressed out about too many homework and projects
33. I have no suggestions at this time. Sorry
34. Indicate where to click first/ begin on the site.
35. Cleaner interfaces. A lot of mental health resources look like they're from the 80's
36. No

Appendix L: REB Approval from Ontario Tech University

Date:	*December 11, 2019*
To:	*Lavern Bourne*
From:	*Paul Yielder, REB Vice-Chair*
File # & Title:	*15597 - Strengthening Mental Health Awareness of University Students using an Online Training Module*
Status:	***CHANGE REQUEST APPROVED***
Current Expiry:	***November 01, 2020***

Notwithstanding this approval, you are required to obtain/submit, to Ontario Tech's Research Ethics Board, any relevant approvals/permissions required, prior to commencement of this project.

The Ontario Tech Research Ethics Board (REB) has reviewed and approved the change request related to the research study named above. This request has been reviewed to ensure compliance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2 2014), the Ontario Tech Research Ethics Policy and Procedures, and associated regulations. As the Principal Investigator (PI), you are required to adhere to the research protocol described in the REB application as last reviewed and approved by the REB.

Under the Tri-Council Policy Statement 2, the PI is responsible for complying with the continuing research ethics reviews requirements listed below.

Renewal Request Form: All approved projects are subject to an annual renewal process. Projects must be renewed or closed by the expiry date indicated above ("Current Expiry"). Projects not renewed 30 days post expiry date will be automatically suspended by the REB; projects not renewed 60 days post expiry date will be automatically closed by the REB. Once your file has been formally closed, a new submission will be required to open a new file.

Change Request Form: If the research plan, methods, and/or recruitment methods should change, please submit a change request application to the REB for review and approval prior to implementing the changes.

Adverse or Unexpected Events Form: Events must be reported to the REB within 72 hours after the event occurred with an indication of how these events affect (in the view of the Principal Investigator) the safety of the participants and the continuation of the protocol (i.e. un-anticipated or un-mitigated physical, social or psychological harm to a participant).

Research Project Completion Form: This form must be completed when the research study is concluded.

Always quote your REB file number (**15597**) on future correspondence. We wish you success with your study.

Sincerely,

Dr. Paul Yielder
REB Vice-Chair
paul.yielder@uoit.ca

Emma Markoff
Research Ethics Assistant
researchethics@uoit.ca

NOTE: If you are a student researcher, your supervisor has been copied on this message.