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Major Depressive Disorder: Precursors, Predictors, and Coping Mechanism Among Undergraduate Students

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Walden University
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Abstract

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M.S., University of Nigeria, Nsukka, 1993

B.Ed., University of Ibadan, Ibadan, 1986

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Major depressive disorder (MDD) is common among college students. The disease perpetuates depressive symptoms and potentially leads to chronic depressive episodes. Existing literature has shown that students who use both cognitive and behavioral maladaptive coping skills are more prone to endure depressive symptoms and poorer academic performance. Despite these known associations, little research has examined the relationship between coping skills and self-efficacy in response to warning signs of MDD in college students. This study sought to fill the gaps in the research of MDD related to precursors, predictors, and coping mechanisms among undergraduate students in a national sample of U.S. college students. Secondary data (N = 6,713) were analyzed from the Healthy Minds Study 2012, which used the Patient Health Questionnaire-9 (PHQ-9) with a test-retest reliability. Social learning and social cognitive theories were used as the theoretical frameworks to focus on problems such as management of life activities, academic success, and maladaptive beliefs. Analyses of the data from the cross-sectional survey using multiple linear and logistic regressions indicated a statistically significant relationship between depressive symptoms and the potential predictive factors of MDD. These findings contribute positively to social change by informing the work of therapists and program developers, who may use these results to create programs that reduce depressive symptoms among undergraduates.

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Dedication

First, I give honor to the Almighty God for the strength, knowledge, wisdom and abundant life to pursue my goals and aspirations in life regardless of all setbacks.

I dedicate this dissertation to my beloved and blessed children. To my incredible son, Ronald Bickham, who always strives hard, with high academic aspirations and positive thinking in all works he undertakes; and my daughter, Utibe Bickham-Wright, who has an amazing thirst for knowledge and high academic pursuits. Completing this dissertation would not have been possible without your support in all of my pursuits and endeavors.

To my wonderful parents, Charles and Rosaline Bassey Udo Antia, who always believed in me, and taught me that schooling would give me a better life in my future journeys and accomplishments, you were the key foundation for my success. Thank you for your prayers and I will forever miss you.

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I acknowledge my children for their caring attitudes, respectfulness, unconditional love, and financial and emotional support. I have to mention this because it means a lot to me. My children presented me with cards of encouragement, enveloped in love and with a sincere heart. From my son, the card expresses “so even though I don’t say it enough, always remember that I love you and that love is too small of a word for all you mean to me”. My daughter added “I know you can do it, keep going! You can do it! I know you have what it takes to do it.” This forever remains with me.

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Chapter 1: Introduction to the Study

Melancholia has been a subject of interest to many psychologists, psychiatrists, and historians. The ancient Egyptians had knowledge of the human body in relation to the physiological development, surgery, medicine, and mummification (Ziskind & Halioua, 2007). Melancholia was one of the most widespread mental illnesses in ancient times; however, it was not considered as a depressive disorder. Lawlor (2012) researched depression and melancholia during different periods of time. Starting from ancient Greece, analyzed the signs of depression in Jason of *Argonauts* as well as signs of melancholia in *Iliad's* Bellerophon.

During the antidepressant era in the 20th century, when major depressive disorder was prevalent, people were introduced to placebos, which had a unique effect on those suffering from depression and alleviated some patient symptoms. However, despite some successful cases, many people who suffer from depressive symptoms continue to turn to drugs to alleviate their problems, and as such, more methods of treatment are warranted.

Healy (2013) compared and contrasted the signs and cases of depression in the past and present. The research results provide support for the hypothesis that the cases of major depressive disorder have increased at the end of the 20th century. Additionally, the research supports the notion that depression and melancholia should be considered as different disorders; therefore, the treatment strategies should vary (Healy, 2013).

Depression was identified as one of the psychiatric symptoms of major depressive disorder. In 1893, Robert Burton suggested various treatments for melancholia, such as a healthy diet, a proper amount of sleep, art and music therapy, useful work, and a sincere conversation with a friend regarding the problem. These aspects are similar to some of

the elements of modern psychotherapy. Later in the 18th century, the term *depression* was recognized in physiology and economics. That is, the decline in life quality related to various economic activities including loss of job, financial crises, lack of investment, and reduction in standard of living were recognized. The problem requires more sophisticated research because there remain many gaps in identification, treatment, and the effect on different spheres of human life.

Major depressive disorder (MDD) often occurs during the years of undergraduate education. MDD has affected college students across the United States with shared symptoms reported across the nation (Eisenberg, Golberstein, & Hunt, 2009). Additionally, the American College Health Association (2008) confirmed that approximately 18.4% of college students have occasionally experienced symptoms of major depression in the past 5 years.

The overall purpose of the present study was to determine if coping mechanisms and self-efficacy improve the prediction of MDD beyond conventional predictors, such as gender. The study used archival data collected from a national sample of college students in the United States. In addition, the study evaluated the cognitive and behavioral elements of coping mechanisms employed by college students in the sample population. This first chapter highlights research conducted on MDD symptoms to date. It also discusses major discoveries and the limitations found in these previous studies. Additionally, the introductory section includes the problem statement, the definition of the research purposes, the identification of the limitations, and the discussion of the nature of the study. The introduction section explains the reasons for the conducting the research and specifies the positive social changes the study may bring about.

Major depressive disorder is a common disease and is often associated with mental disability and suicides (Eisenberg, Golberstein, & Hunt, 2009). Certain aspects of MDD such as: the relationship with cognitive skills, self-efficacy, and coping mechanisms as possible predictors are understudied. Predictors, causes, duration, and treatment aspects need further research, as there is not agreement amongst researchers. Symptoms of depression can result from substance abuse behaviors, the use of the internet, and sleep disturbances. (Kawada, Katsumata, Suzuki, & Shimizu, 2007).Drugs and alcohol addiction can affect students' health in a more serious way, as well as cause sleep disturbance (Kawada, et al, 2007). Harder, Stuart, and Anthony (2008) found that individuals with cannabis addiction experienced depressive symptoms. The abuse of the internet, alcohol, and other drug addictions add to the development of MDD symptoms among college students, increasing the likelihood of this age group to develop MDD symptoms. However, it is important to note that some substance abuse is an attempt at self-medication for depression that did not begin as a function of substance abuse. Thus, depression can lead to substance abuse, but the reciprocal can occur as well. Substance abuse can lead to depression, which adds a layer of complexity to understanding the relationship between depression and substance abuse (Kenney & Holahan, 2008.)

Depression was found to be associated with intrusive thoughts and sleep disturbances (Kawada, Katsumata, Suzuki, & Shimizu, 2007; Kuehner, Huffziger, & Liebsch, 2009). This resulted in further research related to the consideration of the effect of intrusive thoughts and sleep disturbances on depression occurrence. Ciesla and Roberts (2007) conducted research where the participants were stimulated to experience sad moods and think about their sadness to encourage the intrusive thought process or be

distracted. The results indicated that intrusive thoughts were more strongly associated with depression. The research also defined college students as a population more likely to be affected.

Significant research on this topic has been conducted; however, there are many aspects of depression that remain unclear to scientists. Begg, Vos, Barker, Stevenson, Stanley, and Lopez (2007) assessed the mental health of young adults in the United States and identified that one of the leading specific types of mental disease included depression, and accounted for almost one quarter (24%) of mental disorders in this age group in 2003.

The study aims to fill the gaps in the research of MDD related to precursors, predictors, and coping mechanisms among undergraduate students. The main aim of the study was to determine if coping mechanisms and limitations in self-efficacy improve the prediction of MDD using a national sample of college students in the United States over and above conventional predictors, such as gender. In addition, the study evaluated the cognitive and behavioral elements of coping mechanisms employed by college students across the nation. The research involves the analysis of the probable precursors and predictors of these MDD symptoms.

Depression in young adults is a growing public health concern. The most important consideration is the fact that the first cases of MDD occurred among adolescents aged 14-24 even though not all cases are detected immediately; however, many people suffer from additional depressive episode in the future and future relapses. Depression can impair psychosocial development and academic success. It is a strong predictor of suicide, which is the third leading cause of death in 15-24 year olds and the

second leading cause of death among college students (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Farabaugh et al., 2012). Early onset of depression is also a predictor of more serious illnesses in adulthood (Copeland, Shanahan, Costello, & Angold, 2009). The level of mortality among school students is on the rise. Reduction of negative behavior may result in positive changes in the society, particularly among college students as the audience in this study. College student understanding of consequences of health risk behaviors in relation to MDD symptoms and the impact on academic performance can be broadened .The findings in this study highlighted the importance of available resources that help students face challenges and changes as they occur, including a reduction in school dropout rate, suicidal ideation and attempt, alcohol and drug consumption. Positive decision–making to complete their program of study and re-integrate into the society and the workforce is also important. Other implications for positive social change include decreased symptoms of depression and more positive coping mechanisms. Positive social change in college students will occur especially during orientation and freshmen year when students may benefit most, in order to help decrease occurrences and potential symptoms of MDD among college students later on in their college life (Smith, Barston, & Segal, 2013).

Major depressive disorder affects not only the diagnosed person, but also the members of their family creating difficulties in communication, emotional and behavioral disparities, and personal growth dimensions. Along with children suffering from MDD, parents also expressed higher levels of disturbances, poor communication, less confidential family environments, and a lack of family involvement (Ogburn et al., 2010). Family is one of the most important cells of the society and if depression causes

additional problems to its development, it is an issue of serious concern. This may indicate that MDD symptoms may be a result of not only external factors, but also the consequence of gene heredity. Klengel and Binder (2013) stressed the development of gene-environment interactions, a strategy aimed at the prevention of the occurrence of the disease.

Early identification and coping may result in eliminating or abating serious consequences of risky behaviors, chronic and relapses, premature death, functional impairment, discrimination, and humiliation (Luby, 2010; Patel, Flisher, Hetrick, & McGorry, 2007). Considering the already existing literature studies mentioned in this paper, much attention is paid to the search of coping strategies, but none of them is considered as a universal intervention successfully applied to any situation.

When a family member suffers from MDD symptoms, family ties are negatively impacted; however, the contribution of the family may also diminish the depressive feelings (Moor & Komter, 2012). However, Restifo and Bogels (2009) stated that the healing family qualities are outweighed by unhealthy family conditions, bad communication, and a negative emotional environment, that may cause depressive symptoms or even disorders among adolescents. If for example, the mother or father, or another child in the family has MDD, that other teenager living in the household may also be more likely to develop MDD. Additionally, the inability to understand the precursors and predictors of MDD and the failure to address the coping mechanisms among undergraduate students may lead to serious problems in society, including unpredictable aggressive and risky behaviors. (McCoy, & Brewer, 2011).

According to Horesha, Klomekd, and Apter (2008), major stress disorder is a serious barrier on the ability to adapt to the surrounding change as it may contribute to MDD. Individuals suffering from MDD can suffer from a variety of difficulties that make social integration difficult such as psychological and linguistic (Salgado & Clegg, 2011), behavioral (Grigoryan & Aksenova, 2008), social, and emotional (Cooper & Cefai, 2013).

According to Burnett-Zeigler, Zivin, Islam, and Ilgen (2012), if depression is left untreated the social burden can include increased levels of morbidity, poor life quality, and higher mortality. Therefore, studying the predictors, causes, and treatment of MDD symptoms, some social issues such as family institution, life quality, the level of morbidity and mortality, and societal burden could be positively affected.

Background of the Study

The two most common forms of depression seen in primary care settings are MDD and dysthmyia, which is also called chronic minor depression (National Institute of Mental Health [NIMH], 2008). In the American Psychiatric Association (2000) DSM-IV Standard Axis I, nine criteria are used to diagnose MDD, which is characterized as a serious mood disorder. This includes clinical disorders and development and learning disorders. Major depressive disorder as a mental disorder is classified into five axis points or proportions (mild, moderate, severe without psychotic features/severe with psychotic features, and with catatonic feature) to assist the researchers, professionals, and clinicians to evaluate, diagnose, and provide effective treatment plans for patients (American Psychological Association [APA], 2000).

According to Fava and Cassano (2008), major depressive disorder or clinical depression is a mood disorder that arouses feelings of sadness, loss, anger, or frustration interfering with everyday life for a long period. Patients with depression suffer from the loss of pleasure in usual activities, have sleep disturbances, loss of appetite or overeating, social withdrawal, and often think about suicide. It has been observed that students who utilize maladaptive coping skills, both cognitive and behavioral, are more prone to endure depressive symptoms and poorer academic performance. However, little or no research was performed on the relationship between coping skills and self-efficacy in response to the warning signs of MDD in college students and many aspects of this relationship remains to be analyzed.

The problem of major depression and coping strategies among college undergraduates is connected to the issue of self-efficacy. The evaluation of coping skills among college students helps to identify self-efficacy as one of the most important factors in understanding MDD symptoms. Eisenberg, Golberstein, and Hunt (2009) found that mental health issues decreases students' academic performance and desire to achieve personal goals. Eisenberg, et. al, (2009) argued that unhealthy cognitive models and orientation decrease students' interest in pursuing their goals in education. They gave a descriptive analysis of depression, anxiety, and eating disorders in association with academic success from a longitudinal survey data of 2,800 undergraduate and graduate students aged between 18-24 years. Their research suggests that symptoms of depression decrease academic success, resulting in low GPA and higher rates of college dropouts (Eisenberg, Golberstein, & Hunt, 2009).

Blanco et al. (2008) conducted an epidemiological survey in 2006 among principals of a university counseling sector. They compared the incidence of health-related disorders and substance abuse in college students aged 19-25 years. The results showed that 91.6 % of college students with poor academics had symptoms of depression. These findings were similar to reports from the nationwide American College Health Study (2009), where 43% of college students reported difficulty in concentrating due to experiencing symptoms of depression.

Eisenberg, Golberstein, and Hunt (2009) identified several factors that contribute to negative student behaviors, such as: peers, social climate, parent relationships, early childhood experiences, biologic predisposition, and chronic disengagement from academic experiences. Their study focused on the related issues of addiction and depression. Using these aspects, they reintegrated the learning experience of students in order to include all the tenets of a liberal education and, in the process, to more effectively incorporate disciplinary perspectives and diverse pedagogies. The hope was that such an approach would improve student attitudes, better integrate the many campus constituencies concerned with mental health, and even improve student health in the long term. This might be a great direction for future research, considering that the results of Eisenberg, Golberstein, and Hunt's (2009) project are positive thus far. The researchers noted that their project had a strong impact on student frameworks for engaging mental health issues in their own and others' lives and have significantly strengthened campus and community addiction and depression support infrastructures and networks (Eisenberg, Golberstein, & Hunt, 2009). However, the coping strategies still have

numerous gaps related to the self-efficacy and depression symptoms as not much research focused on these particular aspects of MDD.

Much research has been conducted among college students aimed at identifying the level of depression cases. It is presupposed that college students are subjected to numerous stresses related to GPA, financial issues, relationships, discrimination based on gender, social status, income, and ethnical factors. Chittleborough, Winefield, Gill, Koster, and Taylor (2011) conducted a survey among 1750 Norwegian undergraduate students. Data were collected with the help of a 12-item version of General Health Questionnaires. Although they were not standardized the study revealed that 21% of the students reported symptoms of significant clinical depression when compared to the general population, which ranged from 5-27%. On the one hand, those students who study hard for high academic performance report experiencing high levels of social isolation, lack of social skills, and the absence of any definite goals for their future adult life, which signifies symptoms of depression.

Studies by DeWitz, Woolsey, and Walsh (2009), Isaak, Graves, and Mayers (2006), Kamphoff et al. (2007) and Schaller (2010), established that academic goals and self-efficacy as measured by grade-point average contribute to students' decision about school completion and drop-out. In addition, students who struggle academically may experience more emotional problems due to the lack of social skills, social isolation, and less defined goals compared to the students who succeed academically.

DeRoma, Leach, and Leverett (2009) investigated and analyzed the relation between students' college academic performance and depression. The study was based on responses of the 2008 cross-sectional National College Health Assessment on Depression

and showed that increased depressive symptoms in students from sophomore to fourth year correlated with lower cumulative grade point averages. Therefore, academic performance is important for students and lack of achievement can result in low tolerance for frustration, thus effective coping strategies should be considered to help minimize some of the depressive symptoms to enable students think rationally. Crundwell (2010) in his research confirmed that students with MDD symptoms tend to avoid task that seems to be complicated and may have negative impacts in their academic performance leading to a low GPA.

Zimmerman, et al (2010) support that, apart from unhealthy or risky behaviors, stressful exams, and misunderstanding with parents, poor social relationship, sleep and psychomotor disturbance are the major consequences of MDD symptoms including irritation and unpredictable aggression, which are symptoms of depression. Social relationships, as well as environmental influences affect students' lifestyles. Having focused on psychological characteristics and students' immediate environment, two related studies conducted by Freudenthaler, Spinath, and Neubauer (2008) and Hicks, Johnson, Iacono and McGue (2008), as research partners, conducted a comparative study using information from twelve different countries and with students from multicultural background. They explored the relationship on gender differences in student's engagement and academic achievement. The authors suggest using GPA in future studies to avoid biases with internal consistency analysis, and test–retest reliability analysis that has adequate psychometric properties. These findings are compatible with the 1981 Walberg's theory of educational productivity, which showed that psychological characteristics of students and their immediate environment can influence their outcomes

including peer relationship, grade point average in the measurement of student's engagement and academic performance.

It has already been mentioned above that college students are more subjected to high-risk unhealthy behavior, namely smoking, alcohol and drugs addiction, and unhealthy sexual behavior. Beck et al., (2008), and Eshbaugh (2008) focused on high-risk behaviors and their relation to depressive symptoms among college students. The high-risk behaviors that were presented in their study included misuse of alcohol, smoking, eating disorders, and casual sexual encounters. Approximately 900 undergraduate students were participated in the study, which concentrated on how the students' engagement in high-risk behaviors served as a coping response to emotional pain and stress. The American College Health Association (2011) conducted a survey among Louisiana State University (LSU) students in the spring of 2011 concerning the relation between alcohol consumption and depression. Results of the study indicated a national growing problem for undergraduate students who turn to alcohol and drug consumption when depressed as a self-medication strategy; this indicates that many students became alcohol and drug addicted due to their attempts to cope with MDD symptoms.

Zivin, Eisenberg, Gollust, and Golberstein (2009) in their cross-sectional study concluded that the successful treatment of depression relies on accurate diagnosis; therefore, failure of an individual to recognize the signs and symptoms of MDD will have negative consequences. In addition, they discovered that the majority of students who experienced symptoms of this disorder had no proper insight of the need to be treated. Since those with MDD or MDD symptoms have limited insight into their own disorder, it

is incumbent on health care providers to identify those with MDD and to provide the education needed to better manage the symptoms.

The increasing evidence of a destructive psychological and physical effect of unrecognized or untreated depressive symptoms experienced by college students highlight the significance of assessing intervention such as psychotherapy intervention that might develop an atmosphere of relaxation, reduction and recovery. Ignoring treatment of MDD symptoms may result in further negative consequences, namely anxiety, eating disorders, low self-efficacy, self-injury, and even suicide thoughts (Zivin, Eisenberg, Gollust, & Golberstein 2009). Boswell, McAleavey, Castonguay, Hayes, and Locke (2012) in their cross-sectional study concluded that the successful treatment of depression relies on accurate diagnosis; therefore, failure of an individual to recognize the signs and symptoms of MDD will have negative consequences. In addition, they discovered that the majority of students who experienced symptoms of this disorder had no proper insight of the need to be treated. Since those with MDD or MDD symptoms have limited insight into their own disorder, it is incumbent on health care providers to identify those with MDD and to provide the education needed to better manage the symptoms.

Locke, Buzolitz, Lei, Boswell, McAleavey, Sevig, and Hayes (2011) as well as McAleavey, Louis, Castonguay, Hayes, and Locke (2012) provided information in empirical evidence research on the relationship between previous treatment and the rate of response when college students experience depressive symptoms. Repeated measures analyses indicated similarities in response patterns compared to other psychological distress. This article was used to illustrate why scientists have designed instruments to

improve college counseling, so that students are able to deal with stress. The capability to manage depressive symptoms is one determinant of psychological and physical integrity. Changes in cognitive coping or responses through adaptive coping skills may have a positive effect in behavior modification that would have resulted in a life threatening situation, and assurance of a healthy living. This adaptive coping ability may be extended to environmental cues such as university environment as an opportunity to reinforce MDD symptoms.

Activation of the adaptive coping skills may cause an enhancement in self-efficacy and a reduction in depressive symptoms. Arria et al., (2009), Bryan, Morrow, Anestis, and Joiner (2010), and Joiner et al. (2009), Witte, Selby, Ribiero, Lewis, and Rudd (2009), suggested in their analysis of current suicide rates, that building strong and supportive interpersonal relationships may help to alleviate depressive symptoms, misery, and possibly suicidal ideation or attempt. The findings were in support of the Farabaugh et al. (2012) study that stated that several factors might place a college student at risk for suicide, including substance abuse, a family history of suicide, impulsive and aggressive behavior, and relationship difficulties. Depressive disorders, which can include suicidal thoughts as a symptom, are generally viewed as the greatest risk factor for suicide and a logical starting point with respect to identification of at risk individuals (Farabaugh et al., 2012).

Dyson and Renk (2006) noted similarities and differences between the coping skills and strategies used by both male and female college students during their first time transition and adjustment to college life as a demanding experience due to the risk of developing depressive symptomatology that could result in suicide ideation and attempt.

They used regression analysis and discovered that the level of depressive symptoms was significantly associated by endorsement of new strategies.

Research by Eisenberg, Gollust, Golberstein, and Hefner (2007) addressed mental health among university students as a public health problem concern and the need for epidemiological data, particularly among individuals identified with lower socioeconomic status.

This study was needed to help students be aware of the new developments in MDD treatment and interventions, including self-help topics to group help alternatives, and psychological problem-solving skills that would prepare students to meet their present and future personal challenges. Result obtained from this study may help in the development of psycho-educational methods to assist in early intervention programs in colleges and Universities across the Nation. The audience of this study will have an insight of the relationship between coping skills and self-efficacy in response to the warning signs of MDD in college students. The results of the current study also supported positive social change aimed at broadening the understanding of behaviors that positively influence health through the reduction of symptoms of MDD particularly; it demonstrated the existence of significant differences between the dependent variable MDD and independent variables, cognitive coping skills, self-efficacy as well as moderating variables such as gender.

Statement of the Problem

Major depressive disorder is common among college students (Eisenberg, Golberstein, & Hunt, 2009). The American College Health Association (2008) found that approximately 18.4% of students experienced symptoms of major depression

occasionally in the past 5 years. Students who suffer from MDD experienced symptoms of fatigue, irritability, feelings of stress and being overwhelmed, poor sleep patterns and appetite, low energy levels, impairment in cognition, somatic pains, general anxiety, and withdrawal and isolative symptoms, such as avoidance in interpersonal relationships (Carney, Segal, Edinger, & Krystal, 2007). The consequences of depression in these students include low self-concept, feelings of inadequacy, fear of failure and making mistakes, poor academic performance, and difficulty integrating in the social world (Mahmoud, Staten, Hall, & Lennie, 2012; Rayle & Chung, 2007; Rice, Richardson, & Clark, 2012). Further complications in depressed college students include dropping out of college (Pleskac, Keeney, Merritt, Schmitt, & Oswald, 2011). Finally, researchers have shown that there is a correlation between suicide attempts and major depression (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Garlow et al., 2008), a concern that impacts this study's target population.

A number of factors, both before and following the onset of depressive symptoms, also figure into the natural history of depression in college students. Researchers have asserted that depression causes educational, vocational, and personal setbacks, distress, and poor decision-making among college students, perpetuating depressive symptoms, and potentially setting the stage for chronic depressive episodes (Eisenberg, Golberstein, & Gollust, 2007). Schulman and Shapiro (2008) found that ineffective coping mechanisms led to complicated health issues such as psychological and emotional problems (pains, increased risk of cardiovascular disease, anxiety disorders, high blood pressure, and eating disorders). In addition, other health related risk factors including obesity or excessive weight loss (Luppino et al., 2010), as well as the use of substances,

such as alcohol, illicit drugs, and tobacco (Cranford, Eisenberg, & Serras, 2009; Kenney & Holahan, 2008) can lead to or exacerbate depressive disorders.

Moreover, researchers have explored the relationships of a number of factors in college students, including college life, mental health status, and depressive symptoms (Howley & Dickson, 2009; Mahmoud, Staten, Hall, & Lennie, 2012). It has been observed that students who utilize maladaptive coping skills, both cognitive and behavioral, are more prone to endorse depressive symptoms and poorer academic performance. However, little or no research was performed or seeks to analyze the relationship between coping skills and self-efficacy in response to warning signs of MDD in college students.

Therefore, this study has filled in these gaps in the field. The overall aim of the study was to determine if coping mechanisms and self-efficacy can improve the prediction, and, hence prevent or improve the treatment of MDD using a national sample of college students in the U.S. over and above conventional predictors, such as gender. In addition, the study evaluated the cognitive and behavioral elements of coping mechanisms employed by college students across the nation. The hope was that the information obtained in the study be used in the development of appropriate and effective training in coping mechanisms that can be used to reduce rates of MDD in college students.

The study was significant for its positive contribution to social change, and it is aimed at reducing the level of depressive symptoms among college students, which significantly promoted healthy environments for students. The educators, therapists, program developers and other researchers may use the results of this study for personal

and professional needs. The prediction and treatment of depression in college students is sub-optimal. The study has found better ways of predicting depression and provides information for practitioners about specific limitations in coping mechanisms in their clients. The identification of effective coping and preventive strategies will help combat the MDD symptoms among college students.

Purpose of the Study

The purpose of this quantitative research study was to evaluate the role of coping skills and self-efficacy to enhance the understanding of major depressive disorders in a national sample of U.S. college students. This study examined if significant relationships exist between the mean score of screening positive for depressive disorder symptoms, and demographic variables (gender, age, ethnicity, and sexual orientation, socioeconomic status), social factors, financial and relationship status and health risk behaviors (alcohol and drug abuse) among U.S. undergraduate students, evaluating the predictive factors that may result in reasons of the MDD symptoms among college students. The study also explored the nature of correlation among the variables, independent variables which are variables created and manipulated (controlled) and evaluated by its measurable effects on the dependent variables and considered as the cause of the behavior. The independent variables are outcome variables or factors that can be measured to learn the effect of one or more independent variables; also known as the criterion variables. For this quantitative study, the independent variables are cognitive functioning, self-efficacy and coping mechanism; these variables are also known as the predictive variables. The moderators or covariate variables are variables that bring changes in the relationship, or help to modify

the relationship between independent and dependent variables such as demographic variables including gender, and age. In order to reach this goal, a thorough examination of the current literature related to the research questions was reviewed and analyzed. The research is quantitatively aimed at understanding cognitive coping strategies as preventive measures may be used for combating MDD in college students. The overall purpose of the study was to determine if coping mechanisms and self-efficacy improve prediction of Major Depressive Disorder (MDD) beyond conventional predictors, such as gender using a national sample of college students in the U.S. It is expected that the result can be used to initiate positive social change in college students, especially during orientation and freshmen year when students may benefit most, in order to help decrease occurrences and potential symptoms of MDD among college students later on in their college life.

Research Questions and Hypothesis

The research questions and hypotheses were derived from the review of the existing literature concerning MDD, Precursors, Predictors, and Coping Mechanism. The research questions for this study are listed for analysis and for a clear understanding following the methodology. The strong effect of dependent variables and demographic moderating variables on undergraduate university student's total scores in depression symptoms was examined and analyzed preliminary for homogeneity of the sample prior to the key data analysis.

Research Question 1: Accounting for known predictors of Major Depressive Disorder symptoms (e.g., sex, GPA, etc.) in college students, do cognitive coping skills

predict MDD symptoms as measured by the PHQ-9 (Eisenberg, Gollust, Golberstein, &Hefner, 2007; Ellis & Trumpeter, 2008)?

Hypothesis 1_0: There is no relationship between cognitive coping skills of college students and the development of major depressive disorder, as measured by the PHQ-9.

Hypothesis 1_A: There is a significant relationship between cognitive coping skills of college students and the development of major depressive disorder as measured by the PHQ-9.

Research Question 2: Accounting for known predictors of MDD (e.g., sex, GPA, etc.) in college students, what is the nature of the relationship between, self-efficacy of college students and the prediction of the development of major depressive disorder based on GPA, etc.) as measured by the PHQ-9 (Kroenke, Spitzer & Williams, 2001; Martin, Rief, Klaiberg, & Braehler, 2006)?

Hypothesis 2_0: There is no relationship between self-efficacy and the development of major depressive disorder among college students, as measured by PHQ-9 (Kroenke, Spitzer & Williams, 2001; Martin, Rief, Klaiberg, & Braehler, 2006).

Hypothesis 2_A: There is a significant relationship between self-efficacy and major depressive disorder among college students, as measured by the PHQ-9 (Kroenke, Spitzer & Williams, 2001; Martin, Rief, Klaiberg, & Braehler, 2006).

Research Question 3: Accounting for known predictors of MDD (e.g., sex, GPA, etc.) in college students, what is the nature of the relationship between behavioral coping skills of college students such as cigarette smoking, alcohol and drug abuse, eating disorder, suicidal ideation etc., and the prediction of the development of major depressive

disorder based on GPA etc. as measured by PHQ-9 (Eisenberg, Gollust, Golberstein, &Hefner, 2007; Ellis & Trumpeter, 2008)?

Hypothesis 3_0: There is no relationship between behavioral coping skills including cigarette smoking, alcohol and drugs abuse, eating disorder suicidal ideation and attempt and MDD, among college students as measured by PHQ-9 (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Ellis & Trumpeter, 2008).

Hypothesis 3_A: There is a significant relation between behavioral coping skills including, eating disorder suicidal ideation and attempt and MDD, among college students as measured by PHQ-9 (Eisenberg, Gollust, Golberstein, &Hefner, 2007; Ellis & Trumpeter, 2008).

Theoretical Framework for the Study

Based on previous studies conducted on major depressive disorder as well as the overall goal of the proposed study, the theoretical framework that used was the Social learning theory and Social cognitive theory. Both theories originated and transitioned from Behaviorism and Psychoanalysis theories (Freudian Operant Developmental Theories) in 1986 by Sears and Bandura. The component process includes observation, learning, attention, retention, motor reproduction, and motivation (Bandura, 1986). These theories indicate that the concept of learning, involves mechanisms in behavioral change, reaction and responses leading to physical maturation, self-regulation, self - efficacy and individual behavioral control.

Social learning theory stresses the significance to observation and modeling of the behaviors, as well as attitude, and emotional reaction of the responses from people (Bandura, 2011). The theory describes how environmental, cognitive and behavioral

factors interrelate to influence human learning and behavior. The widely accepted hypothesis is that individuals can learn through observation, imitation and modeling of other people's behaviors and the outcome of these behaviors (Abbot, 2007).

The assumption is that cognition plays an important role in learning. According to Abbott (2007), for over 30 years, Social learning theory has been recognized for its becoming more cognitive in its interpretation of human learning, knowledge and good belief of future reinforcement or consequences that can have major impact on individual behaviors.

Self-perception can result in depression. The risk factors of depression center on individual, social and environmental factors (Swaner, 2007) and may result in negative cognitions and dysfunctional behaviors. In this study, the focus was on current problems relevant to the college students such as management of life activities, academic success and maladaptive beliefs. These dysfunctional beliefs (feelings of inadequacy, failures, cognitive distortion and hopelessness for the future) can result in misinterpretation, procrastination, self-blame and inexperience. It has been assumed that individuals respond in a different way to possible causes of emotional problems while transitioning to college and while adjusting to college life. These problems include high academic performance, financial and relationship situations, and family supportive systems (Eisenberg, Gollust, Golberstein, & Hefner; 2007). Cognitively, they cope differently to various psychological stresses such as being sensitive to their feelings, susceptibility, perception and giving different meaning to any psychological situations faced (Eisenberg, Gollust, Golberstein, & Hefner, 2007). Thus, they contribute to the development of

depressive symptoms and maladaptive coping skills such as avoidance coping while responding to the stressful occurrences (Beck & Alford, 2008).

Social learning theory (Crothers, Hughes, & Morine, 2008; Bandura, 2011) was used as the framework of this study to address individual thought patterns and feelings. This model also focuses on an individual's emotional response to their thought process, approach to negative experiences, interpretations and ways of recalling event in a negative way leading to the development of depressive symptoms. Central to Social learning theory is the role of modeling of behaviors and cognitive styles influencing behavior in others. Thus, the model was used in emphasizing the significance of investigating the cognition process and in the understanding of mental health and behavior in the collegiate setting. Social learning theories are most often associated with behavioral approaches that focus on modifying behavior by manipulating environmental cues (i.e., antecedents or reinforces).

Self-efficacy was drawn from the theoretical framework known as Social cognitive theory, which stated that human achievement, lies on interactions between one's behaviors, and individual factors (example: belief and thought patterns), and environmental circumstances (Bandura, 1986 & 1997). Self -efficacy also associates with self-regulation, in particular, the use of efficient learning strategies. Thus, both self-efficacy and cognitive coping strategies are positively related and can be used as predictive variables to MDD for intervention to achievement. Pintrich and De Groot (1990) support that students with high self-efficacy have the ability to solve, monitor, persist and perform well in any problematic situation better than students with low self-efficacy.

Social cognitive theory also focuses on the individual as an active processor of information to modify new experiences, relate to past experiences, as well as organize, store and retrieve information. It originated partly from the Social learning theory (Ashford & Leroy, 2010) as a responds from unsatisfied principles of Behaviorism and Psychoanalysis theory on failure to recognize motivation and situational factors of problems (Redmond, 2010). It is composed of cognitive, behavioral, personal, and environmental factors that interact to determine motivation and behavior (Crothers, Huges & Morrine, 2008).

The rationale was that, this theory can improve the understanding of health-related behaviors, depression, MDD symptoms, self-concept, choice of activities, and efforts to persist in tasks requiring memory, which is related to this study's target audience--college students. Social cognitive theory recognizes interrelationship between individual and environment as well as other generic and personal factors such as expectation, self-perception, goals setting, etc. Bandura (1989) maintains that cognition involves knowledge, the skills for maturation and experience that governs behaviors.

Moreover, the aforementioned rationale further supports the use of the Social cognitive theory as a theoretical framework in this study. Hence cognitive coping, self – efficacy and behavioral coping with MDD was reviewed for positive adjustment such as academic and social adjustment, and job satisfaction among undergraduate students (Sheu & Lent, 2009). This frame work would also serve as the theoretical template for useful interventions, and systematical select coping strategies, changes in role functioning, emotional improvement and environmental support that may impact

psychological adjustment. It would serve as a template for understanding recovery after emotional setbacks for the general population (Sheu & Lent, 2009).

In this model, problem-related coping-efficacy is a vital part of the coping process, which includes coping strategies and environmental supports. Coping efficacy is a type of self-efficacy that involves individual's beliefs in their capability on how to response to stressors (Bandura, 1997). The assumption is that this belief has impacted individual's perception and reaction in the phase of adversity. Constructive perception of coping efficacy can assist individuals in managing and organizing their coping methods, efficiently use of their ecological support and in the development of their ability to solve problems when faced with stressful situations. Thus, the use of these theories allowed the identification of coping strategies such as Problem-focused and Emotion-focused coping (Lent & Brown, 2006). Problem-focused coping e.g. management of stressful events and ability to solve problems will result in help-seeking behaviors, information gathering, decision-making procedures, diagnosis and treatment. While in Emotion-focused coping such as avoidance, these theories would help college students navigate emotional reactions (e.g., depression, functional limitations, and changes in valued life roles. It will help to improve positive perceptions of self, social relationships, and meaningful life pattern, as well as new effort to redirect energy toward setting new goals (Schroevers, Kraaji, & Garnefski, 2011) and the ability to acknowledge, understand, and express emotions.

One of the most developed treatment methods based on this theory is Cognitive Behavioural Therapy (CBT) and has shown great results in MDD treatment. The existing literature on CBT reveals how and when it can be applied, the effects that it has on

depressed patients, investigates the related therapies, and suggests ways of combining CBT with other effective treatment methods. Hoffman (2012) provided an introduction to this methodology and explains how it can be implemented in the treatment course. Nemade et al. (2007) investigated the effects of CBT on treatment of major depression in particular. Zyromski and Joseph (2008) examined how utilizing CBT affects academic achievement of middle school students.

Cognitive Behavioural Therapy (CBT; Kuyken, Padesky, & Dudley, 2009), a behavioural therapy developed by Aaron Beck. This method is widely utilized by psychotherapists and has been a subject of numerous research studies. CBT addresses dysfunctional emotions, maladaptive behaviours, and cognitive processes and contents through a number of goal-oriented, explicit systematic procedures and is widely used in modern treatment of depression and related mental disorders.

The process of CBT includes several stages. First, the therapist's gathers information and develops a hypothesis about the clients concerns. The hypotheses encompass predisposing factors (such as childhood or significant life events), precipitating factors (such as a recent death, break-up or event), and perpetuating factors (such as negative beliefs about others or lack of assertiveness). The hypotheses aim to encompass all of these factors in relation to specific symptoms, and current emotional states, which the therapist then uses as a platform for treatment.

This CBT is a clear, effective and comprehensive therapy for psychosocial and psychotherapeutic interventions for a number of mental disorders, including depression and anxiety. CBT emphasizes core cognitive-behavioural skills, cognitive restructuring, and positive reinforcement, with self-monitoring, in-session activities, and planned,

structured, self-help materials and activities between sessions. CBT emphasizes dysfunctional and illogical cognition, distorted thought processes, poor judgment, and social aspects of depression (Beck, 2008). CBT helps patients to see the situation as it really is, without the patient's overwhelmed perception of it.

Cognitive behaviour therapy has proven efficiency in depression treatment and responsiveness of patients to this form of therapy. In addition, there is a considerable amount of research previously conducted on this topic, which gives a detailed overview of the many facets of the treatment. This further suggests that Social learning theory and Social cognitive theory is reasonable and can be successfully applied in practice to help undergraduate students cope with depression.

Nature of the Study

This study employed a quantitative methodology. A deductive approach based on regression analysis to make predictions utilizing cross-sectional survey was used. The rational for using the quantitative method in this study was that, quantitative method is a deductive approach to problem solving in which, the potential cause and effect of the relationship can be tested using hypothesis (Razafsha et al., 2012). A quantitative method was appropriate for this study; for instance, it focuses on answering the research questions and enables the hypothesis to be tested. Also this method emphasized the measurement and analysis of relationships between independent (MDD) and dependent variables, self-efficacy, cognitive functioning and coping mechanism (Razafsha et al., 2012). The survey battery that was used for data collection was self-administered questionnaires administered at various colleges and universities, with data collection occurring around the same period. This design was used to correlate the scores on

responses to the self-report questionnaires and utilized information about relationships between variables to predict the potential outcome, MDD (Sheperis, Young & Daniels, 2010). Independent variables were drawn from behaviors and personalities domains of the PHQ-9. The primary independent variable was MDD and depressive symptoms. Linear /logistic multiple regression analysis was used to characterize the variation of the dependent variables.

The proposed study used secondary data collected by the Healthy Minds Study in 2012 among undergraduate students in approximately twenty-six colleges and universities in the U.S. The dataset was DE- identified and no particular institution was named. These data was used to determine the number of university students with major depressive disorder. Students were 18 years old or older and self-reported as undergraduate students. Any student not self-identified in a bachelor's degree program was excluded. Data collected by the Healthy Mind Study utilized the Patient Health Questionnaire (PHQ-9).

The statistical package for Social Science (SPSS) Version 21 software was used to analyze the resulting data through descriptive and inferential analysis in the study. The effect size for the treatment was based on Cohen's effect size estimates that range from Cohen's f^2, small = 0.02, medium = 0.15, large = 0.35 with alpha $\leq$.01 to .05 or percentage differences of 5% and reported as significant if any. The power analysis by Lipsey (1990) was used to identify the appropriate large sample size for the groups. A total sample of *N*= 5,000 undergraduates participants was used divided evenly between genders, age, GPA, etc. An additional 36% was added as a buffer for possible dropout and other adjustments, bringing the total to (*N*= 6,800); this gave the probability of

detecting the real relationship between variables, if it really exists in the population. Using high statistical power helped to improve the chances that these findings were not due to chances alone and to avoid type II error.

Variables and Measures. The analysis of the research on this topic revealed that there are three variables that are strongly associated with depression: self-esteem, self-consciousness, and a reduction in activities. This aligned with the rationale of the study, self-efficacy, cognitive coping skills and coping mechanisms along with demographic (moderator variables) such gender, age, sexual orientation, ethnicity, socioeconomic status, living condition, etc., measured by PHQ-9 (Granillo, 2012; Eisenberg, Golberstein, & Hunt, 2009).

Definitions of Theoretical Constructs

Major depressive disorder. MDD occurs when an individual is feeling excessive sadness, or hopelessness, often with physical symptoms. This condition may be characterized by a loss of interest in all activities and some of disturbances of sleep, appetite, a decrease in energy, difficulties in thinking, feelings of guilt and suicidal attempts (Rodriguez, 2009). Major depressive disorder remains one of the most prevalent mental disorders in the United States, though it still requires in-depth research. The major issues related to this disease are difficulty in diagnostics and the necessity of a very individualized approach to treatment.

The theoretical base of the term "major depressive disorder" has its origins in 19th century when the term "melancholia" was replaced with "depression." One of the etiological theories for MDD is that, MDD has a strong component that is often associated with major interpersonal losses. Since then, psychologists and psychiatrists

developed several theories that guide the treatment of depression including social learning theory and social cognitive theory. This theoretical information was used in this research as the basis for the development of treatment for depression using the predictors mentioned previously.

Definition of Terms

Dependent variables. Dependent variables are manipulated variables, independent of the result of the study. These are variables that are believed to influence dependent variables using hypothesis. For this study, the independent variables are created and manipulated (controlled) and evaluated by its measurable effects on the dependent variables and its influences on the behavior (Albert, & Tullis, 2013).

Independent variable. Independent variable can be defined as a predictor variable. They are the behaviors of interest to the study example, the predictive factors of MDD and method of coping by the population in the study in association with the depressive symptoms. They are outcome variables or factors that can be measured to learn the effect of one or more dependent variables; also called criterion variable (Albert, & Tullis, 2013). Using linear regression analysis this variables can be predicted. This includes cognitive coping skills, if self-efficacy contributes as precursor and the responsive pattern including self-medicated coping and seeking for help; therefore, dependent variables can be associated to independent variables.

Both independents and dependent variables were measured using PHQ -9 questionnaires, which consist of demographic questions, and predictive measures specifically valid for this study. The Patient Health Questionnaire is a powerful

multipurpose tool for diagnosing, screening, monitoring and measuring the severity of depression (Klein, Ciotoli, & Chung, 2011; Eisenberg, Golberstein, & Hunt, 2009).

Moderating variable. Moderating variable can be defined as a variable that brings changes in the relationship, or help to modify the relationship between independent and dependent variables, such as gender, age, GPA, ethnicity, socioeconomic status, sexual orientation, etc. were measured using PHQ-9 questionnaires (Klein, Ciotoli, & Chung, 2011)

Depression. Depression can be defined as a common psychological disorder that presents with depressed mood, loss of interest in any pleasurable activities, feelings of guilt or low self-worth, disturbed or deprivations of sleep, poor appetite, low energy, and the lack of proper concentration. These symptoms can be classified as chronic or recurrent, resulting in a severe impairments and a reduction in daily activities and positive response to distressful occurrences (World Health Organization WHO, 2008). Based on the depressive episode and the nature and severity of symptoms, in this study, depression was classified as mild, moderate and severe major depression. Major depression was measured using PHQ -9 questionnaires (Klein, Ciotoli, & Chung, 2011).

Major depressive disorder. MDD can be described as a clinical depression, or unipolar depression. It is a disorder characterized by low mood, accompanied by low self-esteem, loss of interest in any pleasurable activities, hopelessness, poor academic performance, poor eating and sleeping pattern and other symptoms (American Psychiatric Association's Diagnostic Manual, 2000). MDD can be defined as a social experience, physical turmoil and a series of psychological experiences as a result of depressive mood.

For this study, an individual's response was measured by PHQ-9 (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011).

Major depressive episode. Major depressive episode can be described as occurrences of major depression symptoms with an occasional characteristic. It becomes apparent that the symptoms cannot be explained by any thought disorder and has never occurred previously. This can be characterized by loss of interest in almost all activities, lack of energy, low activity etc. (American Psychiatric Association, 2013).

Self- efficacy. Self-efficacy in connection to college students comprises self-efficacy for self-regulated learning, academic achievement, financial attitudes and difficulties, career and decision-making procedures. Self-efficacy is the belief in one's self or abilities across different academic subject matters needed to accomplish set goals. According to Bandura (1997), the "perceived self-efficacy beliefs" can contribute separately to intellectual performance. The strength in academics can be measured by the degree of confidence that one performs in any given task (Bandura, 1997; Zimmerman, 1995) was measured by PHQ-9 (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011).

Cognitive coping. Cognitive coping skills may comprise of cognitive ability and cognitive flexibility to response to life situations (Lam, & McBride-Chang, 2007).

Socioeconomic background. Socioeconomic background is a measurement that combines social and economic position. In this study socioeconomic background is referred to low income students compared to financially successful ones and to those with high and low GPA. (Eisenberg, Gollust, Golberstein, & Hefner, 2007).

Health risk factors or Consequences. Health risk factors or consequences of ineffective coping skills due to Major depressive disorder symptoms may result in poor academic performance leading to low GPA, alcohol and drugs addiction, school dropout, suicidal ideation /attempt, smoking, eating disorder, and poor self-image (Fife, Adegoke, McCoy, & Brewer, 2011).

Patient health questionnaire-9. PHQ-9 is a module that measured nine items identified as symptoms of depression from the complete PHQ-9 (Kroenke et al., 2001). It can be defined as a powerful multipurpose tool for diagnosing, screening, monitoring and measuring the severity of depression (Granillo, 2012). This questionnaire is widely utilized in a mental healthcare practice as it shows the effectiveness and can be applied repeatedly in order to monitor the development of the illness and efficiency of treatment. According to the recent study by Arroll et, al (2010), sensitivity and specificity of the PHQ-9 for diagnosing major depression were 74% and 91%, respectively, translating into overall accuracy of 90.1%.

Undergraduate students. Undergraduate students can be distinguished as a separate group. This distinction is conditioned by a unique set of circumstances that undergraduates face in a certain period of their lives. It is a transitional period during which students transform from adolescents into young adults. Major life changes occur in this time (Gonzalez, 2008). In this study, these students are enrolled in colleges and universities from freshmen to fourth year in school that participate in the 2012. Healthy mind questionnaire data collection, excluding graduate and medical students.

Academic performance. Academic performance is defined as the characteristic of student's intellectual achievement in college based on GPA (Zientek, 2008).

Assumptions

1. It was assumed that in this study that the willingness of the participants to volunteer in this study did not bias the study and that those individuals who might be experiencing high levels of stress would not refrain from participation.
2. It was also assumed that the participants in the study would complete the questionnaires truthfully and to the best of their ability.
3. Additionally, it was presumed that the PHQ-9 would be appropriate tool for measuring the designated variables using a large random sample of college student population during the data collection as specified in the PHQ-9 (HMS, 2012).
4. It was assumed in the research questions and hypotheses that independent variables (cognitive coping skills, self-efficacy and behavioral coping skills will be able to predict MDD and that moderating variables (e.g. gender, age, etc.) will moderate the impact of MDD on risky consequences.
5. This correlational design of study was assumed to be a design that is appropriate regardless of the limitation/s due to the fact this study was to evaluate if there is any significant relation exist between MDD dependent variables (DV) and independent variables (IV) as well as moderators (demographic) variables

Scope and Delimitations

1. This research focuses on the prevalence of MDD symptoms and their predictive factors in undergraduate students, as the research on this topic requires further development.
2. The discussed population group is highly predisposed to the development of mental disorders, and, thus, requires thorough investigation in terms of defining the major precursor and risk factors that contribute to the development of depression symptoms.
3. The boundaries of this study are the participants identified as undergraduate students both males and females from freshmen to fourth year in colleges and universities. The study includes students from twenty-six colleges and universities institutions only and the scope was limited to these institutions in the U.S
4. The proposed study used secondary data collected by the Healthy Minds Study in 2012 among undergraduate students in approximately twenty-six colleges and universities in the U.S. The dataset was de-identified and no particular institution was named. These data was used to determine the number of university students with major depressive disorder.
5. Students were 18 years old or older and self-reported as undergraduate students. Any student not self-identified in a bachelor's degree program was excluded.

6. The data collected by the Healthy Mind Study utilized the Patient Health Questionnaire (PHQ-9). The PHQ-9 is a clinically validated instrument developed with the internal reliability. (Klein, Ciotoli & Chung, 2011).
7. Based on the overall goal of this proposed study, the theoretical framework that was used were social learning theory and social cognitive theory. These theories stress the significance to observation and modeling of the behaviors, as well as attitude, and emotional reaction of the responses from people (Bandura, 2011). The Theory describes how environmental, cognitive and behavioral factors interrelate to influence human learning and behavior.
8. Social learning theory (Crothers, Hughes, & Morine, 2008; Bandura, 2011) was used as the framework of this study to address individual thought patterns and feelings. This model focuses on an individual's emotional response to their thought process, approach to negative experiences, interpretations and ways of recalling event in a negative way leading to the development of depressive symptoms.
9. Mental disorders seem to impair academic performance significantly, adding to the possibility of dropping out of college prematurely. Therefore, investigating the predictive variables, namely self-efficacy, cognitive functioning and coping mechanism and correlates of depression in college students is a very important task that could have positive outcome in the future (Barton, 2011).

Limitations

1. The study was based on self-reported data that cannot be verified and therefore, could be inaccurate.
2. The PHQ instrument may not be the same as a clinical diagnosis of depression though the PHQ has been efficiently validated against clinical diagnosis and found to be a more reliable indicator than self-report diagnosis with symptoms of depression (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011; Kroenke, Spitzer Kroenke, & Williams & the Patient Health Questionnaire Primary Care Study Group, 1999; Spitzer & Williams, 2001).
3. The participants may not have answered every question and therefore, gaps in the data collected may exist.
4. In the threat to external and internal validity, the limitations on the ability to predict the relationships as well as the limitations to generalize to other institutions in the U.S. or in other parts of the world are possible.
5. "Heritability of major depression" is another limitation, however I fully appreciate the magnitude of the heritability issue with the MDD but I am focusing on the cognitive issues in isolation, etc, in this study.
6. In the methodology, participants were placed in the MDD category through a self-administered screening instrument.

Despite these limitations, various findings were discovered in the current study that would equip health educators, professionals and administrators with knowledge and

understanding of mental illnesses while promoting effective collaboration to improve mental health issues among undergraduate students.

Significance of the Study

Major depression is the most prevalent mental disease among undergraduate students. Due to high pressure that academic activities have on students, major depressive disorder is not uncommon in this population (Blanco et al., 2008). This group of students faces multiple stressful circumstances that make them a vulnerable population at a higher risk of mental health concern and an easy target for such a mental disorder as depression. These circumstances occur due to the transitional period that students experience during their first year in college. This study provides insight on the predictors of the common stressors of MDD among college students across the nation. Result of the study support positive social change in that it reveals the behaviors and activities of college students that influence mental health and help to pinpoint the common stressors that can be targeted for reduction in preventative programs (Blanco et al., 2008)

There are several risk factors that predispose the development of mental disorders in students. Depression often seriously affects the functioning of undergraduate students as they are unprepared for any new changes in their lives, such as independent living that creates a basis for unstable mental health and financial pressure (Melchior et al., 2010). Other factors include socioeconomic status, greater personal responsibilities, establishing multiple new social connections, and a greater exposure to risk factors, such as alcohol and drug abuse, etc. (Jeffreys, 2011).

Depression is correlated with low academic grades as the depressed students often find academic work too difficult, and doubt their ability to individually complete

academic tasks. Depression results in low academic performance and vice versa (Eisenberg et al., 2007).

The depressed students have typical symptoms of the disease and need the same treatment as the adult population in the society (Freudenberg & Ruglis, 2007). Another important feature of depression in students is that they might refuse to turn for help due to negative thinking patterns as a result of depressive disorder (Atindanbila & Abasimi, 2011). It is important to note that depression in students may become complicated by negative events following the illness. These may include dropping out of activities, loss of motivation and social connections, and failure at work or study (Smith, Barston, & Segal, 2013).

The consequences of untreated depression may be very significant. These may include problems at home, social alienation, relationship issues, and serious health problems. People are usually slower and less productive when they are depressed. Concentration issues caused by depression can also contribute to the decrease in performance. Fatigue results in the low efficiency and affects the individual‘s general functioning. All these factors can have a negative impact on the individual’s academic progress and may lead to multiple warnings or even expulsions from the school (Aufiero, 2010). Ineffective coping may result in premorbid symptoms of depression, anxiety disorder as claimed to be a normal response when depressed; however, this is associated with impairment of physical, occupational, and social functioning (Baldwin, Ajel, & Garner, 2008). Socially active people are more resistant to potential risk factors than those who do not interact with the community. According to World Health Organization (2012), the major risk factors that predispose adolescents and young adults to mental

disorders can be categorized by ecological environment or setting: home/family, school, media/information, work, and community. Within these settings, students as vulnerable population may face risk factors related to culture, community, family, and individuals. Devulapalli (2008) in their study of undergraduate mental health, reports that depression is the most common mental health issue facing college students. He notes that depression in college students has also been closely associated with several serious consequences including suicide, substance abuse, physical illness and risky sexual behavior (Devulapalli, 2008).

Mental illnesses, such as depression, seem to have a significant impact on the academic activity, impairs concentration, making it really hard to focus on task, reducing its level due to apathy and indifference to the future, therefore, decreases academic performance (Eisenberg, Golberstein, & Hunt, 2009).

The prevalence of these disorders among students is conditioned by many factors. The high level of responsibility, the new setting and social circle, the newly acquired self-dependence and necessity to provide oneself, and higher academic level requires considerable effort and time for a student to adjust (Abdullah, Elias, Mahyuddin & Uli, 2009). All these factors inevitably provoke stress that can grow into depression if the student does not know how to cope with it. Inability to deal with these new challenges increases the possibility of dropping out from the university (Zong et al., 2010).

All the aforementioned studies show that a significant amount of research on this topic has been conducted; however, depression remains not properly understood by scientists and that the symptoms of depressive disorders are a major problem among undergraduate students in the U S. students who utilized maladaptive coping skills, both

cognitive and behavioral, are more prone to endorse depressive symptoms and poorer academic performance. However, little or no research was performed or seeks to analyze the relationship between coping skills and self-efficacy in response to warning signs to MDD in college students. Therefore, this study aimed to fill these gaps in the field. In addition, the study evaluated the cognitive and behavioral elements of coping mechanisms employed by college students across the nation. This quantitative research study helped to contribute important information utilizing a national sample of undergraduate's student's population.

The potential implications for positive social change that are consistent with and bounded by the scope of the study is that: this study indicates that educational facilities may need to develop the intervention programs and services in order to help the first-year students in their adaptation to the new environment (Rayle & Chung, 2007). This research will help the audience be more knowledgeable about the role of health professionals and types of therapies involved in diagnosing and treating depression.

Understanding the ways leading to the psycho physiological nature of depression can create opportunities to reduce the prevalence of mental health related illnesses. Increasing the quality of coping abilities and social activity during college years could lead to significant benefits for life-long stress management. A review of the literature revealed that there was a need for studies that specifically explore the relationship between academic performance and the development of MDD in college students. The beneficial effects of early interventions and cognitive-behavioral therapy (CBT) on prevention of the development of mental health issues in students are well established in research. The investigation by Quilty, McBride, and Bagby (2008) examined support for

the cognitive mediational model of depression, namely, that changes in dysfunctional attitudes play a mediating role in the relation between treatment and changes in depressive symptoms. The relative newness of the research that is being conducted on MDD in college students is suggesting that there may be a relationship between academic success and the development of MDD (Eisenberg, Golberstein, & Hunt, 2009). This study seeks to add to the body of literature that suggests this connection by examining students' coping abilities, predispositions, and current reports on MDD through a correlation design.

The contributions of this study to psychiatry and psychology are consistent and significant as major depressive disorder is one of the most acute mental disorders in modern psychiatry. The findings of this study investigated questions related to depression in undergraduate students. College students are considered as the future of world population and, therefore, the most important cell of the society. Positive and healthy development of college students should be a priority in the modern world. The study provides sufficient knowledge of depression predictors, correlates, treatment and prevention methods, and risk factors among undergraduates with the purpose to consider the most effective MDD coping strategies. Instead of dwelling upon GPA, addictions, and other health disorders as the main reasons for depression occurrence; rather, these aspects may be used as the main issues for developing the coping strategies if related to self-efficacy.

This study will positively contribute to depression diagnosing and treatment research, specifically in relation to prevalence of MDD in undergraduate students. The potential benefits of identifying and preventing major risk factors that can contribute to

the development of MDD in college students are profound. Depression and related mental disorders have become epidemic in this country. Understanding how these risk factors may influence the psychological condition of students may help to identify ways to promote health and decrease susceptibility to depression related illnesses (Wilde, Meiser, Mitchell, & Schofield, 2010). Substance abuse, casual sexual connections, and academic load are the major college environment factors that significantly affect students' predisposition to specific risk factors. These factors contribute considerably to the development of mental health issues. Interventions and psychological consultations may assist in preventing risky behavior and promoting healthy attitudes when dealing with MDD symptoms.

The research results obtained from this study will contribute greatly to people who deal with program developers, psychologists, educators, and other researchers who are interested in the factors and coping strategies, which will help improving college students' mental health. The findings of this research can be referred to while promoting positive social change in college students. The positive social changes become extremely important during orientation and freshmen year. During these periods students may get more benefit in decreasing occurrences and potential symptoms of MDD among college students later on in their college life. The research brings positive social change among college undergraduates. The lowered levels of depression especially during students' first year of education will cause less depression symptoms, which will decrease the stresses and inappropriate behavior. Healthy environment in college will also decrease the cases of aggression. The future research may be related to the affect of the decreased number of depressive cases on the environment, namely discrimination and abuse among students.

Summary

As an introduction to the study, this chapter provides background information on Major Depressive Disorder, highlighting some of the foundational reasons we now term the disease depression. MDD has been a social problem in our society for numerous centuries among various populations. However, the purposed study seeks to focus on only one of these, the undergraduate student population. Previous studies have shown that MDD has a negative impact on student's psychosocial development and academic performance (Eisenberg, Golberstein, & Hunt, 2009), and thus requires that further research be conducted on the topic in order to effect positive social change.

The problem statement given in this section further emphasizes the gap in the previous literature that was further eluded to in the chapter 2. Thus, the reason for the study, which is to identify nonconventional predictors of MDD, was justified. The investigation regards MDD as the dependent variable and the precursor/predictors: cognitive coping skills, self-efficacy and behavioural coping mechanism as the independent variables in an undergraduate college student population. Research questions and hypothesis tested in the study was measured using PHQ-9, a valid and reliable instrument (Klein, Ciotoli & Chung, 2011). Social learning theory (Crothers, Hughes, & Morine, 2008; Bandura, 2011) were used as the theoretical framework of the study to help address individual thought patterns and feelings. The significance of this research study was to assist college students and professors in defining the ways of coping with depressive symptoms. Also, to improve social condition, academic performance, reduce rates of school dropout, substance abuse and suicidal ideation /attempt and other health risk behaviors among undergraduate students population.

In chapter two, the recent evidence-based literature and a discussion on the effect of depression in college students was provided. The particular examples include works of: Beck & Alford (2009), Gurman (2013) Hofmann (2012) Ishizaki & Mimura (2011) Kuyken, Padesky, and Dudley (2009), in addition to others. Detailed descriptions of depression symptoms and the gap that need to be filled were addressed. The studies presented in this literature review thoroughly examined areas related to the research questions including: prevalence and correlates of depression within college students, risk factors, and the impact of depression on academic performance, along with research on other subsections in the chapter.

Chapter three described the quantitative method that was used in testing research questions and hypotheses in more detail. The use of the self-administered questionnaire, PHQ-9, that was alluded to in chapter one was described further. This chapter includes a description of the sample population, procedures, ethical considerations, measures, and analysis of the data. The application of the statistical method of analysis, SPSS version 21, was also described and it's used in data interpretation explained. Additionally, the expectation for the future research on MDD and identification of possible direction for such research was addressed.

Chapter 2: Literature Review

Introduction

Researchers have explored the relationships of a number of factors in college students, including college life, mental health status, and depressive symptoms (Howley & Dickson, 2009; Mahmoud, Staten, Hall, & Lennie, 2012). It has been observed that students who utilize maladaptive coping skills, both cognitive and behavioral, are more prone to endure depressive symptoms and poorer academic performance. However, little or no research was performed on the relationship between coping skills and self-efficacy in response to the warning signs of MDD in college students and many aspects of this relationship remains to be analyzed; the research study seeks to fill these gaps in the field. The overall aim of the study was to determine if coping mechanisms and self-efficacy improve the prediction of MDD beyond the conventional predictors, such as gender, age, socio-economic status, using a national sample of college students in the United States.

This literature review research and investigated major depressive disorder as the dependent variable and the precursor/predictors: dysfunctional cognitive beliefs, self-efficacy and coping mechanism as the independent variables in a population of undergraduate college students. The chapter reviewed the recent evidence-based literature provided a discussion on the effect of depression in college students. This discussion included a general overview of major depressive disorder, MDD, the incidence of the illness, its prevalence within the selected population group, and risky health behaviours often undertaken by those suffering from the illness. Also, literature on the role of cognition and self-efficacy and how it relates to depression as well as the risk factors were reviewed. Lastly, some methodology for treatment and diagnosis was addressed

along with a critique of the assessment processes and supportive care strategies for depression in undergraduates.

Literature Search Strategy

Literature search was conducted electronically with the use of digital media. Peer reviewed articles from Walden University library databases as well as psychology and medical databases including ProQuest (5), PubMed, JSTOR, SAGE, Project MUSE, and EBSCO HOST-PsycINFO and Academic Search Premier, were obtained. The search terms included: major depressive disorder (MDD; ProQuest-5, EBSCO Academic Search Premier-27,412, and PsycINFO-7,870), MDD and college students (PsycINFO-153), major depressive disorder and college undergraduates (Project MUSE-132), MDD-college students-coping/responses (Project Muse-393, SAGE-4043, Academic Search Premier-371, and PsycINFO-18) and other mood disorders commonly associated with MDD (anxiety, eating disorder, stress and post-traumatic stress disorder (PTSD) were used. Other key terms included: MDD-college students-self-efficacy (Academic Search Premier-88, and PsycINFO-1), cognitive beliefs and 'as predictor's among college students' (JSTOR-117), mental health undergraduate students (JSTOR-154), depression treatment methods (Academic Search Premier-12,455 and PsycINFO-6,848), Patient Health Questionnaire (PHQ-9; PubMed-140, Academic Search Premier-4,106, and PsycINFO-1,707), and MDD-college students and health behaviours (Academic Premier-1,018, PsychINFO-35).

Overall, the choice of the search terms was conditioned by the discussed topic and corresponded with items of the plan. The scope of the literature search consisted of work published within the past five years, but some sources were more dated but made

important contributions to the field. The references were obtained digitally as well as traditionally through peer-reviewed journals using printed versions after which they were evaluated for their use in this literature review.

Theoretical Foundation

Based on previous studies conducted on major depressive disorder as well as the overall goal of the proposed study, the theoretical framework used was the Social learning theory and Social Cognitive Theory. Both Theories originated and transitioned from Behaviorism and Psychoanalysis Theories (Freudian Operant Developmental Theories) in 1986 by Sears and Bandura. The component process includes observation, learning, attention, retention, motor reproduction, and motivation (Bandura, 1986). These theories indicate that the concept of learning, involves mechanisms in behavioral change, reaction and responses leading to physical maturation, self-regulation, self - efficacy and individual behavioral control.

Social learning theory stresses the significance to observation and modeling of the behaviors, as well as attitude, and emotional reaction of the responses from people (Bandura, 2011). The Theory describes how environmental, cognitive and behavioral factors interrelate to influence human learning and behavior. The widely accepted hypothesis is that individuals can learn through observation, imitation and modeling of other people's behaviors and the outcome of these behaviors (Abbot, 2007).

The assumption was that cognition plays an important role in learning. According to Abbott (2007), for over 30 years, Social learning theory has been recognized for its becoming more cognitive in its interpretation of human learning, knowledge and good

belief of future reinforcement or consequences that can have major impact on individual behaviors.

Self-perception can result in depression. The risk factors of depression center on individual, social and environmental factors (Swaner, 2007) and may result in negative cognitions and dysfunctional behaviors. In this study, the focus was on current problems relevant to the college students such as management of life activities, academic success and maladaptive beliefs. These dysfunctional beliefs (feelings of inadequacy, failures, cognitive distortion and hopelessness for the future) can result in misinterpretation, procrastination, self-blame and inexperience. It has been assumed that individuals respond in a different way to possible causes of emotional problems while transitioning to college and while adjusting to college life. These problems include high academic performance, financial and relationship situations, and family supportive systems (Eisenberg, Gollust, Golberstein, & Hefner; 2007). Cognitively, they cope differently to various psychological stresses such as being sensitive to their feelings, susceptibility, perception and giving different meaning to any psychological situations faced (Eisenberg, Gollust, Golberstein, & Hefner, 2007). Thus, they contribute to the development of depressive symptoms and maladaptive coping skills such as avoidance coping while responding to the stressful occurrences (Beck & Alford, 2008).

Social learning theory (Crothers, Hughes, & Morine, 2008; Bandura, 2011) was used as the framework of this study to address individual thought patterns and feelings. This model also focuses on an individual's emotional response to their thought process, approach to negative experiences, interpretations and ways of recalling event in a negative way leading to the development of depressive symptoms. Central to Social

learning theory is the role of modeling of behaviors and cognitive styles influencing behavior in others. Thus, the model was used in emphasizing the significance of investigating the cognition process and in the understanding of mental health and behavior in the collegiate setting. Social Learning Theories are most often associated with behavioral approaches that focus on modifying behavior by manipulating environmental cues (i.e., antecedents or reinforces).

Self-efficacy is drawn from the theoretical framework known as Social Cognitive Theory, which stated that human achievement, lies on interactions between one's behaviors, and individual factors (example: belief and thought patterns), and environmental circumstances (Bandura, 1986; 1997). Self -efficacy also associates with self-regulation, in particular, the use of efficient learning strategies. Thus, both self-efficacy and cognitive coping strategies are positively related and can be used as predictive variables to MDD for intervention to achievement. Pintrich and De Groot (1990) support that students with high self-efficacy have the ability to solve, monitor, persist and perform well in any problematic situation better than students with low self-efficacy.

Social cognitive theory also focuses on the individual as an active processor of information to modify new experiences, relate to past experiences, as well as organize, store and retrieve information. It originated partly from the Social learning theory (Ashford & Leroy, 2010) as a responds from unsatisfied principles of Behaviorism and Psychoanalysis Theory on failure to recognize motivation and situational factors of problems (Redmond, 2010). It is composed of cognitive, behavioral, personal, and

environmental factors that interact to determine motivation and behavior (Crothers, Huges, & Morrine, 2008).

The rationale is that, this theory can improve health-related behaviors, depression, MDD symptoms, self-concept, choice of activities, and effort to persist in task requiring memory that is related to college students. Social cognitive theory recognizes interrelationship between individual and environment as well as other generic and personal factors such as expectation, self-perception, goals setting, etc. Bandura (1989) maintains that cognition involves knowledge, the skills for maturation and experience that governs behaviors.

Moreover, the aforementioned rationale further supports the use of the Social cognitive theory as a theoretical framework in this study. Hence cognitive coping, self – efficacy and behavioral coping with MDD were reviewed for positive adjustment such as academic and social adjustment, and job satisfaction among undergraduate students (Sheu & Lent, 2009) This frame work also served as the theoretical template for useful interventions, and systematical select coping strategies, changes in role functioning, emotional improvement and environmental support that may impact psychological adjustment. It would serve as a template for understanding recovery after emotional setbacks for the general population (Sheu & Lent, 2009).

In this model, problem-related coping-efficacy is a vital part of the coping process, which includes coping strategies and environmental supports. Coping efficacy is a type of self-efficacy that involves individual's beliefs in their capability on how to response to stressors (Bandura, 1997). The assumption is that this belief has impacted individual's perception and reaction in the phase of adversity. Constructive perception of

coping efficacy can assist individuals in managing and organizing their coping methods, efficiently use of their ecological support and in the development of their ability to solve problems when faced with stressful situations. Thus, the use of these theories allows the identification of coping strategies such as Problem-focused and Emotion-focused coping (Lent & Brown, 2006). Problem-focused coping e.g. management of stressful events and ability to solve problems will result in help-seeking behaviors, information gathering, decision-making procedures, diagnosis and treatment. While in Emotion-focused coping such as avoidance, these theories would help college students navigate emotional reactions (e.g., depression, functional limitations, and changes in valued life roles. It will help to improve positive perceptions of self, social relationships, and meaningful life pattern, as well as new effort to redirect energy toward setting new goals (Schroevers, Kraaji, & Garnefski, 2011) and the ability to acknowledge, understand, and express emotions.

One of the most developed treatment methods based on this theory is Cognitive Behavioural Therapy (CBT) and has shown great results in MDD treatment. The existing literature on CBT reveals how and when it can be applied, the effects that it has on depressed patients, investigates the related therapies, and suggests ways of combining CBT with other effective treatment methods. Hoffman (2012) provided an introduction to this methodology and explains how it can be implemented in the treatment course. Nemade et al. (2007) investigated the effects of CBT on treatment of major depression in particular. Zyromski and Joseph (2008) examined how utilizing CBT affects academic achievement of middle school students.

Cognitive Behavioural Therapy (CBT; Kuyken, Padesky, & Dudley, 2009) is a behavioural therapy developed by Aaron Beck. This method is widely utilized by psychotherapists and has been a subject of numerous research studies. CBT addresses dysfunctional emotions, maladaptive behaviours, and cognitive processes and contents through a number of goal-oriented, explicit systematic procedures and is widely used in modern treatment of depression and related mental disorders.

The process of CBT includes several stages. First, the therapist's gathers information and develops a hypothesis about the clients concerns. The hypotheses encompass predisposing factors (such as childhood or significant life events), precipitating factors (such as a recent death, break-up or event), and perpetuating factors (such as negative beliefs about others or lack of assertiveness). The hypotheses aim to encompass all of these factors in relation to specific symptoms, and current emotional states, which the therapist then uses as a platform for treatment.

This CBT is a clear, effective and comprehensive therapy for psychosocial and psychotherapeutic interventions for a number of mental disorders, including depression and anxiety. CBT emphasizes core cognitive-behavioural skills, cognitive restructuring, and positive reinforcement, with self-monitoring, in-session activities, and planned, structured, self-help materials and activities between sessions. CBT emphasizes dysfunctional, illogical cognition and distorted thought processes, poor judgment, and social aspects of depression (Beck, 2008). CBT helps patients to see the situation as it really is, without the patient's overwhelmed perception of it.

CBT has proven efficiency in depression treatment and responsiveness of patients to this form of therapy. In addition, there is a considerable amount of research previously

conducted on this topic, which gives a detailed overview of the many facets of the treatment. This further suggests that Social learning theory and Social cognitive theory is reasonable and can be successfully applied in practice to help undergraduate students cope with depression. Social learning and social cognitive theories are directly related to the subject of the present study as it is widely utilized in the development of treatment methods for depression

Empirical Framework

The present literature review is based on reliable and consistent studies that are directly related to the subject of the review. For instance, some of the most important and detailed studies on the prevalence of major depressive disorder among college students and the association between their academic performance and MDD were conducted by Eisenberg et al. (2007) and Eisenberg, Golberstein, & Hunt (2009). Research on CBT and other treatment methods for depression were presented in the studies by Hofmann (2012; Gotlib, & Joorman, 2010), Beck, & Alford (2009), and Gurman (2013). Numerous studies on the nature of MDD are presented in the literature review in detail.

This chapter contains a general overview of major depressive disorder, its symptoms, etiology, epidemiology, various correlates, and treatment methods. It gives an insight to etiological factors of depression and its impact on students as well as focuses on the relation between academic performance and mental health of the students. In addition, the literature review provides more detailed examination of prevalence of depression among college students, and the relation between students' academic performance and depression. Also, researches that investigate the major treatment methods for depression, the existing barriers to mental healthcare services, institutional

biases and stigma against help seeking utilization, and psychosocial risk factors are highlighted. In addition, in order to be objective about this research discussion, the cognitive model of depression, orientation and unhealthy mental conditions are discussed.

This chapter aims to discuss high-risk health behaviours, such as misuse of alcohol, smoking, eating disorders, casual sexual encounters, and poor social integration and suicidality theory of high interpersonal conflict/self-destruction and their relation to depressive symptoms. The literature related to coping mechanism and major depressive disorder is also discussed in this part of the study. A review of the literature related to self-efficacy, academic persistence, and success as well as challenges, performance and, maladaptive thinking patterns is included. The chapter ends with the review of the past research and its impacts on this study as well as the relating methodologies followed by summary and conclusions.

Major Depressive Disorder (MDD)

There are many psychological problems that may attack any individual in the society. One of the most distributed psychological disorders of today is depression. Nearly every person has faced depression, either through personal or other people's experience. In the United States of America, depression has become a real social problem. The number of adults that suffer from depression in the United States every year is over seventeen million (González, Tarraf, Whitfield, & Vega, 2010). Therefore, it is important to give answers to common questions on the topic including: what is depression, how does it appear and proceed, and what are ways to treat it?

Depression is a widely studied illness. According to Fava and Cassano (2008), clinical depression is a mood disorder that arouses feelings of sadness, loss, anger, or

frustration interfering with the everyday life for a long period. Patients with depression suffer from the loss of pleasure in usual activities, have sleep disturbances, loss of appetite or overeating, social withdrawal, and often think about suicide. Depression strikes body, mind, thoughts, mood, emotions, and subsequently, attitudes and behaviour. The period of the disorder may vary from a few days to several years.

Risk factors of MDD

As eluded to in the previous section, socio-demographic risk factors is associated with major depressive disorder including gender, age, race/ethnicity, socioeconomic status, and sexual orientation and relationship status which are all discussed in sections below.

Gender. The results of numerous researches on this topic indicate that depression is more prevalent among women than men (Eisenberg, Gollust, Golberstein, & Hefner, 2007), which may be offset by the notion that women are also more likely to report depression than men. Bhatia and Dey (2011) conducted the research on gender differences in relation to depressive symptoms that suggests that women are about twice as likely as men to be depressed, regardless of culture, national origin, or socio-economic group. The authors suggest that significant differences in depressive symptoms in men and women can be explained as a result of the interplay of the different psychosocial factors, such as appraisal of stress, nature of coping styles, social support, and sense of mastery in their everyday lives (Bhatia & Dey, 2011). The findings of their study indicated that women used significantly more emotional processing and expression in response to stressors than did men (Bhatia & Dey, 2011). Also Bhatia and Dey (2011)

suggested that depressive disorders in women might be more closely tied to severe traumas, such as physical and sexual abuse, than to everyday strains.

Age. Age range: adolescence to adulthood. According to World Health Organization (2012), the major risk factors that predispose adolescents and young adults to mental disorders can be categorized by ecological environment or setting: school, media/information, work, and community. Within these settings, students may face risk factors related to culture, community, family, and individuals. Depression increases along with increasing age (Melchior, Chastang, Leclerc, Ribet, & Rouillon, 2010) and according to Smith et al. (2013), depression in adolescents can be very different from depression in the adults. It may include the following specific symptoms: irritability, unexplained aches and pains, extreme sensitivity to criticism, and withdrawing from some people (Smith et al., 2013); these specific features identify the distinction of depression in adolescents from depression in adults.

Race/Ethnicity. The correlation between ethnicity and depression has also been widely studied among psychiatrists. African-Americans and Mexicans had significantly higher depression chronicity and significantly lower use of depression care, as well as guideline concordant use than the Whites (Gonzalez et al., 2010). The researchers suggest that this may occur due to present inequalities in mental healthcare and unawareness of methods of treatment among the members of these ethnic groups. These findings suggest that white American women are at high risk of the development of mental disorder, regardless of their age and environmental setting.

Socioeconomic status. Melchior et al. (2010) conducted a study on the association between socio-economic status and the persistence of depression. Results

showed that a low socio-economic position predicted depression persistence in the univariate statistical analyses. This socio-economic disparity reflected a higher exposure to risk factors of poor depression outcomes, including unfavourable socio-demographic characteristics and more severe mental health issues (Melchior et al., 2010). These findings allow suggestions that the depressed individuals with a low socio-economic status appear to experience persistent depression that seems to be related to their higher level of exposure to multiple risk factors.

Sexual orientation and relationship status. Correlation of depression in terms of sexual orientation and relationship status depends on the successful functioning of these relationships. This can be grouped as heterosexual and homosexual. As to sexual orientation; there are some specific factors that provoke the cultivation of such a disorder. The major factor that contributes to the development of depression is the inability to live a normal life as an open homosexual, bisexual, or transgender (Guarnero & Flaskerud, 2008). It depends on multiple factors, including social disapproval, different kinds of discrimination, fear of being judged and punished, lack of support from relatives and close friends, etc. (Barnard, 2009). All these factors have a significant impact on the development of depression. It is obvious that successful long-term relationships do not contribute to development of depression when compared to unsupportive and distrustful relationships. Divorced couples and malfunctioning couples where partners are dissatisfied with the relationship condition have an increased possibility of developing depression.

Etiology and Course of MDD

The key point to remember for everyone is that depression is treatable. The vulnerability to depression is individual-based and may develop due to various factors. Both physical and psychological disorders influence the individual's disposition to depression. The most widespread reasons that may cause depression are represented by the combination of different factors including various psychological, biological, environmental, social, and others (APA's DSM-5, 2013). General probable causes for the development of depressive disorders include: long or chronic diseases, any significant losses, and problems in relationships or at work, serious family stresses, financial crisis, and negative changes in life (McMahon et al., 2012).

Additionally, brain chemistry is involved in mood regulation and thus, has significant meaning to mental disorder treatments. Neurotransmitters perform the major regulatory functions and brain cells usually produce the adequate levels of them to keep senses, learning, movements, and moods coordinated and well-adjusted. However, in people with severe depression or manic depression, these regulatory processes sometimes go wrong and may involve over sensitiveness or insensitiveness of receptors to a specific neurotransmitter, causing their response to its release inadequate or excessive. When changes occur in the system sensitivity, it may considerably affect mood (Miller, 2011), below are several neurotransmitters that are believed to play a role in the development of depression:

- Acetylcholine is involved in learning and recall;
- Serotonin regulates sleep, mood, and appetite and inhibits pain;
- Norepinephrine is involved in blood pressure regulation;

- Dopamine affects movement;
- Gamma-aminobutyric acid acts as an inhibitory neurotransmitter.

The activity of these neurotransmitters is reported to have a significant influence on mood and every day functioning (Miller, 2011). Therefore, therapists can sufficiently improve the patient's condition by selecting the right psychopharmacological treatment.

Epidemiology of MDD

The prevalence of depression in one's lifetime varies widely. Though it is a very widespread disorder, its incidence is highly variable and uneven. The percentage of people suffering from major depressive disorder differs significantly among countries. Gonzalez et al. (2010) provided a research study on the epidemiology of major depression and ethnicity in the United States that the prevalence of major depression was higher among U.S.-born ethnic groups compared to foreign-born groups, though not among older adults. This finding is consistent with the "healthy immigrant hypothesis," which is born-out of epidemiologic observations that immigrants often have health advantages over the US-born co-ethnic groups (Gonzalez et al., 2010). Results of the study also showed that depression is more severe among the most socioeconomically disadvantaged ethnic minorities.

Syndrome of MDD

Depression is not the same for all the persons suffering from it. It varies in symptoms, and experiences, as people are different and unique. The following section gives more descriptive details of major depression that are useful in diagnosis.

In order to be able to recognize depression and to realize if a patient is suffering from it, a therapist should be aware of the symptoms of this illness. Although they may

be different according to individual characteristics of every patient, there are some universal properties possessed by depression. The major characteristics of depression are changes in some important processes of life. The following paragraphs will include some of the major signs and symptoms of depression, referring to American Psychiatric Association (APA's) DSM-5 (2013).

The first being *changes in feelings*. Changes in feelings result in a bad emotional mood. Feeling sad and tired with no reason, apathy and low motivation are typical for the clinically depressed. A patient may be unsatisfied with things or activities that previously gave him/her pleasure. Also, hopelessness and helplessness are characteristic features of changes in feelings. They often report that they feel trapped or suffocated. Patients often feel worthless and insignificant; the future seems distant and blurry to them.

The second sign of depression are *changes in thinking*. Changes in thinking results in problems with the process of thinking and it usually means low decision-making abilities and low concentration ability. Depression often distorts the perception of people and events surrounding the patient. Depressed people see the world as a dark, gray, and empty place. Normal human contacts become unwanted and overwhelming (Marshall, 2012). They often perceive reality in an alternative way, seeing events as precursors of problems and failures. Negative, self-critiques and sometimes even self-destructive thoughts may appear in this period. The patients tend to believe that causes of these problems and failures lie in their own actions. Additionally, some patients may suffer from a short-term memory loss, which could further negatively impact their thinking and recollection of life events.

Thirdly, *changes in physical conditions* are caused by changes in the psychical state, which may vary significantly. As a result of the changes in feeling and thinking, the behavioural changes are the most recognizable. The depressed individual acts the way he/she feels; thus, his/her actions are apathetic and passive. They show decreased or increased appetites, avoid company, and may display typical feelings of discomfort and sometimes cry without reason. Complaints and anger are also common for the depressed person as well as the activity and productivity of the depressed individual becomes very low at work and home; including a reduction in sexual activity. An individual's appetite may change, as well, and as a result, may either overeat or do not want to eat at all. Sleep disturbances also become apparent and a patient may not be able to fall asleep at night or may awaken many times. On the other hand, some individuals dedicate more time on sleeping; though, they continue feeling very tired. Often times, pains and body aches accompany chronic exhaustion and patients may feel lethargic; however, some people cannot sit still and feel very nervous and restless (APA's DSM-5, 2013).

MDD among College Students

The symptoms of MDD although can be generalized to different subpopulations is known to vary dependent on the environment. One such environment that can affect the incidence as well as the diagnosis is the college environment; therefore, it is important to make a distinction between students and non-students, specifically, the effects of MDD on undergraduate students. This distinction is conditioned by a unique set of circumstances that undergraduates face in a certain period of their lives which is the transitional period during which students transform from adolescents into young adults (Gonzalez, 2008). Research conducted by the National Survey on Drug Use and Health

(2012), showed that prevalence of major depressive episodes in college students can be observed. The NSDUH report published by Substance Abuse and Mental Health Services Administration (2012) compared the prevalence of major depressive episodes for the full-time students and part-time college students by gender and race/ethnicity. The results of this report indicated that overall prevalence of depression was similar among the full-time college students and part-time students (8.4% and 8.2% respectively) aged 18 to 22 (SAMSHA, 2012). However, the part-time students reported significantly higher incidence of serious function impairment due to MDE than the full-time students. Despite this fact, both groups of students were equally likely to receive mental health treatment (SAMSHA, 2012).

Risk Factors of MDD among College Students. Major life changes occur during the transition to adulthood, as student move from high school to the university. A university is a completely new setting, not familiar for the high school graduates. A university does not only offer a lot of opportunities for human fulfilment; but it also requires a lot of effort and concentration because the new environment provides not only opportunities but also stress. Intensive and prolonged stress may result in the development of depressive episodes, both acute and chronic (Rayle & Chung, 2007). When entering the university, young people are overfilled either with hope and expectations for new opportunities or with worries and fear of a failure.

During this time, many factors that were not previously much of a matter have a significant role in the life of students. These factors often include academic performance, financial independence, establishing multiple new social connections and greater personal responsibilities (Jeffreys, 2011).

Academic performance. During their time in high school, students participate in different activities similar to those of the university. However, the high school activities are only preparation for the university life. The intensity of these activities differs in personal responsibility and is the key factor in academic performance. Though at the high school level, students learn to work independently, as well as in groups, the level of responsibility for their actions is considerably lower when compared to similar work at the university. However, this experience can be useful during the first stage of studying at the institution of higher education (Meyer, Heywood, Sachdev, & Farraday, 2008).

A university requires a lot of independent work. Students have to remember that their academic success depends mostly on themselves, as professors may have no time to teach every student individually. For some high school graduates, this may become a problem if they have no skills of independent study. However, it is important to learn to work independently, only relying on self-abilities, as this would be very useful in the future.

The ability to do something without a guide is one of the major features of becoming mature; therefore, a university offers a great opportunity to obtain this ability and learn to have personal responsibility (Meyer et al., 2008); especially as the academic demands of the university considerably differs from those of high school.

For students with low academic performance at the high school level, and difficulties with concentration, entering the university can be a serious challenge in terms of the ability to meet the academic requirements. When entering the university, students have to know how to pick out the main points of lecture and have time to follow the professor's idea. University also requires a lot of unsupervised work; thus students should

know how to be responsible and organized (Eisenberg et al., 2009); these are high expectations, and it takes a lot of effort to meet them. For example, Geddes' (2011) researched on academic dishonesty among gifted and high-achieving students. The study revealed that due to the pressure of gaining a competitive advantage in applying to desirable universities and earning academic scholarships, gifted and high-achieving students may become more concerned with striving for high class rankings, high GPA, and awards, rather than true learning (Geddes, 2011). Thus, earning and maintaining a high GPA may increase stress as a result of high pressure and expectations from peers, family, or a teacher.

Due to high pressure that academic activities have on students, major depressive disorder is not uncommon in undergraduate students (Blanco et al., 2008). The university provides more freedom in that no one actually forces the students to study or participate in some additional activities; it all depends on the students' own desire and capability.

Turner, Thompson, Huber and Arif (2012), examined the relation between depression and academic performance in students at a large urban university in North Carolina. They analysed the responses of the 1,280 undergraduates who completed their survey and examined the associations between depressive symptoms and academic performance in this group of students. Their findings indicated that students with even mild symptoms of depression are at higher risk for lower academic performance, and several factors play a role in this correlation (Turner et al., 2012).

According to Eisenberg et al. (2009), a number of depressive symptoms may affect the productivity of academic activities and the amount of time dedicated to these activities. These symptoms include anhedonia, sleep disturbances, lack of energy,

difficulty concentrating or making decisions, hyperactivity of slowing of movement, and suicidal thoughts, which may seriously impair concentration (Eisenberg et al., 2009).

Often, students face difficulty in balancing their academic requirement with their personal life. Students often experience fast exhaustion and burnout, and both spheres, academic and personal life suffer (Eisenberg et al., 2009), further increasing their risk of depression. All these issues may lead to decreasing academic performance; and to avoid such a situation, students should learn to balance their academics with personal life, turning to mental health specialists when necessary (Zong et al., 2010).

In summary depression results in low academic performance and vice versa (Eisenberg et al., 2007). This fact complicates the treatment as it is often unclear whether depression was caused by intensive workload, or whether the low academic performance was a result of depression caused by some other reason (Freudenberg & Ruglis, 2007). This specific feature of major depressive disorder in students conditions the high prevalence of this disease within this subpopulation.

Financial independence. Financial problems are an additional stress that makes students overwhelmed with challenges they meet on campus. In combination with academic activities and forced employment, financial pressure significantly increases the development of major depressive disorder. As many students move from parents' house to campus, they obtain independence and have to learn to financially rely on themselves; and as a result, some students face financial problems when they matriculate. Generally, the students are unprepared and such unpreparedness for independent living creates a basis for unstable mental health. Financial pressure is a major factor contributing to depression not only among students (Melchior et al., 2010). Most students cannot find a

well-paying job as they have not yet obtained the necessary education and, thus, have low paying, usually, part-time jobs, which has a significant impact on their mental condition (Zong et al., 2010).

New social connections. Apart from financial independence, separation from previously formed social circles and family increases separation leads to a sense of social insecurity and increases the risk of having depression. Moving to campus, students have to communicate with a big number of new people. Some students may have difficulties making new friends, as they are unsociable (Perez, 2013). Others may have the same difficulties, as they need more time to adapt to new individuals, in order to establish a connection. Students must acquire new social interconnections and often lose their old ones. Thus, may result the student having feelings of abandonment and ultimately succumbing to depression (Abdullah et al., 2009). Social communication is an important part of growth as young adults because it provides him/her with social security and a sense of involvement in society.

On the other hand, there are also students who simply do not want to make new friends as they feel comfortable with the old ones and reject change in this aspect. The difficulties in integration may contribute to depression and anxiety; however, social connections are an important part of growth for young adults (Abdullah et al., 2009). Therefore, therapy sessions, such as CBT, may help to solve the problem with social integration and significantly simplify the first year at the campus (Nemade, Reiss, & Dombeck, 2007).

Greater personal responsibilities. During the first year at the university, students often face the necessity to make multiple decisions. It is a major challenge for

freshmen, as they have to decide whether they want to continue studying and what goals they must set and achieve in order to do this, or they risk having to leave the university due to the inability to meet its requirements. This decision requires a lot of organizational skills that many freshmen, unfortunately, lack. Setting the right priorities requires high concentration and can be a major source of stress (Abdullah et al., 2009). Thereby, students who are liable to the development of anxiety and depression often cannot find a way to cope with the challenges of a freshmen year.

Diagnosis of MDD. Depression is sometimes hard to recognize due to the unawareness of its primary symptoms to the affected individual or to an individual's unwillingness to acknowledge that something has gone wrong in his/her life. In order to prevent complications, it is very important to recognize the illness at the beginning, when it is easier to reveal its cause. Major depression can be diagnosed when symptoms are present for at least two weeks, with sudden onset significant enough to impact daily functioning. It occurs occasionally and becomes apparent during the so-called major depressive episode that cannot be explained by any thought disorder and never occurred previously (American Psychiatric Association, 2013).

Students who have a depressive disorder and do not know how to treat it, often experience difficulties with expressing thoughts and ideas accurately. According to DSM-5, adolescents and young adults may have the following symptoms when suffering from depression: academic problems**,** loss of interest or pleasure in almost all activities**,** lack of energy, low activity**,** withdrawal from social interactions**,** and often have thoughts of death and suicide (APA, 2013); the last of these symptoms is particularly typical for major depressive disorder.

There are also symptoms of depression that can be hard to recognize. These symptoms are called cognitive symptoms. According to Tartakovsky (2013), cognitive symptoms may be revealed with the help of psychotherapy sessions. Marchand (2012) and Serani (2012) identify several cognitive symptoms of depression that significantly contribute to the development of the illness: distorted thinking, difficulties with concentration, high distractibility, memory loss, slow reaction, as well as hesitation and inability to make important decisions.

MDD and Treatment. Once diagnosed, a patient can recover fully from MDD after treatment. The major direction in depression treatment is psychotherapy; since the nature of the main problems that result in depressive disorder usually lies in the psychological sphere; therefore, the psychotherapeutic approach is the best way to cure and treat this illness (Moran, 2011). There are three major psychotherapeutic ways equally important for recovery; supportive counselling, cognitive-behavioural therapy, and problem solving therapy. Although each of the three is very helpful (Moran, 2011), the most widely utilized treatment is cognitive–behavioural therapy (CBT). CBT is a clear, effective and comprehensive framework for psychosocial and psychotherapeutic interventions for a number of mental disorders, including depression and anxiety (Kuyken, Padesky, & Dudley, 2009). Like all complex human endeavours, many factors account for success of the therapy including the patient, the treatment method, the psychotherapist, the context, and the relationship between the therapist and the patient (Norcross, 2011).

In addition to the psychotherapeutic method of treatment of depressive disorder, the doctors may find useful to add the medication treatment, as well. It is reported that

out of all the cases identified, 60% of the patients recovered from depression due to appropriate combination of both psychological and medication approaches (Wagner, 2012). Unlike psychotherapy, the medical treatment usually is not a necessity in the process of depression treatment; except for some certain cases of very serious and deep depression or bipolar disorder medication. The medicinal treatment of depression is often used to sustain the psychotherapeutic effect (Selvaraj, Veeravalli, Ramaswamy, Balon, & Yeragani, 2010).

The antidepressants prescribed vary in its chemical structure, effects on the brain and body, as well as side effects. The most efficient treatment medication for depression over recent times is considered to be the group of so-called selective serotonin reuptake inhibitors (SSRI) (Selvaraj et al., 2010). The great number of widespread and commonly used antidepressants belongs to this group. For instance, the most distributed SSRI antidepressants are Prozac (fluoxetine), Zoloft (sertraline), Luvox (fluvoxamine), Paxil (paroxetine), Serozone (nefazodone), and Effexor (venlafaxine; Cox, 2009). The major effect of SSRI medicine relies on the function of serotonin, a specific neurotransmitter produced by the human brain also known as 5-HT or 5-hydroxytryptamine (Hirsch & Birnbaum, 2013). SSRI works to slow down the process of serotonin reduction by affecting neurons and providing the body with the ability to work with the reduced amount of serotonin. It is a necessary component for human well-being; hence, during depression, the amount of serotonin usually reduces.

Other medications used are tricyclic anti-depressants for treatment of all kinds of depression, monoamine oxidase inhibitors (MAOI) for treatment of some specific types of depression and herbal medication which is the most mild method of treatment and free

from side effects; although, it is less effective. No matter which medicinal treatment is used, the decision concerning whether medication is in fact used at all is one undertaken by the client himself/herself and the physician that initially observes the him/her or the psychotherapist carrying out his/her current course of psychotherapy. However, medication alone is not normally able to remove the original problems that resulted in the depressive disorder as for very often, the underlying cause of the disorder stems from external stresses that resulted in psychological changes.

Barriers for MDD treatment in College Students. Although treatment for MDD is effective, a major concern is the availability and accessibility of treatment services. For students, help-seeking behaviour of professional psychological help is related to fears of psychological treatment, attitudes towards seeking professional psychological help, gender, and a prior contact with a counselor (Chai, 2013; Atindanbila & Abasimi, 2011). Also, young people perceive a number of barriers to seeking help for mental health problems including stigma and embarrassment, problems recognizing symptoms (poor mental health literacy), and a preference for self-reliance (Gulliver, Griffiths, & Christensen, 2010). Hunt and Eisenberg (2010) noted that reasons including lack of time, privacy concerns, lack of emotional openness, and financial constraints prevented college students from seeking help. In their research, the authors also found that being unaware of services or insurance coverage, and skepticism about the treatment effectiveness played a role in the student's decision to seek professional help (Hunt & Eisenberg, 2010).

Often, the existing personal and social stigma prevents the patients with depression from seeking help. Social stigma is the perception that a person who seeks

psychological treatment or is diagnosed with a mental health disorder, such as depression, is undesirable or socially unacceptable (Hobson, 2008), for instance, some of the sex role stereotypes. Sex role stereotypes may seriously affect the help-seeking behaviour of men due to societal expectations such as: restrictive emotionality of men, restrictive affective behaviour between men and conflict, and restrictive affective behaviour between work and family relations (Goodwin, 2008). These factors have been found to be significantly correlated with lower self-esteem in college-aged men (Goodwin, 2008); and therefore, stereotypes of masculinity do not allow young men to seek help, as they prefer to deny the fact that they need it in order to correspond with a stereotypic image of a man created by the society.

The second stigma that acts as a barrier to treatment, self-stigma, is often associated with decreased self-esteem and feeling worthless as a result of self-identification as being someone in need of mental services (Hobson, 2008); this condition may worsen if a patient has severe depression. Thus, with constant exposure to MDD risk factors and as a result of the various barriers to treatment whether self-inflicted or as a result of factors beyond the student's abilities, students either suffer with MDD or utilize coping mechanisms.

MDD and High-risk Health Behaviours in College Students

As a result of MDD, the probability of college students to participate in high-risk health behaviours here-in defined as acts that are hazardous to one's health and may result in illness or a shorten life expectancy, increases. These behaviours and their association with MDD are discussed below.

Casual Sexual Behaviour. The results of Agardh, Cantor-graae, and Östergren's (2012) research show a statistically significant relationship between poor mental health and risky sexual behaviour among the university students. Their study indicates that the elevated total scores on mental health, depression, anxiety, and psychoticism were significantly associated with a high number of sexual partners in the last 12 months among males. In addition, the authors concluded that the high score on anxiety was associated with inconsistent condom use on the latest occasion of sexual intercourse (Agardh et al., 2012); thus showing an association of mental health, depression, anxiety and psychoticism with the risky sexual practice of not using a condom, which could result in the contraction of a sexually transmitted diseases by the students.

Suicidal Behaviour. Depressive disorders, which can include suicidal thoughts as a symptom, are generally viewed as the greatest risk factor for suicide and are a logical starting point with respect to the identification of at risk individuals (Farabaugh et al., 2012). Previous studies have revealed that there is a correlation between suicide attempts and major depression among students aged 18-55 years (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Garlow et al., 2008). In a study conducted by Farabaugh et al. (2012), it was indicated in their research on depression and suicidal ideation in college students in reference to the ACHA's (2006) report on suicide rates, that 1 in 10 college students seriously consider suicide and nearly half suffer from significant depression. Also, Tracy (2008) reports that about 15% of those diagnosed with major depression eventually die by suicide and studies on suicide in students found that about 95% of those that commit suicide are clinically depressed (Farabaugh et al., 2012; ACHA, 2006). Therefore, steps are needed to better identify those that are at risk of depression in order to better avoid

self-killing by students. The findings of Taliaferro, Rienzo, Pigg, Miller and Dodd (2009) showed significantly lower rates of hopelessness, depression, and suicidal behaviour among the college students who engaged in physical activity, compared with their inactive counterparts; perhaps the promotion of physical activity as a coping mechanism among students could be a strong protective factor against suicide within this subpopulation (Taliaferro et al, 2009).

Substance Abuse: Students that suffer from depression may rely on the abuse of alcohol or drugs as an escape method. Thompson (2011) points at the significant connection between depression and substance abuse. He argues that there are shared brain regions affected by both substance abuse and depression; genetic factors predisposes a person to the development of a mental disorder or addiction which can be triggered by environmental factors, such as stress or trauma leading to both depression and drug abuse (Thompson, 2011).

Moreover, screening and proper diagnosis for MDD is essential for the avoidance/reduction of the high-risk behaviour that occurs as a consequence of the illness.

MDD and Behavioural Coping Skills

McClintock, Husain, Greer, and Cullum (2010) indicated that depression can have a considerable negative effect on cognitive functioning; impairing attention, learning and memory, and executive functioning. As a result of the study conducted by McClintock et al, several aspects of depression severity have been associated with cognitive impairment, such as increased symptom severity at the time of neuropsychological testing (McClintock et al., 2010). In order to help the students cope with mental disorders, most

of the universities have counseling centers, where students can obtain help from mental health specialists. Psychological counseling can be very effective when it is addressed on time as social support is very important to the depression treatment, students who lack this kind of support from family and friends may find it in the college counseling centers.

Atindanbila and Abasimi (2011) provided results from research conducted on the depression coping strategies among the university students, and found that the students use mostly the cognitive methods as compared to the other ones. They also found that cognitive methods are closely followed by the social and spiritual methods that are equally used. The physical coping method was third whilst the medical one was last (Atindanbila & Abasimi, 2011). Using the cognitive methods is an example of an adaptive coping strategy. However, the maladaptive coping is, unfortunately, more prevalent among people with depression (Zong et al., 2010).

There are several maladaptive coping strategies that tend to temporary reduce the symptoms of the disease though result in intensifying it later. In their article on maladaptive coping strategies, Jacofsky et al (n.d.) highlighted a few of them: dissociation, sensitization, safety behaviours, and anxious avoidance. Dissociation refers to the ability of the mind to separate and compartmentalize thoughts, memories, and emotions. A person using sensitization coping strategy seeks to learn, rehearse, and/or anticipate fearful events in a protective effort to prevent these events from occurring in the first place. Avoidance coping strategy refers to efforts to avoid anxiety-provoking situations at all cost. This method often brings relief to the patient, as he/she does not experience stress due to the unpleasant events. However, if a person does not confront the

feared situation and instead chooses to avoid it, the fear will most likely be maintained (Jacofsky et al., n.d.).

The study of Dyson and Renk (2006) also suggests that the levels of family and college stress reported by college students, as well as the use of coping method, significantly predicted their levels of depressive symptoms. The findings of this study were in support of later studies that reported that university students with depressive symptoms were more likely to report utilizing coping strategies that do not represent a good fit for the type of event they encountered (Zong et al., 2010). However, if coping is flexible, positive adjustments can arise, and positive emotion can occur even when depression and distress are frequent.

MDD and Cognitive Coping Skills

Another coping mechanism is cognitive coping skills. When not treated properly, maladaptive cognitions, a symptom of MDD, can lead to distortions of reality as they lead to misperception and exaggeration of the life events. Gotlib and Joormann (2010) supported that biases may be linked to emotion regulation in depression and, thereby, to sustained negative effect, the core feature of depressive episodes.

Two types of maladaptive thinking patterns have been identified, probability overestimation and catastrophic thinking (Hoffmann, 2012). Probability overestimation was defined as the miscalculation of the probability of an unlikely or unpleasant event. The second, catastrophic thinking was related to the intention to perceive any unpleasant event as a catastrophe (Hoffmann, 2012). These two thinking patterns lead to a number of specific and typical automatic thinking processes, including black-and-white thinking and

personalization (Hoffmann, 2012) and the negative patterns often lead to decreases in self-esteem and a negative coping style.

As MDD can lead to a negative sense of self, the vice versa can occur as well. The results of Seeds and Dozois (2010) research on the interaction of schema self-structures and negative life events suggest that cognitive structure may be a relatively stable vulnerability factor that interacts with negative life events to predict self-reported symptoms of depression. The results of the research indicated that individuals who possessed a highly organized or consolidated negative sense of self were particularly vulnerable to depression when life stressors occurred that was similar to those which helped to create these self-structures (Seeds & Dozois, 2010).

MDD and Self-efficacy. Maladaptive cognition as a result of MDD or its risk factors can also lead to decreases in self-efficacy. In research on the stress that university student's encounter, Bitsika, Sharpley, and Rubenstein (2010), showed that participants reported decreases in self-efficacy and self-belief, plus decreases in capacity for effective decision-making and problem-solving. A study conducted by Caprara, Pastorelli, Gerbino, Paciello, and Di, (2010) supported this notion with results from their study which showed that perceived affective self-regulatory efficacy was related concurrently and longitudinally to depression and indirectly through its impact on interpersonally perceived self-efficacy to depression and delinquency (Caprara et al., 2010).

To overcome maladaptive thinking and the perceived self-efficacy that occurs as a result of this, several strategies can be used. One strategy was described in a study by McGuiggan, Rowe, Lee, and Lester (2008) in which a narrative centered program was used. As part of the program, four factors are addressed: 1. Enactive experiences – the

outcomes of a student's personal experience 2. Vicarious experiences – the outcomes that are attained by a model (e.g. a student peer). 3. Verbal persuasion – potential outcomes are described to the students and not being observed by them personally 4. Physiological reactions –physiological states such as stress, fatigue, etc. of the students are observed. As an example, McGuiggan et al. (2008) described how a narrative-centered program was developed in order to supplement a microbiology curriculum. In the program, students played a role of protagonist. They tried to discover the source of an unidentified disease and thus, the exercise created a way to learn about a topic without formal instruction. This strategy can be applied to treating maladaptive thinking as the individual gets to hear the actual perspectives of others, instead of their own negative cognitions and thus may be better able to cope in their situation.

Since low academic performance has been identified as a risk factor of MDD in college students, studies addressing academic self-efficacy have also been conducted. The results of research by Jungert and Rosander (2010) indicated that academic self-efficacy, which refers to students' perceived capability to reach explicit academic goals, has been positively linked to strategy use and self-regulation. The authors also reported that high self-efficacy beliefs are linked with greater use of cognitive strategies, as well as to strategies that influenced their study environment (Jungert & Rosander, 2010). In summary, the results of their research provided valid empirical indications that student involvement in formal and informal strategies to influence their study environment was closely tied to students' academic efficacy beliefs (Jungert & Rosander, 2010).

This was support by the research by Edmondson, Boyer, and Artis (2011) on self-directed learning that revealed that academic achievement was significantly higher for

students who participated in self-directed learning. Edmondson et al. (2011) suggested that students who effectively engaged in self-directed learning were more creative and curious; thus, these students also exhibited greater performance in the classroom. In addition, students who used self-directed learning were more satisfied in their life and also had a more accurate direction regarding their future aspirations (Edmondson et al., 2011).

Moreover, positive cognition can regulate self-esteem and self-efficacy, as well as help to reduce the symptoms of MDD often associated with maladaptive thinking.

Implications

The present research on major depressive disorder in college students is based on the empirical evidence found in the literature related to the topic. Most of the research discussed in this literature review points at the importance of further investigation of the predictors and moderators of risk factors and depression among undergraduates. Researchers have asserted that depression causes educational, vocational and personal setbacks, distress, and poor decision-making among college students, perpetuating depressive symptoms, and potentially setting the stage for chronic depressive episodes (Eisenberg, Golberstein, & Gollust, 2007.) Moreover, researchers have explored the relationships of a number of factors in college students, including college life, mental health status, and depressive symptoms (Howley & Dickson, 2009; Mahmoud, Staten, Hall, & Lennie, 2012). The consequences of untreated depression may be very significant. These may include problems at work and study, social alienation, relationship issues, and serious health problems. Concentration issues caused by depression can also contribute to the decrease in general performance and also academic performance is

usually affected. The lack of sleep and continued lethargy as a result of decrease in activity due to loss of interest can result in fatigue, low efficiency and other negative effects on general functioning. All these factors put the student's work and study in danger and may lead to multiple warnings or even expulsions (Aufiero, 2010).

As a way to combat their usually undiagnosed MDD, many college students resort to the use of maladaptive coping skills whether behavioural or cognitive. It has been observed that students who utilize maladaptive coping skills, both cognitive and behavioural, are more prone to endure depressive symptoms and poorer academic performance. However, little or no research was performed or seeks to analyse the relationship between coping skills, cognitive abilities and self-efficacy in response to warning signs to MDD in college students. Therefore, this study seeks to fill in these gaps in the field. The overall aim of the study was to determine if dysfunctional cognitive beliefs, self-efficacy and coping mechanism in undergraduate college students improves the prediction of MDD using a national sample of college students in the United States. beyond conventional predictors, such as gender, age ethnicity/race and socio-economic status. In addition, the study evaluated the cognitive and behavioural elements of coping mechanisms employed by college students across the nation as well as their self-efficacy as predictors to depression. Results of the study have provided information that can be used in the development of appropriate and effective training in coping mechanisms for the reduction of MDD in college students.

Summary and Conclusion

This literature review investigated the most urgent research on the topic of major depressive disorder in college students, adolescents, and young adults. Areas of intense

study concerning major depressive disorder in undergraduate college students were showcased and recent evidence-based literature provided a discussion on the effect of depression in college students. The studies presented in this review thoroughly examined areas related to the research questions including: prevalence and correlates of depression within college students, risk factors, and the impact of depression on academic performance, depression diagnostics, and treatment methods for depression. The particular examples include works of: Beck & Alford (2009), Gurman (2013) Hofmann (2012) Ishizaki & Mimura (2011) Kuyken, Padesky, & Dudley (2009), Law (2011), Moran (2011), Nemade, Reiss, & Dombeck (2007), Saccomanno (2011), and Taylor (2008) on treatment methods for depression. Research on depression diagnostics was presented by the studies of such authors as Knott (2011) Ishizaki & Mimura (2011), Goldberg (2010), Chang (2012), Arroll et al. (2010) and American Psychiatric Association (2013). Research on prevalence and correlates of depression within college students is discussed in the studies of Bhatia & Dey (2011), Eisenberg et al. 2007, Fisher et al. (2011), Lindsey, Fabiano & Stark (2009) and Unsal & Ayranci (2008). Finally, risk factors and depression's impact on academic performance was presented in the review of studies conducted by: World Health Organization (2012), Turner et al.(2012), Rayle & Chung (2007), Perez (2013), Freudenberg & Ruglis (2007), Eisenberg, Golberstein, & Hunt (2009), Egido et al. (2012), Dyson & Renk (2006), and Agardh, Cantor-Graae, & Östergren, (2012). Moreover, the literature review concluded that college students have specific issues that contribute to depression.

The next chapter discusses the research methodology that was used to address the gaps in the field concerning the correlation of the cognitive and behavioural coping skills of college students and MDD in college students.

Chapter 3: Research Method

Introduction

The proposed study used secondary data collected by the Healthy Minds Study in 2012 using Patient Health Questionnaire (PHQ-9). The following chapter described the setting and sample population under study. The procedures, instrumentation, the IRB review process, the construct validity and reliability of the instrumentation, and the statistical analyses were used in the study were also described. The chapter described the research design as it relates to the research questions and approach including dependent variables (DV), independent variables (IV), covariates and moderating variables as appropriate to the study. The procedures for recruitment, participation, and data collection in association with the main study are stated in the chapter. In addition, justification for the effect size and alpha level calculation using power analysis for the subpopulation used for this study are discussed.

Purpose of the study

The overall purpose of the study was to determine if coping mechanisms and self-efficacy improve prediction of Major Depressive Disorder (MDD) beyond conventional predictors, such as gender, using a national sample of college students in the U.S. In addition, the study evaluated the cognitive and behavioral elements of coping mechanisms employed by college students across the nation.

When entering the university, young people are overfilled either with hope and expectations for new opportunities or with worry and fear of failure or both. Rayle and Chung (2007) supported that intensive and prolonged stress may result in the development of depressive episodes, both acute and chronic. Also, research conducted by

the National Survey on Drug Use and Health (2012) showed that the prevalence of major depressive episodes among college students is on the rise compared to the general population. According to Dyson and Renk (2006), understanding the association of the level of family and stress experienced by freshmen college students, as well as their method of coping skills may significantly reduce and prevent depressive symptoms. However, this study only looked at college freshmen's, specifically focusing on differences observed between male and female students. Further evaluation of the students throughout their undergraduate years was lacking which results obtained from this study would contribute.

The reasons that may result in depressive disorder symptoms are represented by the combination of different factors including various psychological, biological, environmental, social, and others (APA's DSM -5, 2013). However, evaluating the predictive factors that resulted in the MDD symptoms among undergraduate college students was significant, especially as university students with depressive symptoms were more likely to report utilizing coping strategies that do not represent a good fit for the type of event they encountered (Zong et al., 2010). Thus, the study was expected to enhance the understanding of major depressive disorders in the national sample of U.S. College students included in the study, and the subpopulation as a whole. Also, how the use of proper coping strategies and increased self-efficacy was used as a potential method to combat the disorder was evaluated.

Research Design and Approach

This study employed a quantitative methodology. A deductive approach based on regression analysis was used to make predictions utilizing cross-sectional survey in

connection to the research questions and hypotheses. The rational for using quantitative method in this study was that, quantitative method is a deductive approach to problem-solving in which, the potential cause and effect of the relationship can be tested using hypothesis (Razafsha et al., 2012). Secondly, quantitative method emphasized objectively on the measurement and numerical analysis of data collected through PHQ-9 questionnaires. (Klein, Ciotoli & Chung, 2011). Other rationales are, this method is accurate, easy to understand, logically ordered, and enabled the researcher to work independently without any influence by the participants during the data collection process and with the interpretation. The results obtained from this research study were generalized from the study sample of numerical data to the larger college students target population across the nation as specified in the study (Razafsha et al., 2012).

A quantitative method was appropriate for this study, for instance, it focused on answering the research questions and enable the hypothesis to be tested. Also this method emphasized the measurement and analysis of relationships between dependent and independent variables (Razafsha et al., 2012). Quantitative methods was used in the description and in the statistical analysis of the data collected. In this method, all the procedures in the planned analyses was followed including the techniques that was used in cleaning the data set, the statistical procedures using SPSS version 21, the testing of assumptions for each procedure, and the steps that was used to avoid/minimize any error.

As a deductive approach, MDD was measured using a PHQ-9 as a recognized, reliable scale and was used in the translation of the individual feelings, into a numerical format. This research study was focusing quantitatively on generalization through seeking a large random sample that was representative of the general college population

in the U S. This allowed the statistical inference of results and conclusions to be valid across the entire population. In quantitative methods, the assumptions of a positivity model were expressed with the fact that behavior can be explained in an objective manner. The design and instrumentation used showed in case of any bias and error and was used in eliminating them.

The approach controlled for the known predictors of MDD including: Gender, GPA, ethnicity, sexual orientation, and the genetic factors often associated with the risk for Major Depressive Disorder in college students. Also, it was used to determine if cognitive coping skills, self-efficacy, and behavioral coping skills predict MDD or moderate the effects of the known risk factors of MDD (e.g., sex, GPA, cigarette smoking, alcohol abuse, etc.). In addition, the effect of behavioral coping skills on the known risk factors of MDD was analyzed using a deductive reasoning approach.

The survey battery that was used for data collection was self-administered questionnaires administered at various colleges and universities, with data collection occurring around the same period. This design was used to correlate the scores on responses to the self-report questionnaires and utilized information about relationships between variables to predict the potential outcome of MDD (Sheperis, Young & Daniels, 2010).

The proposed study used secondary data collected by the Healthy Minds Study in 2012. Independent variables (IV) were drawn from behavior and personality domains on the PHQ-9 questionnaire instrument. The primary dependent variable (DV) was MDD, with the participants placed in the MDD category using the results of the self-administered screening instrument. Both dependent and independent variables was

categorized using the moderating effect/variables: Gender, age, ethnicity, etc., as appropriate. Linear /logistic multiple regression analysis was used to characterize the variation of the dependent variables and to calculate the path coefficients in a simple path analysis. This regression analyses was used to determine any significant relations between the moderating demographic variables, financial status, health risk behaviors, social factors and/or the result of screening positive for MDD symptoms, and other mental illnesses using large sample size (N = 5,000) divided evenly between all the predictors of MDD in a cross-tabulation. The Healthy Minds dataset includes data from undergraduate students in approximately 26 colleges and universities in the U.S. Results of alpha < .01 to .05 or percentage differences of 5% was reported as significant.

The statistical software that was used in this study is the Statistical Package for Social Science (SPSS), version 21. It was used to descriptively process and inferentially analyze the data obtained from the survey field. Descriptive analyses was used in defining the college student sample population in terms of the demographic variables, predictive variables, relationship status, financial problems, and health risk behavioral and social factors. It was also used in the determination of the occurrence of the depressive symptoms and other mental illnesses.

Qualitative research methods with its reliability and validity can be used to collect and analyze data that cannot be represented by numbers or in numerical form and cannot be generalized to the larger population specified in this study. Secondly, the qualitative method was not scientifically appropriate for answering the research questions and the hypothesis that was tested in a sequential manner using statistical analysis. The

qualitative method is an inductive, more informal method that is subjective in nature, making the quantitative method more appropriate for this data analysis (Firestone, 1987).

Methodology

Population

Participants. This study used large participants in the de-identified secondary data set from a national sample of college students in the U.S. over and above conventional predictors, such as gender. Students were randomly selected from all Twenty –six- participating institutions to complete the questionnaire. The target population designed for this study includes individuals identified as undergraduate students both males and females from freshmen to fourth year in colleges and universities. Students were enrolled in an undergraduate program at one of the 26 participating institutions during the 2012 Healthy Minds Study (HMS) data collection period. These students voluntarily participated in the 2012HMS and were not directly recruited in this present study. Rather, secondary data collected using clear sampling procedures by the HMS in 2012 during the data collection was used. The undergraduate students were distinguished as a separate group and the target population. This distinction were conditioned by a unique set of circumstances that undergraduates face in a certain period of their lives,

a. It is a transitional period during which students transform from adolescents into young adults. These factors often include socioeconomic status, greater personal responsibilities, establishing multiple new social connections, and a greater exposure to risk factors, such as alcohol and drug abuse (Jeffreys, 2011).
b. High vulnerability of students makes them an easy target for depression

c. Throughout college, students often face uncertainty related to their next steps in both professional and personal lives (Gonzalez, 2008). Therefore, due to high pressure that academic activities have on students, major depressive disorder is not uncommon in undergraduate students (Blanco et al., 2008).

All these circumstances require high concentration and effort of the mind; therefore, they may become risk factors that predispose students to develop mental disorders. Other contributory factors are the symptomatic picture of depression among students, which does not differ much from the one in the adult population. The depressed students have typical symptoms of the disease and need the same treatment as adults; however, the causes of depression in undergraduate students vary (Freudenberg & Ruglis, 2007).

The target population size was approximately a total sample of 5,000 participants. An additional 36% was added as a buffer for possible dropouts and other adjustments, bringing the total to (*N*= 6,800); this gave the probability of detecting the real relationship between variables.

Sampling and Sampling Procedures

Procedures. A high statistical power analysis was used to improve the chances that these findings did not have a false – negative result. The power analysis by Lipsey (1990) was used to identify the appropriate large sample size for the groups. Also, the use of high statistical power helped improved the chances that these findings were not due to chance alone and to avoid type II error.

The effect size for the treatment was judged for quality based on Cohen's effect size estimates that range from Cohen's f^2, small = 0.02, medium = 0.15, large = 0.35 with alpha $< .01$ to .05 or percentage differences of 5% and reported as significant if any.

The sampling population was obtained using students randomly selected from the registrar's database from each participating institution (HMS, 2012). Mailed and electronic invitations were utilized; the sample undergraduate students were informed to complete the questionnaire using online versions of the survey, and with assurance of confidential information about mental health among college students. A token of small cash as an incentive, was included in the mail as appreciation for responding to the questionnaire. Email reminders were sent to students that delayed in responding and to the non-responders (HMS, 2012). To ensure the internal and external consistency, the administrators at the University Of Michigan School Of Public Health handled the HMS survey sample procedures.

Data from students 18 years old or older, self-reported as undergraduate students, and working towards earning a bachelor's degree in science or art majors was included in the study as a criterion for selection of the sample. Any student not self-identified in a bachelor's degree program was excluded, including graduate students or medical students. This probably reduced the final sample population number that was stated at the completion of the analysis. Moreover, students who did not identify themselves as undergraduate students or who indicated to be above 55 years in age were excluded. Brief information describing the nature of the study, procedures for the participant, was included in the Appendix.

To access the HMS database, permission was obtained by obtaining the Data Use Agreement form. Appendix C from the administrator /senior researcher of HMS study, Dr. Daniel Eisenberg, at the University Of Michigan School Of Management of Health and Policies. The institution that administered the HMS. The approval number # 08-29-14-0122376 for the study was obtained from the Walden University's Institutional Review Board (IRB).

Data Collection Procedure and Instrument

The proposed study used secondary data collected by the Healthy Minds Study in 2012 using Patient Health Questionnaire (PHQ-9), Appendix D, among undergraduate students in approximately 26 colleges and universities in the U.S., PHQ-9 is a web-based survey of undergraduate students annually conducted in randomly selected colleges and universities across the nation. The proposed study incorporates secondary data collected from undergraduate students only. The dataset was de-identified and no particular institution was named. In this present study, participants are not being formally diagnosed in the traditional /conventional sense of diagnosis. They are being categorized by the test for research purposes only.

Demographic questionnaires was used in collecting information from the participants, including the family background such as parents, adopted parents, single, grand-parents etc. in which the participants was raised. For sampling procedure consistency, the administrator /senior researcher of HMS study, Daniel Eisenberg of University of Michigan School of Public Health (personal communication, July 2013) was in charge of collecting the data. In the test-retest reliability of Patient Health Questionnaire (PHQ-9), those individuals who were interested in participating were sent

another consent form along with an additional email address, See Appendix E, for questions regarding participation.

The PHQ-9 is clinically validated with internal reliability. It is a self-administered questionnaire developed in both primary care and obstetrical-gynecological settings, with a Cronbach's alpha of 0.89 and 0.86, sequentially. PHQ-9 assesses nine diagnoses, which correspond to the DMS-IV 2000 diagnoses. PHQ-9 categorizes the level of depression and ranges from 1 to 27 indicating minimal to severity with 1-4 signifying minimal, 5-9 signifying mild, 10-14 signifying moderate, 15-19 signifying moderately severe, and the highest 20- 27 signifying severe.

Demographic variables and Measures. Basic demographic information of students collected distinctively was obtained for identification of the participants. This individuality includes gender, age, school year, and current grade point average (GPA) marital status, living situation, ethnicity, family structure, income level, ethnicity, and socio – economic background information were also collected. The demographic variables were determined after the participant pool was analyzed since factors cannot be analyzed or be determined prior to responding to the questionnaire.

In measuring the demographic variables, PHQ-9 was used to evaluate categorically, samples of college student populations who participated in the survey. Demographic variables, social factors and health-related behaviors was used in predicting major depressive symptoms as measured by the PHQ (Klein et al., 2011; Eisenberg, Gollust et al., 2007)

Major depressive disorder is one of the disorders to be assessed for analyses and intervention program (Klein, Ciotoli & Chung, 2011). In this study, major depression was

measured using the PHQ-9 as a depression module. Individuals, who met diagnostic criteria on the PHQ-9, were presumptively depressed. These data was used to place participants in the MDD category through a self-administered screening instrument. This can be identified when five or more of the nine depressive symptom criteria are present at least "more than half the days" in the past 2 weeks, and one of the symptoms is depressed mood or anhedonia.

According to the recent study by Arroll, Goodyear-Smith, Crengle, Gunn, Kerse, Fishman, Falloon, & Hatcher (2010), sensitivity and specificity of the PHQ-9 for diagnosing major depression were 74% and 91%, respectively, translating into overall accuracy of 90.1%. The Arroll et al study (2010) in contrast presented that 10% of the cases diagnosed of MDD are false, which is a limitation in the study.

The PHQ-9 has been clinically validated instrument developed with a nine diagnostic criteria for major depression recognized in the *Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition* (DSM-IV2000) (Klein, Ciotoli & Chung, 2011). Test-retest reliability was greatly correlated (0.84) when self-administration and clinician-administration was compared. The correlated mean scores were (5.08 versus 5.03) (Kroenke et al., 2001) for the determination of the criterion validity, sensitivity and specificity for each PHQ-9 cut score. For a PHQ-9 score of 10 or higher, sensitivity was 88% and specificity was similarly 88% Kroenke et al. (2001). A strong association between the least PHQ-9 scores and least function on the six SF-20 scales were found for the establishment of construct validity. Klein et al. (2011) confirmed in their study that the PHQ-9 was utilized as a screening tool for depression in a primary care setting in a

large urban university health center. The result indicates PHQ-9 is an effective instrument and was well-accepted by the clinicians, staff and the students.

PHQ-9 as a screening instrument has been validated as highly correlated with diagnosis by mental health professionals and as a more comprehensive measurement tools in various populations and settings (Martin et al., 2006; Spitzer et al., 1999). Richardson and Richards (2008) for instance, provided supportive evidence that examined the structure of the Patient HealthQuestionnaire-9 (PHQ-9) in people suffering from the spinal cord injuries. Their results indicated that affective and somatic symptoms were the contributory factor. Further showing that PHQ-9 has been broadly utilized as a scale that can be used to recognize depressive symptoms in people who are experience somatic pains, which are one of the depressive symptoms (Kroenke, Spitzer, Williams, & Lowe, 2010). Additionally, for over 30 years of research and practice, PHQ-9 has been recognized as a valid and reliable measure of depression among various ethnic groups including Chinese Americans, Latinos American, African American etc., (Huang, Chung, Kroenke, Delucchi, & Spitzer, 2006). Thus, PHQ-9 is valid and reliable and; PHQ-9 has been confirmed to be a valid measure of depression among college students based on demographic variables and been demonstrated as a predictive assessment of depression across many populations (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Ellis & Trumpeter, 2008).

Threats to Validity

The Patient Health Questionnaire-9 (PHQ-9) will not yield a constructive result when compared to a clinical diagnosis, however, the PHQ instrument has been efficiently validated against clinical diagnosis and found to be a more reliable indicator than self-

report diagnosis with symptoms of depression (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011; Kroenke, Spitzer Kroenke, & Williams & the Patient Health Questionnaire Primary Care Study Group, 1999; Spitzer & Williams, 2001).

Definitions

Major depressive disorder (MDD). MDD can be described as a clinical depression, or unipolar depression, a disorder characterized by low mood, accompany by low self-esteem, loss of interest in any pleasurable activities, hopelessness and other symptoms (American Psychiatric Association's Diagnostic Manual, 2000) it can be defined as a social, physical turmoil and a series of psychological experiences as a result of depressive mood. For this study, an individual's response was measured by PHQ-9, and placed in the MDD category through this self-administered screening instrument (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011).

Self- efficacy. Self-efficacy in connection to college students comprises self-efficacy for self-regulated learning, academic achievement, financial attitudes and difficulties, career and decision-making procedures. Self-efficacy is the belief in one's self or abilities across different academic subject matters to accomplished the goals. According to Bandura (1997), the "perceived self-efficacy beliefs" can contribute separately to intellectual performance. The strength in academics can be measured by the degree of confidence that one performs in any given task (Bandura, 1997; Zimmerman, 1995) was measured by PHQ-9 (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011).

Coping. Coping is defined as individual thoughts and behaviors that people apply in managing both internal and external stressful occurrences. It can be described as

an essential determinant of emotional well-being with its outcome depending mostly on the types of strategies used (Zhang, Kang, & Zhang 2008). Effective coping can result in positive emotion even when experiencing symptoms of depression, though effective coping with stress can result in emotional problems (Zhang, Kang, & Zhang 2008). Coping mechanisms may comprise cognitive ability and cognitive flexibility to response to life situations (Lam, and McBride-Chang, 2007). Coping may involve excessive drinking or other related risk health behaviors by an individual to avoid internal stressors such as depression and a method to reduce dysphoria. A behavioral response or emotional-focused coping strategy can be used in order to cope with the situation, which can be described as "avoidance coping", or self-medicated mechanism.

In this study, coping mechanism was related to perception of individual ability to cope and was associated to psychological distress and lifestyle such as consumption of alcohol, smoking, and self-image and suicidal ideation /attempt as well as other related health-risk behaviors as a method of coping with depressive symptoms. This was measured using a 5-point score or above of PHQ -9 questionnaire (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011). This point is a global score and qualifies as a clinically significant response to depression intervention. Each 5-point on PHQ-9 represents a moderate effect size on multiple domains of health-risk connected quality of life and functional status (Eisenberg, Gollust et al., 2007). Scores was interpreted and distributed using bar charts to identify the percentages of mild to moderate depression.

Moderating variable. Moderating variable can be defined as a variable that brings changes in the relationship, or help to modify the relationship between independent and dependent variables. These include: gender, age, GPA, marital status,

living situation, ethnicity, socioeconomic status, sexual orientation, etc. This was measured using a 5-point score or above of PHQ -9 questionnaire (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011).

Measures

Patient Health Questionnaire 9 (PHQ-9). PHQ-9 is a powerful multipurpose tool for diagnosing, screening, monitoring and measuring the severity of depression (Granillo, 2012). This questionnaire is widely utilized in a mental healthcare practice as it shows the effectiveness and can be applied repeatedly in order to monitor the development of the illness and efficiency of treatment.

Score ranges vary from a minimum of 1 to 27. Undergraduate college participants' population was categorized according to the condition of severity of depression. In this quantitative study, individuals whose scores ranges from 1 - 4 was signified minimal depression, 5-9 was signified mild symptoms, 10-14 was signified moderate symptoms, 15-19 was signified moderate severe symptoms and the highest 20-27 was signified severe depressive symptoms. The criterion validity of sensitivity and specificity was determined for each PHQ-9 cut score. Example, for a PHQ-2- PHQ-9 score of 10 or higher, sensitivity % and specificity % was determined. Arroll, et. al (2010), in their recent study, indicated that, the sensitivity and specificity of the PHQ-9 for diagnosing major depression were 74% and 91%, respectively, translating into overall accuracy of 90.1%. The response of any critical suicide item was "Yes and No" answers and scores was calculated in percentages and interpreted with Pearson chi square.

Data Analysis Plan

The statistical software that was used in this study was the Statistical Package for Social Sciences (SPSS) version 21 for processing the data through descriptive and inferential analysis in the study. A deductive approach based on regression analysis to make predictions utilizing cross-sectional survey was also used. This gave the probability of detecting the real relationship between variables, if it really exists in the population. All the variables in the study were categorized.

Bivariate correlation analyses were applied to determine if there was any significant relation in the basic demographic variables (moderator variables) example: gender, age, sexual orientation, socioeconomic status, ethnicity, etc. and the research variables including social factors and health risk behavior variables and the result/impute for MDD symptoms or other mental illness, in a comparatively large sample size (*N*= 6,800). The result was reported only on the cross-tabulation for any significant alp < .01 and with a *p*-value of .01 to .05 or the percentage differences of 5% or greater was considered statistically significant. The result clinically indicated a non-meaningful relationship.

Linear/logistic multiple regression analysis was used to characterized the variation of the independent variables and investigate the predictive factors to MDD. The output was used to determine if there was any significant increase in predictive power using an individual's gender such as a significant change in R^2. Linear multiple regression and logistic regression analysis helped determine if behaviors are associated with depression using demographic variables and in finding the differences in values using the beta coefficients and significance levels of gender and age (DV). Findings

were considered as significant if the odds ratios were less than 0.85 or greater than 1.30. The selection of these criteria was based on the sample size, if there were any statistically significant and meaningful results due to the large sample size. A sub-sample was created with a cross validations using the dataset. This cross-validation method was to assist and determine if the predictive variables resulted in any statistical significance in a large sample using regression analysis.

This type of regression analysis was used to determine if the relationship between behavior and depression depended on gender (males or females) and other predictive variables based on the reflection from the research questions and hypothesis, to determine if gender and other dependent variables moderate the relationship between the college student's behavior and depression as reflected.

The PHQ-9 that was used for the measurement of both DV and IV in the research study was appropriate for the data was analyzed using regression analysis. To add to the result due to the large sample size, three random sub-samples were formed to conduct a cross-validation for the determination of if the linear/logistic regressions were highly validated using data set. The cross-validation formulation assisted to determine if any variable that was a significant predictor of MMD symptoms using this method of analysis was strong enough to be statistically significant if the smaller sample were to be used in the study or if there was any contributory factor using a large sample. In other words, would one obtain the same result using the small, medium or large sample population as a verification of the regressional analysis? At least have two of the sub-samples randomly selected had a minimum of two significant predictors.

To check for the assumption for the study, data cleaning and screening procedures as appropriate to the study was performed. For example, when checking for the accuracy of the data, missing data was excluded from the study and data for outliers was not included in the study. The normality was checked to make sure that the data was normally distributed using histograms. In regression analysis, an assumption of linearity was checked on the linear relationship between the IVs and the DV as well as the assumption of homoscedasticity for all predicted DV scores.

The research questions for this research study were listed for analysis and for a clear understanding following the methodology. The following research questions and hypotheses were derived from the review of the existing literature:

Research Question 1: Accounting for known predictors of Major Depressive Disorder symptoms (e.g., sex, GPA, etc.) in college students, do cognitive coping skills predict MDD symptoms as measured by the PHQ-9 (Eisenberg, Gollust, Golberstein, &Hefner, 2007; Ellis & Trumpeter, 2008)?

Hypothesis 1_0: There is no relationship between cognitive coping skills of college students and the development of major depressive disorder, as measured by the PHQ-9.

Hypothesis 1_A: There is a significant relationship between cognitive coping skills of college students and the development of major depressive disorder as measured by the PHQ-9.

Research Question 2: Accounting for known predictors of MDD (e.g., sex, GPA, etc.) in college students, what is the nature of the relationship between, self-efficacy of college students and the prediction of the development of major depressive disorder

based on GPA, etc. as measured by the PHQ-9 (Kroenke, Spitzer & Williams, 2001; Martin, Rief, Klaiberg, Braehler, 2006)?

Hypothesis 2_0: There is no relationship between self-efficacy and the development of major depressive disorder among college students, as measured by PHQ-9 (Kroenke, Spitzer & Williams, 2001; Martin, Rief, Klaiberg, Braehler, 2006).

Hypothesis 2_A: There is a significant relationship between self-efficacy and major depressive disorder among college students, as measured by the PHQ-9 (Kroenke, Spitzer & Williams, 2001; Martin, Rief, Klaiberg, Braehler, 2006).

Research Question 3: Accounting for known predictors of MDD (e.g., sex, GPA, etc.) in college students, what is the nature of the relationship between behavioral coping skills of college students such as cigarette smoking, alcohol and drug abuse, eating disorder, suicidal ideation etc. and the prediction of the development of major depressive disorder based on GPA etc. as measured by PHQ-9 (Eisenberg, Gollust, Golberstein, &Hefner, 2007; Ellis & Trumpeter, 2008)?

Hypothesis 3_0: There is no relationship between behavioral coping skills including cigarette smoking, alcohol and drugs abuse, eating disorder suicidal ideation and attempt and MDD, among college students as measured by PHQ-9 (Eisenberg, Gollust, Golberstein, &Hefner, 2007; Ellis & Trumpeter, 2008).

Hypothesis 3_A: There is a significant relation between behavioral coping skills including, eating disorder suicidal ideation and attempt and MDD, among college students as measured by PHQ-9 (Eisenberg, Gollust, Golberstein, &Hefner, 2007; Ellis & Trumpeter, 2008).

PHQ-9 were scored and the statistical software SPSS version 21 was used for data analysis, such as running separate linear regression for individual scores on the PHQ-9 for the determination of the relationship of the dependent and independent variables. Descriptive statistics was used in describing demographic, predictors and other research variables (i.e., mean standard deviation, frequency and percent, graphs as appropriate); and to determine the MDD symptoms and other mental illnesses.

The Analysis of variance (ANOVA) as a linear model method was used to remove from the dependent variable (y) inappropriate or error variance that cannot be predicted from the MDD independent variable (x); therefore accounting for the moderator (third) variable example; gender, age, and ethnicity, as well as more accurate proportion of variance in y that x power was increase. In ANOVA, assumption of linearity using multiple regressions, independence was used. Homogeneity of Variance, Homogeneity of Regression and linear relationships between the variables was checked. The assumptions were met. In addition, a 2-way ANOVA was conducted to test the main effects for any significant interaction and to check if the independent variables interact to predict the dependent variable.

Test –Retest Reliability

The test-retest reliability of this study was analyzed using Pearson product correlation. The result obtained from the PHQ-9 questionnaires was computed on individual college students.

Ethical considerations

A careful ethical procedure to the nature of this study and the effects on the participants as vulnerable population was highly considered. The consent and

confidential form was sent to the participants. Appendix B, discusses the study procedures, their willingness to participate, and the risk and benefits of the study. Participation in the study was voluntarily. Information about the time to complete the questionnaire was given of approximately10-20 minutes. Participants were also given an opportunity to contact the researchers and their advisors in case of any questions or concerns regarding the study. The confidentiality of all records pertaining to the study was clearly written in the consent form and that it was made available to the researchers only. The potential participants were informed had no obligation to participate in the study. They could skip any number they felt uncomfortable responding to. Participants were notified that they could withdraw from completing the questionnaire at any time without any consequences. Informed signed consent was obtained from the participants indicating a clear understanding of the condition of the study and their willingness to participate.

The survey has been designed to protect student's privacy and confidentiality. The Survey Sciences Group, LLC (SSG), helped in maintaining all study records by using Secure Sockets Layer (SSL) encryption technology that ensured all responses were not intercepted in transmission. They also provided physical and logical restrictions to protect the data once it was collected by the institution that administered the HMS (D. Eisenberg, personal communication, July 2013); no name, email address, or any other identifiable information was disclosed to the researcher. Any reports or articles written was describe the data in the aggregate and was contain no information for identification of the participants. According to the institution that administered the HMS (D. Eisenberg, personal communication, July 2013) "Survey Sciences Group, LLC has conducted

several studies of sensitive issues among college student populations, and they used the most sophisticated technology available to assure security and confidentiality. The security and confidentiality maintained by the Survey Sciences Group has never been breached," Appendix B.

The data from this study, without any identifiable information, was retained in a secure repository for future research purposes. Records were kept confidentially to the extent provided by federal, state, and local law. For additional protections, a certificate of confidentiality from the National Institutes of Health was obtained in which the researchers cannot be forced to disclose information that may identify any participants, even by a court subpoena, in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings." The study packet was coded for the participants. This helped the researcher matched the scores obtained if there was any separate administration using with figures of the subsection 11 of the PHQ-9. The information obtained from the healthy mind remained confidential. A copy of this informed consent was included in appendix B.

Human Protection

For protection of human participants, a certification from "The National Institutes of Health (NIH) Office of Extramural Research" was obtained. However, since this study uses archival data; an application for exempt review status was submitted to be approved by the Walden University Institutional Review Board. This study has met the requirements for exempt review since personal identification information of the participating students including student's name, their addresses, date of birth and birth order, student ID number, and social security number was removed from the data set

before the release to the primary researcher. However; the 26 sample colleges and the university of whom the participating students attends in the study was included in the data set, but with no personal or individual identification, or their tracking responses. This resulted in minimal potential risk to human participation in the study.

Summary

The methodology chapter identified the description of the research design as it relates to the research questions and approach including dependent variables (DV), independent variables (IV), covariate and moderating variables appropriate to the study. The purpose of this research was to evaluate the role of coping skills and self- efficacy to enhance the understanding of major depressive disorders in a national sample of U.S. college students. This study research design and approach employed a quantitative methodology. A deductive approach based on regressional analysis to make predictions utilizing a cross-sectional survey was used in connection to the research questions and hypothesis derived from the review of the existing literature. This study was using large participants from a national sample of college students in the United States over and above conventional predictors, such as gender. The target population design for this study included individuals identified as undergraduate students both males and females from freshmen to fourth year in colleges and universities, enrolled in an under graduate program at one of the 26 participating institutions during the 2012 HMS data collection period.

The proposed study used secondary data collected by the Healthy Minds Study in 2012 PHQ-9, a self-administered questionnaire to examine the predictive factors of MDD. This screening instrument was validated as highly correlated with diagnosis by

mental health professionals and as a more comprehensive measurement tool in various populations and settings (Martin et al., 2006; Spitzer et al., 1999) and with test-retest reliability. Independent variables were drawn from behaviors and personalities domains of the questionnaire tools. The primary dependent variable was MDD and depressive symptoms for research design and approach. Both dependents and independent variables were categorized using the moderating effect/variables, gender, age ethnicity etc. as appropriate. SPSS version 21 was utilized in completing the descriptive analyses of the statistical data to answer the research questions and testable hypotheses. Ethical procedure to the nature of this study and the effects had on the participants as vulnerable population was highly considered. For protection of human participants, since this study uses archival data, an application for data collection was e approved by the University Institutional Review Board.

Chapter 4 consisted of data analysis and interpretation using the methods described above.

Chapter 4: Results

Purpose of the study

The purpose of this quantitative research study was to evaluate the role of coping skills and self-efficacy to enhance the understanding of major depressive disorders (MDD) in a national sample of United States college students. This study examined if significant relationships exists between mean score of screening positive for depressive disorder symptoms, and demographic variables (gender, age, race/ethnicity, and sexual orientation). Other factors that were considered are social factors, financial and relationship status and health risk behaviors (alcohol and drug abuse etc.) among U.S. undergraduate students. The goal was to evaluate the predictive factors that may result in the MDD symptoms among college student. The overall purpose of the study was to determine if coping mechanisms and self-efficacy improve the prediction of Major Depressive Disorder (MDD) beyond conventional predictors, such as gender using a national sample of college students in the U.S.The following chapter described the purpose of the study, research questions /hypotheses, data collection ,a description of the study sample population ,the IRB review process and approval, and pre –analyses , including the baseline descriptive and demographic characteristics of the sample population of undergraduate university students.Three formal directional hypotheses were tested using varieties of statistical techniques and evaluations of the statistical assumptions and regression analyses.Test-retest reliability on PHQ-9 was described. Thus, this chapter summarizes the results of these analyses and also provides a transition to chapter 5, discussion, recommendation and conclusion.

Research Questions and Hypothesis

The research questions and hypotheses that was explored were derived from the review of the existing literature concerning MDD, Precursors, Predictors, and Coping Mechanism.

Research Question 1: Accounting for known predictors of Major Depressive Disorder symptoms (e.g., Gender, ethnicity, etc.) in college students, do cognitive coping skills predict MDD symptoms as measured by the PHQ-9?

Hypothesis 1_0: There is no relationship between cognitive coping skills of college students and the development of major depressive disorder, as measured by the PHQ-9.

Hypothesis 1_A: There is a significant relationship between cognitive coping skills of college students and the development of major depressive disorder as measured by the PHQ-9.

Research Question 2: Accounting for known predictors of MDD (e.g., Gender, ethnicity, etc.) in college students, what is the nature of the relationship between, self-efficacy of college students and the prediction of the development of major depressive disorder based on GPA, etc. as measured by the PHQ-9?

Hypothesis 2_0: There is no relationship between self-efficacy and the development of major depressive disorder among college students, as measured by PHQ-9.

Hypothesis 2_A: There is a significant relationship between self-efficacy and major depressive disorder among college students, as measured by the PHQ-9.

Research Question 3: Accounting for known predictors of MDD (e.g., sex, ethnicity, etc.) in college students, what is the nature of the relationship between

behavioral coping skills of college students such as cigarette smoking, alcohol and drug abuse, suicidal ideation etc., and the prediction of the development of major depressive disorder based on GPA etc. as measured by PHQ-9?

Hypothesis 3_0: There is no relationship between behavioral coping skills including cigarette smoking, alcohol and drugs abuse, suicidal ideation and attempt and MDD, among college students as measured by PHQ-9.

Hypothesis 3_A: There is a significant relationship between behavioural coping skills including, suicidal ideation and attempt and MDD, among college students as measured by PHQ-9

Data Collection

The research study was non-experimental and utilized secondary data analysis collected from the 2012 Healthy Minds study (HMS) survey using Patient Health Questionnaire (PHQ-9), an annual, national, web-based survey for the investigation of the proposed research questions about undergraduate college students at 26 Universities' in the United States. The time frame for data collection and actual recruitment of the participants was between February and May 2012.These participants were given 2 weeks to complete the questionnaires; however, the participants were informed that 10-12 minutes could be used by most students, while other students may use longer or shorter time limits. An additional email reminder was sent to the respondents who did not complete their survey within the two-week period. For accuracy, SPSS Version 21 was used in performing data screening prior to all analyses. The un-weighted sample consisted of 6,800 Bachelor's degree-seeking students. Weights were applied to the original sample size in order to obtain a representative sample.

This study comprises a large sample size of n = 6,800 undergraduates participants ,with an additonal 36% from the original sample size of 5,000 using a high statistical power analysis in the survey . The data for the analysis portion of this study after data cleaning comprises n = 6,713 (99 %) based on response rate. An authorization to access the de-identified data required a signed agreement form by the research community partner (The Regents of University of Michigan) and the IRB representatives from my institution (Walden University) before the approval was given; this prolonged the study more than I originally anticipated. However, there were no discrepancies between the planned method of obtaining the data and the actual method of obtaining the data as was specified in chapter three.

Frequencies and percentages of the Sample Population

The goal was to obtain a representative sample of the undergraduate population for the study that was proportional to the larger population. The main un-weighted sample of the respondents who completed the 2012 national survey patient health questionnaire from the Healthy Minds Study (HMS) consisted of 6,800 undergraduate's students. Weights were applied to the original sample size in order to obtain a representative sample.Tabachinick & Fieldell (2006) defined univariate outliers as values greater than ± 3.29 standard deviations from the mean. All outliers, missing numbers were examined. A linear relationship between the odd ratio and independent variables were observed. A total of 97 participants were removed from GPA and other variables resulted in a final sample of 6,713 participants. These students served as representative sample of the undergraduate student population, proportionate to the larger population in the nation. Table 1 shows the frequency of responses by class: undergraduate's student's

status. The number of participants enrolled beyond four years was drastically lower, with fifth year students (*n*=230) making up 3% of the sample size and was an even lower percentage beyond this point. The participants' grade point average (GPA) reported fell into the B's category, followed by B+, while D was the least GPA earned by the participants. The distribution of students across the various academic levels is further illustrated in figure 1.

Table 1

Frequencies and Percentages of Undergraduate Student Status *n* = (6,713)

Variables	*n*	%
Year In Degree		
1	1537	23
2	1635	24
3	1711	25
4	1618	24
5	230	3
6	48	1
7	7	0
8	3	0
9+	9	0
Academic Level		
	2	0
Level 1	1519	22
Level 2	1618	24
Level 3	1695	25
Level 4	1591	23
Level 5plus	290	4

Note. Due to rounding error, percentages may not add up to 100.

Figure 1. Academic Level of Undergraduate

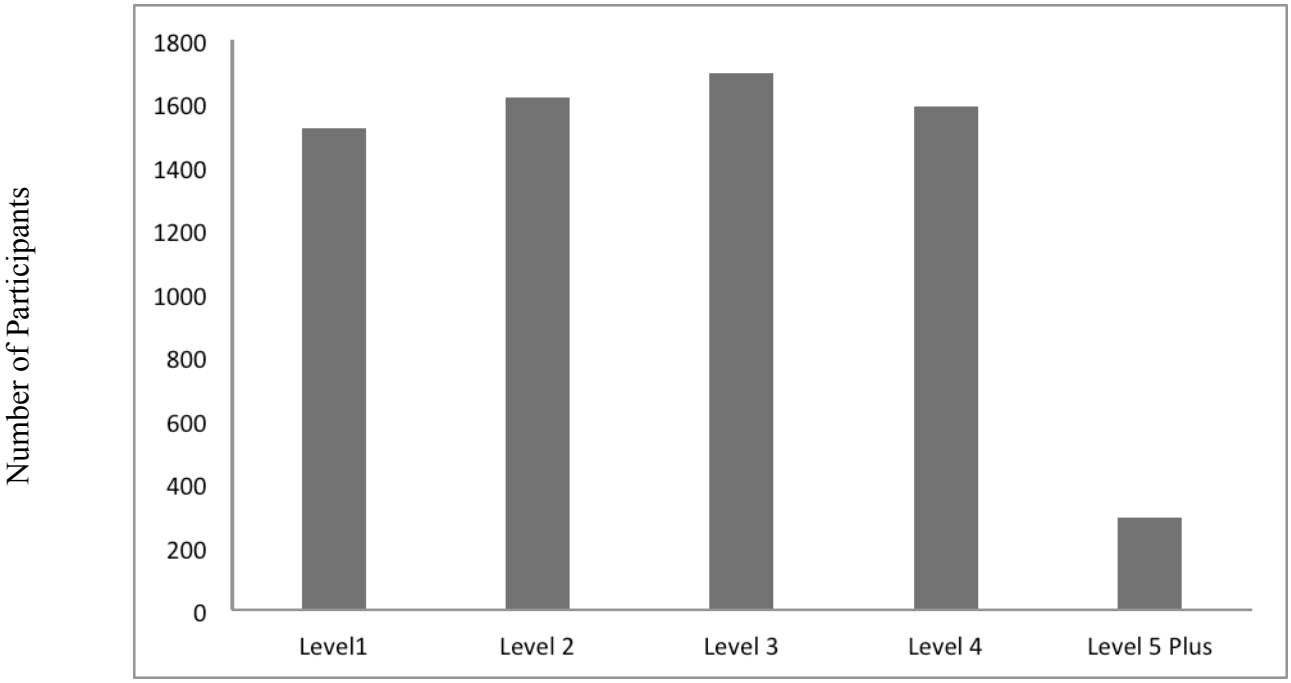

Figure 1. Academic Level of Undergraduate Students Shows the distribution of participants across the various academic levels. Compared to Levels1-4, very few participants have enrolled in college for longer than four years.

The baseline descriptive and the demographic characteristics of the 6,713 undergraduate student sample population as self-reported are presented below in Table 2. The self-designated ages of the students ranged from 18-55 years old: The most frequent age of respondents is presented in the table below. Respondents of other ages were also represented though at much lower percentage with 23-25years being represented at 7% (*n*=500), 26-30 years old being represented at 3% (*n*= 211), and the lowest respondents were in the age range of >30 years of age with a combined representation of 3%.

In the gender and race analysis of those who responded, 67% (*n*= 4,512) were females and 33% (*n*=2,265) were males. In terms of race /ethnicity, this area can be used to represent the sample population as compared to the general population of the college students. For 2012, 69% (*n*= 4,661) of the white or Caucasian students were more represented, followed by Asian Americans at 13%. Other ethnicities, African American/Black, and Hispanic/Latino, etc. less represented, ranging from 3% to 7% respectively, as shown on Table 2.

Relating to sexual orientation, heterosexual participants had the highest self-identification responds of 90% (*n* = 6,094), followed by 4% *(n* = 258) of bisexuals, and 4% (*n* = 245) gay/lesbian/queer respondents. Students who were still questioning their sexual identities were 1% (*n* = 100) while 1% (*n* = 93) was not sure of their identities.

Religiosity was determined by responses to the survey item, "How religious would you say you are?" The percentage of respondents that characterized themselves as "fairly religious" was 27 % (*n* = 1865). Many of the participants (*n* = 2313) fell into the category of "not religious at all" at 34%, and "not too religious at all" at 30% (*n*= 2011). Few participants responded as "very religious" at 9% (*n* = 595).

Concerning the nationality and parent education levels, 93% (*n* = 6339) of the respondents were U.S citizens, while 7% (*n*=460) were permanent residents or international students. As for the level of parent education, in terms of mother education completed, 34% (*n* = 2278) reported that their mother earned a "Bachelor's degree", 26% (*n* = 1735) reported their mother's having a "graduate degree", and 13% (*n* = 854) reported their mothers having "some degree". Only 1% (*n* = 137) of respondents reported the lowest education completed by their mothers to be 9th and 12th grade; however, no

high school education or diploma was reported. As for the paternal education level, 33% (*n* = 2216) of survey participants reported that their fathers completed a graduate degree, followed by 28% (*n* = 1899) reporting that their fathers obtained a "bachelor's degree." A few respondents, (2%; *n* = 124) reported their father having had 8th grade or lower education.

Table 2

Frequencies and Percentages for Demographic Variables (undergraduates students *n*=6,713)

Variables	*n*	%
Ages		
18 years old	731	11
19 years old	1438	21
20 years old	1422	21
21 years old	1466	22
22 years old	850	13
23-25 years old	500	7
26-30 years old	211	3
31-35 years old	63	1
36-40 years old	48	1
41+ years old	70	1
Gender		
Female	4512	67
Male	2265	33
Race / Ethnicity		
Asian	885	13
Black	231	3
Hispanic	256	4
Multi	471	7
Other	288	4
White	4661	69

Religiosity		
Fairly religious	1865	27
Not religious at all	2313	34
Not too religious	2011	30
Very religious	595	9
Sexual Orientation		
Bisexual	258	4
Gay/lesbian/queer	245	4
Heterosexual	6094	90
Other (specify)	93	1
Questioning	100	1
Mother Education Completed		
Associate's degree	668	10
Bachelor's degree	2278	34
between 9th and 12th grade	99	1
Don't know	95	1
Eighth grade or lower	125	2
Graduate degree	1735	26
High school degree	854	13
Some college (but no college	908	13
Father Education Completed		
Associate's degree	454	7
Bachelor's degree	1899	28
between 9th and 12th grade	137	2
Don't know	188	3
Eighth grade or lower	124	2
Graduate degree	2216	33
High school degree	881	13
Some college (but no college	844	13
Nationality		
Permanent Resident	460	7
U S Citizen	6339	93

Note. Due to rounding error, percentages may not add up to 100.

Table Continued.

Demographic variables also comprises social factors such as: serving in the military, living situation, [current] financial situation, financial situation when growing up, and relationship status as presented in Table 3. The majority of participants reported

having never served in the U.S Armed Forces, Military Reserves, or National Guard with reports of 99% (*n* = 6662). Regarding the living situation of survey respondents, 50% (*n* = 3389) of the participants reported living off-campus and in non-university housing. 43% of survey participants lived on campus or in university housing with 38% (*n* = 2599) reporting as living in "campus residence halls", 1% (*n* = 87) as living in fraternity or sorority houses and 4% (*n* = 271) as living in "other campus housing." A low percentage of undergraduate students, 5% (*n* = 371), responded as "[living] with parents or guardians at home.

In the case of financial situation, the majority of survey participants, 55% (*n* = 3758), selected the option of "it's tight but I'm doing fine". Followed by 28% (*n* = 1872) who reported "finances aren't really a problem." In terms of finances when growing up, 55% (*n* = 3718) reported being in comfortable financial situations, 27% (*n* = 1838) reported "had enough to get by but not many extras", while the rest 15% (*n* = 1027) and 3% (*n* = 187) reported well to do finances or that they did not have enough when growing up; percentages reported respectively.

In regards to the participants' current relationship status, the relationship status was grouped into two categories (relationship or marriage) for the purposes and accuracy of analyses. 58% (*n* = 3933) were single, 38% (*n* = 2560) reported being in a relationship, and 3% (*n* = 227) were either married or having domestic partnerships. Interestingly, 0% (*n* = 29) were divorced, and 0% (*n* = 5) of participants were widowed.

Table 3

Frequencies and Percentages for Demographic (social l Variables) (*n* = 6,713)

Variables	*n*	%
US Armed Forces Military or National		
No, never served in the military	6662	99
Yes, currently in military reserves or	21	0
Yes, currently in reserve officers'	16	0
Yes, now on active duty	3	0
Yes, on active duty during the last 12	2	0
Yes, on active duty in the past, but	41	1
Living Situation		
Campus residence hall	2599	38
Fraternity or sorority house	87	1
Off-campus, non-university housing	3389	50
Other (specify)	74	1
Other university housing	271	4
Parent or guardian's home	371	5
Current Financial Situation		
Finances aren't really a problem	1872	28
It's a financial struggle	1144	17
It's tight but I'm doing fine	3758	55
Financial Situation Growing Up		
Comfortable	3718	55
Had enough to get by but not many	1838	27
Very poor not enough to get by	187	3
Well to do	1027	15
Current Relationship Status		
Divorced	29	0
In a relationship	2560	38
Married or domestic partnership	227	3
Single	3933	58
Widowed	5	0

Note. Due to rounding error, percentages may not add up to 100.

Table Continued

Pre-Analyses

A Pearson chi-square was conducted to assess the relationship between race/ethnicity and "any depression" which includes major depression or other depressive disorders. The variable race/ethnicity was combined into two covariates variables: other ethnic groups and Caucasian. The variable, any depression, was determined using: "Not depressed" and "Was depressed". As previously discussed, in chapter 3, this study has a large sample size, thus a relationship with a p-value of .01 to .05 or that 5% differences or greater is considered statistically significant, but non-meaningful relationships. Prior to analysis, the assumption of adequate cell size was assessed by viewing expected values. For the assumption to be met, all cells must have expected values above 1.00, and no more than 20% of the cells should have expected values that are less than 5.00 (Tabachinick & Fieldell, 2006). This study has met the assumption as specified. As shown in Table 4, the results of the relationship of positive screen for depression were significant, χ^2 (1) = 23.80, $p < .001$, indicating there was a relationship between race/ethnicity and "any depression." Looking at the table, fewer participants in other ethnic groups was observed as "not depressed" than predicted would be observed. On the contrary, more participants were depressed than expected. Also fewer participants that were self-identified as Caucasian or white ethnic group were "not depressed", which was opposite of the predicted results.

Table 4

Chi Square Analyses of Demographic Factors (Race/ethnicity) and Positive Screen for Any Depression (n = 6,713)

	Any Depression			
Race/Ethnicity	Not depressed	Was depressed	$\chi^2(1)$	p

Other ethnic groups	1,634 [1,702]	410 [342]	23.80	.001
Caucasian or white	3,831 [3,763]	687 [755]		

Note. For each cell, numbers outside brackets represents observed values, while numbers in brackets represent the expected values of the cell.

Table Continued.

A chi-square analysis was conducted to assess the relationship between "current financial situation" and "any depression" including MDD. The variable, current financial situation was analyzed in three stages: "finances aren't really a problem, it's a financial struggle, and it's tight but I'm doing fine". On the other hand, the variable, any depression, was presented as "not depressed" and "was depressed." The results of the chi-square were significant, χ^2 (2) = 172.01, $p < .001$, signifying that there is a relationship between "current financial situation" and "any depression." In addition, if participants struggled financially, their responses correlated more with "more depressed" (*n* = «row1observed1») when n=«row1expected1» was expected. Results of the chi-square test are presented in Table 5.

Table 5

Chi-Square Analyses of «variable1» and positive screen for «variable2»

(*n* = 6, 713)

	Any Depression			
Current Financial Situation	Not depressed	Was depressed	χ^2(2)	*p*
finances arent really a problem	1,572 [1,501]	230 [301]	172.01	.001

its a financial struggle	782 [930]	334 [186]
its tight but im doing fine	3,107 [3,030]	531 [608]

Note. For each cell, numbers outside brackets represent observed values, while numbers in brackets represent the expected values of the cell.

Table Continued

Primary Analyses

Data were collected from 26 Universities .A linear multiple regression analyses was conducted to determine if major depressive symptoms (dependent variable) could be predicted from cognitive coping skills, self-efficacy, and behavioral coping (Independent variables). The null hypotheses tested were that the regression coefficient (slope) was equal to 0. This data were screened for any missing number and violation of assumptions prior to analyses, there was no missing data included in the analyses.

A variety of assumptions were tested to ensure the result of the regression is a representative of the statistical analyses. Tabachinick and Fieldell (2006) suggested that the visual examination of residual scatterplot, with predicted scores on the X-axis and residual scores on the Y-axis, can be used to identify violations of linearity, normality, homoscedasticity and independent error.

Testing for the Linearity. This assumption was performed using visual inspection of a scatterplot of computed results compared to the expected results of residuals with the Q-Plot .Fig 2. The results of the evaluation follow a linear relationship. The result from the graph showed that all the linearity is close to the line, meaning there is no tendency in the error terms; this has suggested that the assumption has been met. The violations of linearity were also determined by evaluating the Durbin-Watson statistic. Violations of linearity exist if the Durbin-Watson statistic is distant from a value of 2 (Tabachinick &

Fieldell, 2006). In this study, Durbin-Watson is $d = 1.979$; this shows there was no violations of linearity

***Test of Homoscedasticity*:** (Homogeneity of Variance). Violations of homoscedasticity was tested as the third assumptions through the examination if there is any random distribution about the line of fit, where the spread of the residuals appears fairly constant over the range of value of independent variables in the scatterplot of standardized residuals against values of the independent variables. The result from the graph indicates there is no homogeneity of variance.

***Testing of Independence Error*.** The Durbin-Watson statistics was computed to evaluate the independence of error $d = 1.979$. This shows that the residual (error) of the regression line are approximately normally distributed using the normal P-P plot residual.

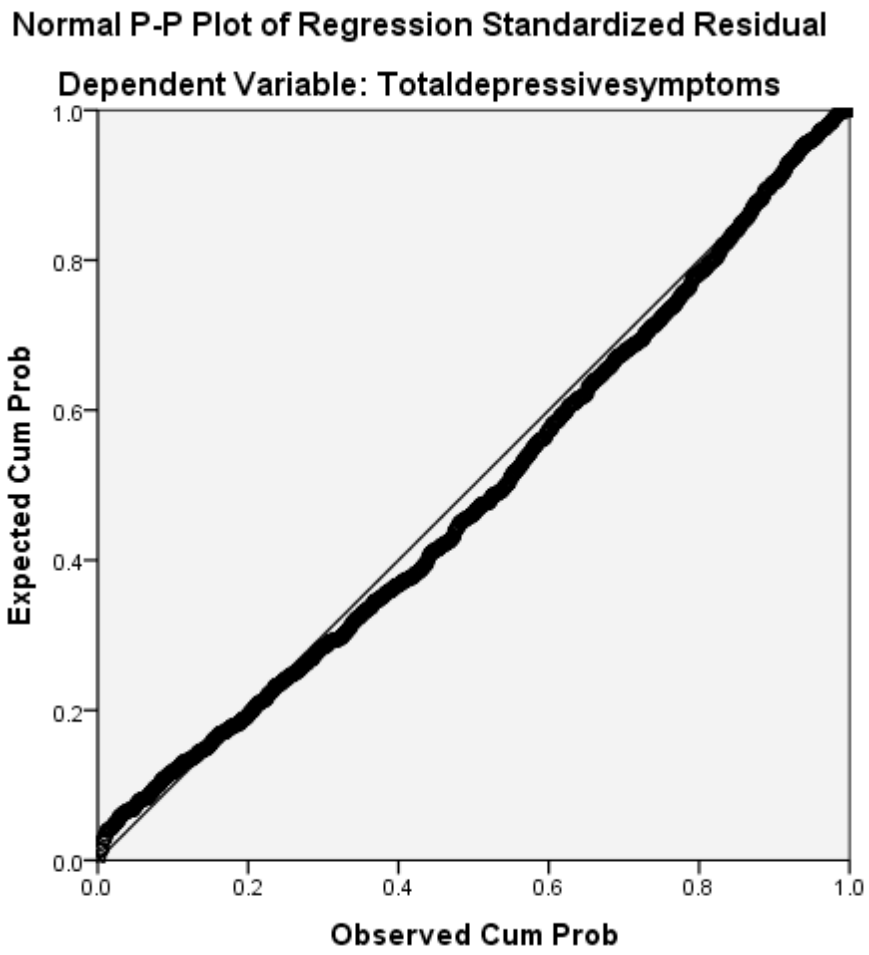

Figure 2: Scatterplot to determine linearity.

Test of Assumption of Normality. The test of assumption of normality was performed to ensure the data was normally distributed. A visual inspection of the normal probability plot of the residuals figure 2 charts ensures the data under analysis has met this normality requirement as further confirmed by their normal distribution in the histogram in presented in figure 3.

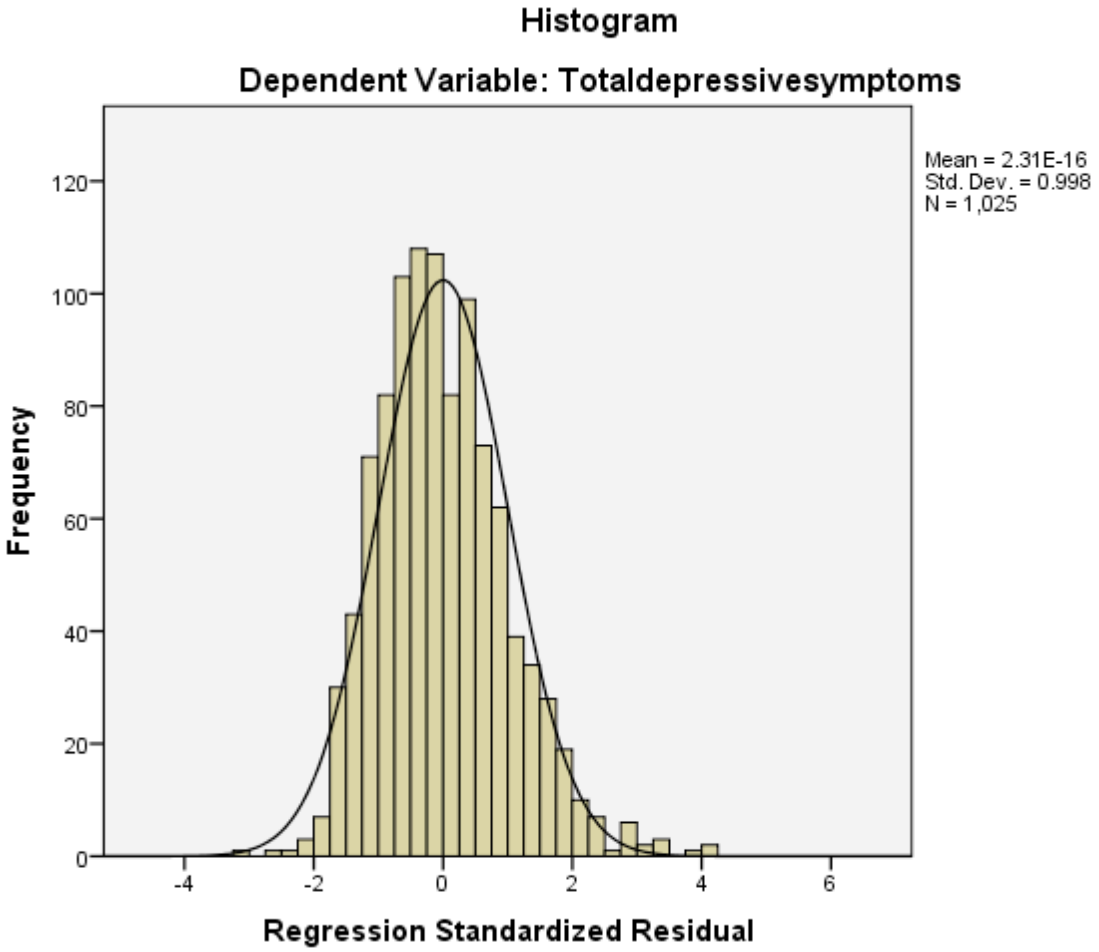

Figure 3. Normal histogram of standardized residuals to demonstrate normal distribution

Analyses of Hypotheses

The null hypothesis 1 predicted that there would be no relationship between cognitive coping skills of college students and the development of major depressive disorder, as measured by the Patient Health Questionnaire-9 (PHQ-9). To test this hypothesis, a multiple linear regression analyses was conducted to determine if major depressive symptoms (dependent variables) could be predicted from cognitive coping skills (independent variables) as measured by the PHQ-9. A linear regression analysis

was performed to examine the relationship between total positive cognitive variables, total dysfunctional cognitive coping and total academic impairment as the predictor variables and total depressive symptom variables as the criterion or dependent variable. Results are presented in Table 6 and 7.The analysis of the results showed that the regression model examining the relation of dependent variables and independent variables was highly significant ($p < .001$).

In the case of cognitive coping skills of undergraduate college students, it contributed about 41.4% of variance in reports of depressive symptoms with the model summary scores $R^2 = .643$, F (240.060, $p < .001$). Thus, the cognitive coping skills exhibited by the sample undergraduate student's population significantly predicted depressive symptoms. The evidence shows that the relationship between total depressive symptoms and total cognitive coping variable is positive ($\beta = -518$, t (3) = -20.735, $p < .001$) and is statistically significant. Regarding the relationship between total depressive symptoms and total dysfunctional coping, a positive result is shown, ($\beta = .165$, t (3) = 6.622, $p < .001$), indicating that it may be used as a predictor of depressive symptoms.

The multicollinearity in multiple regression was checked on table 7. The collinearity shows the tolerance to be ≥ 0.1 or variance inflation factor (VIF) 1.0 for all variables with the Beta coefficient (-518 and .165), showing a significant relationship between depressive symptoms and cognitive coping skills. The participants who reported experiencing higher levels of depressive symptoms also reported experiencing major depression and thus, indicating a relationship between the variables. Moreover, based on the findings of the regression analyses, one can explain that, there is a statistically

significant positive linear relationship between depressive symptoms and cognitive coping skills. Thus, the research hypotheses *(H_A)* that was supported.

Hypotheses two (null) predicted that there would be no relationship between self-efficacy and the development of major depressive disorder among college students as measured by PHQ-9. A multiple linear regression analysis was used to test for the hypotheses. The significant relationship between the dependent variable, total positive depressive symptoms, and the independent variable, total self-efficacy, was analyzed in Tables 6 and 7. The results revealed that the relationship between total depressive symptoms and total self-efficacy is positive, (β = -104, t (4) = -3.499, $p < .001$). Self-efficacy, in relation to depressive symptoms experienced by the students, also explained a significant proportion of variance in model summary scores R^2 .649, F (185.087, $p <$ .001). The multicollinearity in multiple regressions was checked on the table, thus collinearity indicates the tolerance to be ≥ 0.1 or VIF 1.0. The beta coefficient of .104 indicated that there was a relationship between total depressive symptoms and total self-efficacy. Thus, based on the analyses, the hypothesis (H_A) is supported. Hence, it can be concluded that a statistically significant positive linear relationship in which total self-efficacy contributes significantly as one of the predictive factors to major depressive symptoms among undergraduate university students exists.

The null hypotheses 3 predicted that there would be no relationship between participant's behavioral coping skills including cigarette smoking, alcohol and drugs abuse, suicidal ideation and attempt etc. and Major Depressive Disorder (MDD) among

college students as measured by PHQ-9. This hypotheses was tested through a linear multiple regression to determine the nature of the relationship between total depressive symptoms scores as dependent variable and total behavioral coping mechanism scores as independent variables. The result of the regression analyses (table 6 and 7) indicated that total behavioral coping skills exhibited by college students contributes about 42% of variance in reports of depressive symptoms. Behavioral coping skills regarding college student's experiences significantly predicted depressive symptoms. The evidence shows that the relationship between total depressive symptoms and total behavioral coping variable is positive *(β* = -173, *t* (3) = 7.052, *p* < .001)

Behavioral coping in regards to depressive symptoms experienced by the students also explained a significant proportion of variance in the model summary scores: R^2 = .643, F = 40.060, *p* < .001. The total behavioral coping skills scores such as intentional self-hurt injury, smoking, illicit drug, binge drinking, suicidal ideation, plan and attempts, as well as gambling behaviors were found to be significant predictors of major depressive symptoms among the undergraduate college students. The unstandardized coefficients (*B* = .388) after controlling for the severity of depressive symptoms, indicated that for every unit increase in degree of severity of behavioral coping, depressive symptoms increases by .388. Based on the results of these analyses, hypothesis 3 (HA) is supported.

In addition, the multicollinearity diagnostics in multiple regressions was also checked in the table. The collinearity shows the tolerance on all the variables to be ≥ 0.1 or VIF ≤1.0. Total positive cognitive coping scores =. 922, total dysfunctional coping scores = .923, total self-efficacy scores = .647 and total behavioral coping scores = .931. Therefore, this can be concluded that the relationship between the total depressive

symptoms and the predictive variables are highly statistically significant, indicating a statistically significant positive linear relationship between total depression symptoms and these predictive variables.

Regression Analysis

Table 6

The Predictors: (Constant) Total positive cognitive coping scores, Total behavioral coping scores, Total dysfunctional coping scores, Total self-efficacy scores.

ANOVA

Model 3 variables	*S of squares*	*df*	MS	*F*	*Sig*
Regression	23720.811	3	7906.937	240.060	.000
Residual	33629.037	1021	32.937	240.060	.000
Total	57349.848	1024			

Table 7

Multiple Linear Regression Analyses

Model 3 Variables	*B*	*Std E*	*β*	*t*	Sig.
Constant	40.760	1.209		33.708	0.00
Total positive cognitive coping scores	-531	0.26	-518	- 20.735	0.00
Total dysfunctional coping scores	.346	.052	165	6.622	0.00
Total self-efficacy scores	-685	.196	.104	-3.499	0.00

Total behavioral cognitive coping scores	.388	0.55	.175	7.052	0.00

Note. Dependent variable = Total Depressive Symptoms. R^2 = .643 ($p \leq .001$); adjusted R^2 = .412 ($p \leq .001$)

Table continued

General Linear Model Predicting with Means and Standard Deviation.

The mean scores for total depressive symptoms by gender were calculated using general linear model descriptive statistics, to determine the relationship between total depressive symptoms and total academic variables as shown in Table 8. The results for total depressive symptoms show an average observation of M = 26.6704 (*SD* = 7.59851). For total academic impairment, an average observation of M = 7.2682 (*SD* = 2.31399), indicating that there is a significant difference in females students; the sample population exhibit more depressive symptoms than their males counterparts in regards to academic performance. Male participants were coded as 0 and Female participants as 1.

Table 8

General Linear Model Analyses Gender X Academic Impairment Scores

Variable	Male/Female	*M*	*SD*	*N*
Total Depressive symptoms	0	25.2567	7.01438	300
	1	26.6704	7.59851	716
	Total	26,2530	7.45535	1016
Total academic impairment	0	6.9300	2.52183	300
	1	7.2682	2.31399	716
	Total	7.1683	2.38100	1016

Binary Logistic Regression

Based on this information, the data was further analyzed using a logistic regression adding, gender, and GPA, to determine if the total positive cognitive coping scores, the total dysfunctional cognitive coping scores, and the total academic impairment predict Major Depression. Major Depression was coded as 0 = Not depressed and 1 = was depressed. Since Gender was a nominal variable, it was dummy-coded to have Female as the reference category. The results of the logistic regression showed a significant model, χ^2 (5) = 636.51, $p < .001$, Nagelkerke $R^2 = .36$. This suggests that Gender, GPA, and these predictive variables accounted for 36% of the variance in Major Depression. The individual predictors were examined further and it was found that gender could be used as a predictor of MDD. The score for male respondents: MDD, B = -0.47, $p = .002$, $OR = 0.62$, was significant in terms of being used as a predictor. The male participants were 1.61 times more likely to select "Not depressed" than "Was depressed" when compared to Female.

GPA was a significant predictor of MDD, B = -0.73, $p < .001$, $OR = 0.48$ as well, indicating that for every one unit increase in GPA, the likelihood of the participant selecting "Not depressed" compared to "Was depressed" increased by a factor of 2.07.

In addition, total positive cognitive coping scores was a significant predictor of MDD, B = -0.15, $p < .001$, $OR = 0.86$, suggesting that for every one unit increase in Total positive cognitive coping scores, the likelihood of the participant selecting "Not depressed" compared to "Was depressed" increased by a factor of 1.17.

Total dysfunctional cognitive coping skills scores was also a significant predictor of MDD, $B = 0.14$, $p < .001$, $OR = 1.15$, as well as Total academic impairment, $B = 0.14$, $p < .001$, $OR = 1.15$. Results of the logistic regression are presented in Table 9.

Table 9

Logistic Regression with Gender, GPA, Total Positive Cognitive Coping Scores, Total Dysfunctional Cognitive Coping Scores, and Total Academic Impairment Predicting Major Depression

Source	*B*	*SE*	*z*	*p*	*OR*	95% CI for *OR*
Male	-0.47	0.15	-3.09	.002	0.62	*
GPA	-0.73	0.13	-5.63	.001	0.48	[0.38, 0.62]
Total positive cognitive coping scores	-0.15	0.01	-17.47	.001	0.86	[0.84, 0.87]
Total dysfunctional cognitive coping scores	0.14	0.02	7.39	.001	1.15	[1.11, 1.20]
Total academic impairment	0.14	0.03	4.76	.001	1.15	[1.09, 1.22]

Note. *Due to the high standard error, the 95% confidence interval could not be computed.

Binary Logistic Regression

A logistic regression was conducted to assess if Gender, GPA, and Total self-efficacy predicted major depression. Major depressive disorder was coded as 0 = Not depressed and 1 = Was depressed. Since Gender was a nominal variable, it was dummy-coded to have Female as the reference category. The results of the logistic regression showed a significant model, χ^2 (3) = 339.92, $p < .001$, Nagelkerke $R^2 = .19$.This suggests that Gender, GPA, and Total self-efficacy accounted for 19% of the variance in Major

Depression. The individual predictors were examined further. Male was a significant predictor of Major Depression, B = -0.41, p = .002, OR = 0.66, suggesting that if the participant selected Male for Gender, they were 1.51 times more likely to select "Not depressed" than to select "Was depressed" when compared to those who selected Female for Gender. GPA was a significant predictor of Major Depression, B = -0.76, p < .001, OR = 0.47, suggesting that for every one unit increase in GPA, the likelihood of the participant selecting Not depressed compared to Was depressed increased by a factor of 2.13.Total self-efficacy was a significant predictor of Major Depression, B = -0.84, p < .001, OR = 0.43, suggesting that for every one unit increase in Total self-efficacy, the likelihood of the participant selecting "Not depressed" compared to "Was depressed" increased by a factor of 2.31. Results of the logistic regression are presented in Table 10.

Table 10

Logistic Regression with Gender, GPA, and Total self-efficacy predicting Major Depression

Source	*B*	*SE*	*z*	*p*	*OR*	95% CI for *OR*
Male	-0.41	0.14	-3.06	.002	0.66	*
GPA	-0.76	0.11	-6.66	.001	0.47	[0.38, 0.59]
Total self-efficacy	-0.84	0.05	-16.24	.001	0.43	[0.39, 0.48]

Note. *Due to the high standard error, the 95% confidence interval could not be computed.

Binary Logistic Regression

A logistic regression was conducted to evaluate if gender, GPA, and behavioral coping scores such as Hurt Self, Suicidal ideation, Suicidal Plans, Suicidal Attempt, Cigarettes smoking, Marijuana, and other illegal drugs, Binge Frequency, and Gambling predicted Major Depression. MDD was coded as 0 = Not depressed and 1 = Was depressed. Female was used as the reference category. Since Hurt Self and these other variables were nominal variables, They were dummy-coded as "Did not try to hurt self , Did not have idea , Did not make plans , Have Attempted , Did not use cigarettes , Did not use marijuana and other illegal drugs, Have drink 10 or more times, Did gamble or not " as the reference . The results showed a significant model, χ^2 (25) = 252.42, $p < .001$, Nagelkerke R^2 = .15.This suggests that Gender, GPA, Hurt Self, Suicidal Ideas, and these other variables accounted for 15% of the variance in Major Depression. The individual predictors were examined further. Male experience a significant predictor of Major Depression, B = -0.34, p = .017, OR = 0.71, suggesting that if the participant selected Male for Gender, they were 1.41 times more likely to select Not depressed than to select Was depressed when compared to those who selected Female for Gender. GPA was a significant predictor of MDD, B = -0.75, $p < .001$, OR = 0.47, suggesting that for every one unit increase in GPA, the likelihood of the participant selecting Not depressed compared to Was depressed increased by a factor of 2.11.Tried to hurt self was a significant predictor of MDD, B = 0.97, $p < .001$, OR = 2.64, suicidal idea was a significant predictor of MDD, B = 1.33, $p < .001$, OR = 3.80, Used Opiates was a significant predictor of MDD, B = 0.93, p = .011, OR = 2.54, Results of the logistic regression is presented in Table 11.

Table 11

Logistic Regression (Gender, Academic Achievement, and High Risk Behaviors Predicting Major Depression)

Source	*B*	*SE*	*z*	*P*	*OR*	95% CI for *OR*
Male	-0.34	0.14	-2.39	.017	0.71	*
GPA	-0.75	0.12	-6.18	.001	0.47	[0.37, 0.60]
Tried to hurt self (ref: Did not try to hurt self)	0.97	0.15	6.67	.001	2.64	*
Had idea (ref: Did not have idea)	1.33	0.20	6.82	.001	3.80	*
Made plans (ref: Did not make plans)	0.42	0.34	1.24	.213	1.52	*
Did not attempt (ref: Attempted)	0.12	0.72	0.17	.868	1.13	*
Used cigarettes (ref: Did not use)	0.27	0.19	1.47	.142	1.32	*
Used marijuana (ref: Did not use)	0.10	0.17	0.57	.567	1.10	*
Used cocaine (ref: Did not use)	0.28	0.41	0.67	.501	1.32	*
Used barbituates or sedatives (ref: Did not use)	0.72	0.44	1.63	.103	2.06	*
Used tranquilizers (ref: Did not use)	0.54	0.36	1.48	.138	1.71	*
Use amphetamines (ref: Did not use)	-0.52	0.57	-0.91	.361	0.59	*
Used heroin (ref: Did not use)	-13.72	535.41	-0.03	.980	0.00	*
Used other opiates (ref: Did not use)	0.93	0.37	2.54	.011	2.54	*
Used LSD (ref: Did not use)	0.61	1.18	0.52	.604	1.84	*
Used other psychedelics or hallucinogens (ref:	-1.24	1.18	-1.05	.295	0.29	*

Did not use)						
Used ecstasy (ref: Did not use)	-0.86	0.68	-1.28	.202	0.42	*
Used club drugs (ref: Did not use)	-11.44	374.66	-0.03	.976	0.00	*
Used water pipe smoking (ref: Did not use)	-0.05	0.23	-0.20	.841	0.95	*
3-5 times (ref: 10 or more times)	-0.23	0.84	-0.27	.785	0.79	*
6-9 times (ref: 10 or more times)	-0.33	0.89	-0.37	.709	0.72	*
Never (ref: 10 or more times)	-0.18	0.85	-0.21	.830	0.83	*
Once (ref: 10 or more times)	-0.72	0.86	-0.84	.402	0.49	*
Twice (ref: 10 or more times)	-0.37	0.85	-0.44	.661	0.69	*
Did not gamble (ref: Did gamble)	0.32	0.19	1.70	.089	1.38	*

Note. *Due to the high standard error, the 95% confidence interval could not be computed.

Table Continued

Test –Retest Reliability

To further add to the reliability and validity data on Patient Health Questionnaire-9 (PHQ-9), a test and re-test reliability analyses was performed on a sample of the undergraduate student's population. After a one-week interval, all the undergraduates' students who participated in the initial portion of the study received and signed the consents form and willingly participated in the test-retest study. Of these, 6,800 (100%) sub-population, the reliability analyses (Cronbach's alpha) for the test-retest PHQ-9 pertaining to the depression (dependent variables and others independent variables of the study was conducted using descriptive statistics. The results of reliability for the depressive symptoms measure is (α = .894, total positive cognitive coping score measure

is (α =.895), total dysfunctional cognitive coping scores (α =.756), total self-efficacy (α =.719), and total behavioral coping scores measure (α =.500). The values are positive due to positive average covariance among the items and there is no violations reliability model assumption. This shows a high reliability for the instrument.

Summary

The statistical analyses of the study data supported all the alternative hypotheses 1-3, while the null hypotheses were rejected. Descriptive statistics for the demographic variables tested during analyses were presented, with a briefly constructed analyses explained. All the assumptions tested were met prior to analyses of regression. Regression and other analyses disclosed the statistically significant relationship between depressive symptoms and cognitive coping skills, dysfunctional cognitive coping skills, and academic impairment, which lead to the development of major depressive symptoms among undergraduate college students as measured by the Patient Health Questionnaires (PHQ-9). Self-efficacy and major depressive disorder are significantly related based on, gender, ethnicity, GPA, and other variables as measured by the PHQ-9. With regards to hypotheses 3, there was a significant relation between GPA and behavioral coping skills, including suicidal ideation ,attempt and plan , self-hurt, binge drinking, the use of illegal drugs and gambling and the development of major depressive symptoms based on gender , GPA etc. as measured by PHQ-9, therefore alternative hypotheses 3 was supported . In the high development of the depressive symptoms, males experienced slightly more symptoms than females, however females reports more symptoms than males counterparts. A test re-test portion of the study conducted demonstrated a highly

significant correlation between one week separations administrations of PHQ-9 adding to the reliability data available on the instrument used for this study.

Chapter 5 is based on discussion and summary of the results of study and present conclusions concerning the key findings and interpretations in relation to the peer-reviewed literature in chapter 2. In this Chapter 5, the positive social change, implications of these finding, and the limitations of the study are discussed as well as the conclusion. In addition to recommendations, suggestions for the continued and future research as appropriate in this area are discussed.

Chapter 5: Discussion, Recommendations and Conclusion

Introduction

This study was carried out to analyze the relationship between coping skills and self-efficacy in response to warning signs of MDD in college students. The purpose of this quantitative research study was to evaluate the role of coping skills and self-efficacy to enhance the understanding of MDD in a national sample of U.S. college students. This study examined the existence of significant relationships between mean score of screening positive for depressive disorder symptoms, and demographic variables (gender, age, race/ethnicity, and sexual orientation). The current study used a quantitative correlation research design survey approach. Data used was secondary de-identified data collected in 2012 in the Healthy Minds Study (HMS) survey as part of HMS using Patient Health Questionnaire -9 (PHQ-9). The study also explored the nature of the correlation of the independent variables as evaluated by its measurable effects on the dependent variables and considered as the cause of the behavior. The study examined the reliability and validity on the PHQ-9. Precisely, this research study targeted the undergraduate university students, ages 18-55 years. The sample population comprised of 4,713 undergraduate students, both female and male, that voluntarily participated from 26 U.S. colleges and universities across the nation.

Researchers have explored the relationships of a number of factors in college students, including college life, mental health status, and depressive symptoms (Howley and Dickson, 2009; Mahmoud, Staten, Hall, and Lennie, 2012). It was observed that students who utilized maladaptive coping skills, both cognitive and behavioral, were more prone to endorse depressive symptoms and poorer academic performance.

However, little or no research was performed or analyzed the relationship between coping skills and self-efficacy in response to warning signs of MDD in college students. Thus, the study sought to fill the gaps in the research of MDD related to precursors, predictors, and coping mechanisms among undergraduate students.

Major Depressive Disorder (MDD) is a common disease frequently occurring in the modern world and usually associates with mental disability and suicides. Data analyses confirmed that one sphere of human life in which Major Depressive Disorder (MDD) often occurs is during the years of undergraduate education. MDD has affected college students across the United States with shared symptoms reported across the nation (Eisenberg, Golberstein, & Hunt, 2009). This research involved the analysis of the probable precursors and predictors of these MDD symptoms. Results from research questions and hypotheses 1-3 indicated a highly statistically significant relationship between depressive symptoms and cognitive coping, self-efficacy and behavioral coping skills as predictive factors of major depressive disorder among university undergraduates students; therefore, alternative hypotheses were supported as tested using multiple linear and logistic regressions. The data also revealed live experiences of these participants, thus symptoms of depression, resulted from substance abuse behaviors, suicidal ideation and attempt, binge drinking, and gambling.

This chapter discusses the results by reporting the descriptive finding of the demographic variables and MDD symptoms data. The interpretation of the regression results and clarification of the answers to the research questions and hypotheses are also discussed as well as the implication of the results, positive social change, and limitations

of the study. Recommendations and suggestions for the future research study are also given.

Summary and Interpretation of the Findings

In this study, the sample participants of the undergraduate student's population were identified using year in school as academic level of the bachelor degree seeking in either science or art subjects.SPSS Version 21 was used in computing all the analyses. Descriptive statistics was used in determining the frequencies and percentages of demographic variables of the sample participants that responded to the PHQ-9.The relationship between predictive variables and screening positive for depressive symptoms, including major depressive disorder was explored with Pearson chi -Square analyses. The three hypotheses from the research questions were tested with multiple linear/ logistic regression analyses for statistical relationships and the results was obtained between the DV and IV variables using p-values. The summary of the findings is presented below.

Demographic Descriptive Findings

A significant amount of research on this topic has been conducted; however, there are many aspects of depression that remain elusive to scientists. Begg, Vos, Barker, Stevenson, Stanley, and Lopez (2007) assessed the mental health of young adults in the United States and identified that the leading specific types of mental disease included depression, and accounted for almost one quarter (24%) of the burden of mental disorders in this age group in 2003. In this current study, several factors, both before and following the onset of depressive symptoms, has been found to be similar to the natural history of depression in college students. In a manner similar to the study by Eisenberg,

Golberstein, & Gollust (2007), the participants who responded as "having a high level of depressive symptoms experiences, as well as feeling depressed" were negatively impacted educationally, and vocationally. This correlated with distresses, personal setbacks, and poor decision-making procedures among these students, and possibly setting the stage for chronic depressive episodes.

The data for the final sample analysis portion of this study was *n* = 6,713 respondent rate. The most frequent age of the respondents was 21 years old at 22% (*n* = 1,466). In the gender and race analysis of those who responded, female 67% (*n* = 4,512) and Caucasian or white 69% (n = 4,661) were most represented. Relating to sexual orientation, heterosexual participants had the highest self-identification responds of 90% (*n* = 6,094), followed by 4% (*n* = 258) of bisexuals. Concerning the nationality and parent education levels, 93% (*n* = 6339) of the respondent were U.S citizens. As for the level of parent's education, in terms of mother education completed, 34% (*n* = 2,278) reported that their mother earned a "Bachelor's degree". As for the paternal education level, 33% (*n* = 2,216) of survey participants reported that their fathers completed a graduate degree. Many of the participants (*n* = 2,313) fell into the category of "not religious at all" at 34%, and "not too religious at all" at 30% (*n* = 2,011). The majority of participants reported having never served in the U.S Armed Forces, Military Reserves, or National Guard with reports of 99% (*n* = 6,662). Regarding the living situation of survey respondents, 50% (*n* = 3,389) of the participants reported living off-campus and in non-university housing, while 43% of survey participants lived on campus or in university housing. In the case of financial situation, the majority of survey participants, 55% (*n* = 3,758), selected the option of "it's tight but I'm doing fine". In terms of finances when

growing up, 55% (*n* =3,718) reported being comfortable in financial situations, 27% (n = 1,838) reported "had enough to get by but not many extras". In regards to the participants' current relationship status, the relationship status, 58% (*n* = 3933) reported as single, 38% (*n* = 2,560) reported as being in a relationship and only 3% (*n* = 227) were either married or having domestic partnerships. The participants' grade point average (GPA) reported fell in the B's category, followed by B+, while D was the least GPA earned by the participants.

Pre-analyses

The findings of this study using Chi Square analyses for demographic factors (Race /Ethnicity) shows the relationship of positive screen for depression were significant, χ^2 (1) = 23.80, $p < .001$, indicating there was a relationship between race/ethnicity and "any depression". This demonstrated that participants who reported positive screen for "any depression" including MDD had experienced higher levels of depressive symptoms; however, the majority were the Caucasians, and with the highest level of depression than was expected. This is quite opposite to the peer –review literature which states that in terms of race/ ethnicity; African-Americans and Mexicans had significantly higher depression chronicity and significantly lower use of depression care, as well as guideline concordant use than the Whites (Gonzalez et al., 2010). This analysis has disconfirmed that fewer participants in other ethnic groups were observed as "not depressed" than predicted would be observed. On the contrary, more Caucasian participants were depressed than expected.

The relationship between "current financial situation" and "any depression" including MDD was assessed with the chi-square analyses. The results showed a

significant relationship, χ^2 (2) = 172.01, $p < .001$, this demonstrated that most of the participants struggled financially thus leading to depression although this study did not examine student's employment and academic activities. One of the etiological theories for MDD is that, MDD has a strong component that is often associated with major interpersonal losses; it is rooted in social learning theory (Bandura, 2011). In combination with academic activities and forced employment, financial pressure significantly increases the development of major depressive disorder. Similar to this study, Melchior et al., (2010) confirmed that financial pressure is a major factor contributing to depression not only among students but the general population. General probable causes for the development of depressive disorders include: long or chronic diseases, any significant losses, and problems in relationships or at work, serious family stresses, financial crisis, and negative changes in life (McMahon et al., 2012). Other researchers in their studies supported that most students cannot find a well-paying job as they have not yet obtained the necessary education and, thus, have low paying, usually, part-time jobs, which has a significant impact on their mental condition (Zong et al., 2010).

Inferential Findings

Prior to conducting regression analyses for this study, a variety of assumptions such as linearity, normality, homoscedasticity and independent error were tested to ensure the result of the regression was representative of the statistical analyses**.** The violations of linearity were also determined by evaluating the Durbin-Watson statistic which *was d = 1.*979. There were no violations of linearity and the residual (error) of the regression line were approximately normally distributed using the normal P-P plot residual scatter plot indicating all assumptions were met.

Cognitive Coping Skills and Major Depressive Disorder**.** This was drawn from Social learning theory (Crothers, Hughes, & Morine, 2008; Bandura, 2011) in the context of the theoretical framework appropriate for this study. This frame work addresses individual thought patterns and feelings. This model also focuses on an individual's emotional response to their thought process, approach to negative experiences, interpretations and ways of recalling event in a negative way leading to the development of depressive symptoms.

Hypotheses 1 examined the relationship between cognitive coping skills of college students and the development of major depressive disorder. There was a statistical relationship between cognitive coping experiences and reports of depressive symptoms. Most participants reported "Trouble concentrating on things, such as reading a newspaper or watching television", "Feeling you are a failure or has let self or family down" and others". This indicates that higher levels of total cognitive coping scores predicted total depressive symptoms (of strongly disagree to lead a purposeful and meaningful life", "I am optimistic about my future and people respect me", etc.).

As MDD can lead to a negative sense of self, the vice versa can occur as well. These dysfunctional beliefs (feelings of inadequacy, failures, cognitive distortion and hopelessness for the future) can result in misinterpretation, procrastination, self-blame and inexperience. The results of Seeds and Dozois (2010) pointed out that research on the interaction of schema self-structures and negative life events suggest that cognitive structure may be a relatively stable vulnerability factor that interacts with negative life events to predict self-reported symptoms of depression. This is similar to the results of this research designated that individuals who possessed a highly organized or

consolidated negative sense of self were particularly vulnerable to depression when life stressors occurred that was similar to those which helped to create these self-structures (Seeds & Dozois, 2010).

There was also a positive relationship in regard to total depressive symptoms and total dysfunctional coping, demonstrating evidence as a predictive factor of college students experiencing depressive symptoms; this aligned with the peer-review literature of this study. For students, help-seeking behavior of professional psychological help is related to fears of psychological treatment, attitudes towards seeking professional psychological help, gender, and a prior contact with a counselor (Chai, 2013; Atindanbila &Abasimi, 2011).Also, young people perceived a number of barriers to seeking help for mental health problems including stigma and embarrassment, problems recognizing symptoms (poor mental health literacy), and a preference for self-reliance (Gulliver, Griffiths, & Christensen, 2010). In this current study, most participants reported series of "barriers to receiving fewer services (counseling, therapy, or medication) for their mental or emotional health" including "The hours are inconvenient," "Financial reason" (too expensive, no insurance), "I don't think anyone can understand my problem", "I worry about what others will think of me" and " I am concern about the privacy" etc. Hunt and Eisenberg (2010) noted that reasons including lack of time, privacy concerns, lack of emotional openness, and financial constraints prevented college students from seeking help. In their research, the authors also found that being unaware of services or insurance coverage, and skepticism about the treatment effectiveness played a role in the student's decision to seek professional help (Hunt & Eisenberg, 2010) which aligned with the findings of this study. Based on these analyses, participants who reported experiencing

higher levels of depressive symptoms also reported experiencing major depression. The results confirmed a relationship between the variables. Thus, the model (Social cognitive theory) used, has highlighted the significance of the cognition processes investigated, and given more insight in the understanding of mental health and behavior in the collegiate setting. The results focus on the individual as an active processor of information to modify new experiences, relate to past experiences, as well as organize, store and retrieve information (Crothers, Huges & Morrine, 2008).

The result of this study supports the concept that cognitive coping and dysfunctional cognitive coping have a significant role in the development of depressive symptoms response patterns. Maladaptive cognitions, a symptom of MDD, when not treated properly can lead to distortions of reality as they lead to misperception and exaggeration of the life events. Eventually, this may have a long-term positive effect on an individual's ability to cope properly with any depressive symptoms throughout a lifetime. In addition, Zivin, Eisenberg, Gollust, and Golberstein (2009) discovered that the majority of students who experienced symptoms of this disorder had no proper insight of the need to be treated. Since those with MDD or MDD symptoms have limited insight into their own disorder, it is incumbent on health care providers to identify those with MDD and to provide the education needed to better manage the symptoms. Therefore, in conjunction with the result of this study, it seems relevant that researchers continue to explore the nature of cognitive coping skills and how it informs depression functioning and appraisal.

Self-efficacy and major depressive disorder. Hypotheses 2 examined the nature of the relationship between, self-efficacy of college students and the prediction of the

development of major depressive disorder. Negative cognition can deregulate self-efficacy, as well lead to increases in the symptoms of MDD often associated with maladaptive thinking. Self-efficacy is drawn from the theoretical framework, "Social Cognitive Theory", which concedes that human achievement, lies on interactions between one's behaviors, and individual factors (example: belief and thought patterns), and environmental circumstances (Bandura, 1986; 1997). Self -efficacy also associates with self-regulation, in particular, the use of efficient learning strategies. The results of this study (β = -104, t (4) = -3.499, p < .001), support previous research that suggested a significant relationship between self-efficacy and depressive symptoms, The problem of major depression and coping strategies among college undergraduates are connected to the issue of self-efficacy. Studies by DeWitz, Woolsey, and Walsh (2009), Isaak, Graves, and Mayers (2006), Kamphoff et al. (2007) and Schaller (2010), established that academic goals and self-efficacy as measured by grade-point average contributes to students' decision about school completion and drop-out. Over 50% of the participants that reported disagreed on the ability to "actively contribute to the happiness of and wellbeing of others". Results showed a positive linear relationship in which total self-efficacy contributes significantly as one of the predictive factors to major depressive symptoms among undergraduate university students.

Logistic regression was further used to analyze the covariates variables, (Gender and GPA), in addition to independent variables (total self-efficacy) in confirmation if there were any relationship with total depressive symptoms. The result showed a significant model, χ^2 (3) = 339.92, p < .001, suggesting that Gender, GPA, and total self-efficacy accounted for 19% of the variance in Major Depression. Gender (Male) was a

significant predictor of Major Depression, B = -0.41, p = .002, OR = 0.66, suggesting that if the participants selected Male for Gender, they were 1.51 times more likely to select "Not depressed" than to select "Was depressed" when compared to those who selected Female for Gender. This aligned with the Pintrich and De Groot (1990) study that reported that students with high self-efficacy have the ability to solve, monitor, persist and perform well in any problematic situation better than students with low self-efficacy.

In the current study, GPA was a significant predictor of Major Depression, B = -0.76, p < .001, OR = 0.47. Eisenberg, Golberstein, and Hunt (2009) suggest that mental health issues can decrease students' academic performance and desire to achieve personal goals. In addition, students who struggle academically may experience more emotional problems due to the lack of social skills, social isolation, and less defined goals compared to the students who succeed academically. The results of this study suggest that lack of self-efficacy regarding coping experiences may have negative consequences on the ability to manage depression, especially among the college students. On the other hand, these results suggest that the evaluation of the coping skills among college students helps to identify self-efficacy as one of the most important factors in understanding MDD symptoms.

Behavioral coping skill and major depression. Hypotheses 3 explored the relationship between major depression and behavioral coping skills including, suicidal ideation and attempt and MDD, among college students as measured by PHQ-9. Depression affects human life and it is affected by human life. The events people survive, and the circumstances they face influence their behavior. Results of the analyses supported alternative hypotheses 3 (β = -173, t (3) = 7.052, p < .001) and were consistent

with this study's theoretical framework that the concept of learning, involves mechanisms in behavioral change, reaction and responses leading to physical maturation, self-regulation, self -efficacy and individual behavioral control (Bandura, 2011).

These variables, Gender, GPA, Self-hurt on purpose, Suicidal Ideas, Binge drinking, Cigarette smoking, Use of illegal drugs, and Gambling accounted for 15% of the variance in Major Depression. The findings also supported literature of this study, indicating that there is a correlation between suicide attempts and major depression among students aged 18-55 years (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Garlow et al., 2008). Results from this previous study was confirmed by Farabaugh et al. (2012), who found that 1 in 10 college students seriously consider suicide and nearly half suffer from significant depression. In addition, studies on suicide in students found that about 95% of those that commit suicide are clinically depressed (Farabaugh et al., 2012; ACHA, 2006). Similarly, in a study that included over 55% graduate students, conducted by Cranford, Eisenberg and Serras (2009), it was reported that cigarette smoking was significantly related with depression. Similarly to cigarette smoking, these undergraduate students who screened positive for depressive symptoms also reported using marijuana and other illegal drugs as self-medication as well as were involved in gambling, particularly when they are not clinically diagnosed. This confirms that nicotine decreases negative effects and that people experiencing depressive symptoms may be using nicotine, a- form of self-medication, as part of their coping skills. The results of this study support the concept of the theoretical frame work that describes how environmental, cognitive and behavioral factors interrelate to influence human learning and behavior. Thompson (2011) pointed out the significant connection between depression and

substance abuse. He argues that there are shared brain regions affected by both substance abuse and depression; genetic factors predisposes a person to the development of a mental disorder or addiction which can be triggered by environmental factors, such as stress or trauma leading to both depression and drug abuse (Thompson, 2011).

Gender, mean depressive scores, and academic impairment. An exploratory analysis examined whether there was a difference between females and males in reporting depressive symptoms and total academic impairment. The results showed female had the high average scores *of M = 26.6704 (SD = 7.59851)* with a total academic impairment of *M =7.2682 (SD = 2.31399*). Males and females had a significantly different perceived means scores after controlling for the level of depression, indicating that females may be more invested in their academic performance and therefore get more depressed. In other words, the male participants were 1.61 times more likely to select "Not depressed" than "Was depressed" when compared to female participants. The female sample population exhibited more depressive symptoms than their male counterparts in regards to academic performance. In comparison to the previous literature on gender in the U.S. population, depression has been significantly related with females in which 70% of women more than men were likely to experience depressive symptoms in their lifetimes (NIMH, 2010c). The results of numerous studies on this topic indicate that depression is more prevalent among women than men (Eisenberg, Gollust, Golberstein, & Hefner, 2007), which may be offset by the notion that women are also more likely to report depression than men. The authors suggest that significant differences in depressive symptoms in men and women can be explained as a result of the interplay of the different psychosocial factors, such as appraisal of stress,

nature of coping styles, social support, and sense of mastery in their everyday lives (Bhatia & Dey, 2011). To further support this notion, more research is required in this area for a better understanding.

In addition, gender, and GPA was analyzed to determine if the total positive cognitive coping scores, the total dysfunctional cognitive coping scores, and the total academic impairment predicts Major Depressions. The results showed that gender, GPA, and these predictive variables accounted for 36% of the variance in major depression, indicating GPA and these predictive variables including self-efficacy and behavioral coping were significant predictors of MDD. These findings are consistent with the preliminary research, which explored the effect of independent variables on any depression. McClintock, Husain, Greer, and Cullum (2010) indicated that depression could have a considerable negative effect on cognitive functioning, impairing attention, learning and memory, and executive functioning. As a result of the study conducted by McClintock et al., several aspects of depression severity have been associated with cognitive impairment, such as increased symptom severity at the time of neuropsychological testing. Similar to Dyson and Renk's (2006) study, the levels of family and college stress reported by college students, as well as the use of coping method, significantly predicted their levels of depressive symptoms. The findings of this current study were in support of their findings that university students with depressive symptoms were more likely to report utilizing coping strategies that do not represent a good fit for the type of event they encountered (Zong et al., 2010). However, if coping is flexible, positive adjustments can arise, and positive emotions can occur even when depression and distress are frequent. The findings from the current study confirmed that

depression disorders are considerable problems among undergraduate students; thus, further research and intervention may be required.

Test-retest reliability. The PHQ-9 is clinically validated with internal reliability. It is a self-administered questionnaire developed in both primary care and obstetrical-gynecological settings. The PHQ-9 has been developed with nine diagnostic criteria for major depression recognized in the Diagnostic and Statistical Manual for Mental Disorders, Fourth Edition (DSM-IV, 2000; Klein, Ciotoli & Chung, 2011). In order to add to the reliability and validity on the instrument, a correlation was performed between separate administrations of the PHQ-9 instrument, A Cronbach. The results of reliability for the depressive symptoms measure was (α = .894, p < .001, total positive cognitive coping score measure (α =. 895, p < .001) total dysfunctional cognitive coping scores (α =. 756, p < .001) total self-efficacy (α =. 719, p < .001) and total behavioral coping scores measure (α =. 500, p < .001). The result suggests a consistent score within this time frame. This indicates that the instrument is valid and reliable. However, future tests of reliability are recommended for a longer time frame between the tests and re-test administration.

Limitations and Future Recommendation of the study

This research study was correlational in nature; therefore, conclusions were drawn after careful analysis. The study was based on self-reported data that cannot be verified and therefore, could be inaccurate, as the study relied on participant's expression of their feelings. All the reported information was not confirmed which may lead to bias in the results. However, the result showed a high statistically significant relationship between major depressive symptoms experienced and predictive variables examined in the study.

Melchior, Chastang, Leclerc, Ribet, and Rouillon's (2010) analyses revealed that depression increases along with increasing age and other characteristics. Also, according to Smith et al. (2013), depression in adolescents can be very different from depression in the adults, therefore, further exploration is required in general population for much expansion of the knowledge of coping skills and intervention, and perhaps incorporating other variables to help prevent future complicated health issues. Schulman and Shapiro (2008) in support of this study, found that ineffective coping mechanisms led to complicated health issues such as psychological and emotional problems (pains, increased risk of cardiovascular disease, anxiety disorders, high blood pressure, and eating disorders.

In addition, the sampling population was randomly selected; therefore, there is a tendency that only the undergraduate students who experienced symptoms of depression and other mental health problems were likely to respond to the invitation to participate in the study more than those without symptoms. In this case, some of the results may be bias. This study is a cross-sectional survey or retrospective in nature that uses a short time frame of responds. The limitation may include inaccurate recall of feelings and experiences, and social pressure to responds in ways expected; therefore, in future, a longitudinal study is recommended to help alleviate pressure in responding, give more clarification on questions about frequencies and intensity, duration and help seeking behaviors, as well as questions that has been left comparatively unexplored or unanswered.

The participants may not have answered every question and therefore, gaps in the data collected may exist. Future studies should look to lengthen the time frame and report

those findings. However, for this study, the PHQ-9 instruments are appropriate to the design and the purpose of the study. I therefore recommend more research on other measurement that is reliable and valid to be incorporated into the study for comparison of the results found here.

The results from the PHQ instrument may not be the same as a clinical diagnosis of depression, however, the PHQ has been efficiently validated against clinical diagnosis and found to be a more reliable indicator than self-report diagnosis with symptoms of depression (Eisenberg, Gollust et al., 2007; Klein, Ciotoli, & Chung, 2011; Kroenke, Spitzer Kroenke, & Williams & the Patient Health Questionnaire Primary Care Study Group, 1999; Spitzer & Williams, 2001).

"Heritability of major depression" is another limitation, however, I fully appreciate the magnitude of the "heritability issue with MDD" but I am focusing on the cognitive issues in isolation, etc. Based on the findings of this study, and the literature, it is imperative that there is a greater understanding of how a family impacts children's development and growth; it is possible that family play an important role in encouraging their children to overcome any stressors in their environment through any physical contact and companionship. In the event in which a family member suffers from MDD symptoms, the family ties are negatively impacted; however, the contribution of the family in this case is that it may diminish the depressive feelings (Moor & Komter, 2012). In future studies, I recommend that heritability of major depression be included for more understanding and expansion of knowledge.

In the threat to external and internal validity, the limitations on the ability to predict the relationships as well as the limitations to generalize to other institutions in the

U.S. or in other parts of the world are possible. Looking at the de-identified data used in this study, the response rate for 2012 HMS survey varies from different participating institution, not all the colleges were evenly represented from all geographical areas of the U.S in the sample. Besides, the participating institutions joined the 2012 HMS data collection voluntarily. Perhaps there may be prevalence of depressive symptoms in other schools that did not participate, thus, limit the generalizability of the result in the survey, this may cause a great concern and may reflect on the school. As for other colleges who did not participate in this survey, some of the undergraduate students were not able to relay their experiences and as such the results may be limited.

In the methodology, participants were placed in the MDD category through a self-administered screening instrument, and as such there was much strength derived in this study. Firstly, the study utilizes a large sample size of college students from institutions across the nation. This increases the statistical power of the analyses and allowed for the detection of statistical relationship with a greater accuracy. Additional strength was the generalization of the study findings to all undergraduate students in the U.S. due to the random sampling techniques used in the selection of the participants from various universities by Healthy Minds Study.

Lastly, as shown in the literature review, there are no studies that have precisely examined the cognitive coping, self-efficacy and behavioral coping mechanism as predictive factors to the development of major depressive disorder symptoms among the undergraduate college students. Despite these limitations, various findings were discovered in the current study that would equip health educators, professionals and

administrators with knowledge and understanding of mental illnesses while promoting effective collaboration to improve mental health issues among undergraduate students.

Implications for Positive Social Change and Recommendation for Action

It is important to note that depression in students may become complicated by negative events following the illness, resulting in the problems at home, social alienation, relationship issues, and serious health problems. Smith, Barston, and Segal (2013), supported that the negative effect may be students dropping out of activities, loss of motivation and social connections, and failure at work or study. The potential implications for positive social change that are consistent with and bounded by the scope of the study is that the findings of this study indicate that educational facilities may need to develop the intervention programs and services in order to help the first-year students in their adaptation to the new environment (Rayle & Chung, 2007). The result of this research will help the audience be more knowledgeable about the role of health professionals and types of therapies involved in diagnosing and treating depression.

Understanding the ways leading to the psycho physiological nature of depression can create opportunities to reduce the prevalence of mental health related illnesses. Increasing the quality of coping abilities and social activity during college years could lead to significant benefits for life-long stress management. A review of the literature revealed a need for studies that specifically explore the relationship between academic performance and the development of MDD in college students. The result of this current study added to the body of literature that suggests this connection by examining students' coping abilities, predispositions, and current reports on MDD through a correlation design. The contributions of this study to psychiatry and psychology are consistent and

significant as major depressive disorder is one of the most acute mental disorders in modern psychiatry.

The study provides sufficient knowledge of depression predictors, correlates, treatment and prevention methods, and risk factors among undergraduates with the purpose to consider the most effective MDD coping strategies. Instead of dwelling upon GPA, addictions, and other health disorders as the main reasons for depression occurrence; rather, these aspects may be used as the main issues for developing the coping strategies, as the results demonstrated its relation to self-efficacy.

The results of this study will positively contribute to depression diagnosis and treatment research, specifically in relation to prevalence of MDD in undergraduate students. Understanding how these risk factors may influence the psychological condition of students may help to identify ways to promote health and decrease susceptibility to depression related illnesses (Wilde, Meiser, Mitchell, & Schofield, 2010). The research results obtained from this study support social change by contributing greatly to people who deal with program developers, psychologists, educators, and other researchers who are interested in the factors and coping strategies, which will help in the improvement of college students' mental health. The result of the findings of this research can be referred to while promoting positive social change in college students. Findings from this study would support positive social change in that it would reveal behaviors and activities of college students that influence mental health and possibly help to pinpoint the common stressors that can be targeted for reduction in preventative programs.

This study's result would help students be aware of the new developments in MDD treatment and interventions, including self-help topics to group help alternatives,

and psychological problem-solving skills that would prepare students to meet their present and future personal challenges. Results from this study would help in the development of psycho-educational methods to assist in early intervention programs in colleges and universities across the nation. The study would give an insight of the relationship between coping skills and self-efficacy in response to the warning signs of MDD in college students. The results of the current study will also support positive social change aimed at broadening the understanding of behaviors that positively influence health through the reduction of symptoms of MDD particularly, as the result demonstrated that there is a significant differences between the dependent variable MDD and independent variables, cognitive coping skills, self-efficacy, as well as, moderating variables such as gender. Information provided from the result of the study that predictive factors of MDD; cognitive coping, self-efficacy and behaviour is associated to the student's experiences of major depressive symptoms can be used in the development of appropriate and effective training in coping mechanisms for the reduction of MDD in college students.

Social cognitive theory is composed of cognitive, behavioral, personal, and environmental factors that interact to determine motivation and behavior (Crothers, Huges, & Morrine, 2008). This theory, used as a framework in this study, supports positive social change and would help in the improvement of our understanding about many topics including: health-related behaviors, depression, MDD symptoms, self-concept, choice of activities, and efforts to persist in tasks requiring memory, all of which are related to this study's target audience-college students. The results of this study have implication for practice in support of this framework and serves as the theoretical

template for useful interventions. It also helps in the systematical selection of effective coping strategies, changes in role functioning, emotional improvement and environmental support that would impact psychological adjustment. These would extend to the general population by providing a clear understanding of recovery after emotional setbacks.

Looking at the result of this study, there is a tremendous cost effectiveness value in educating students about self-initiated behaviors that can nurture their health and help in their growth and development. Helping families to understand the association between cognitive coping, self-efficacy and behavioral coping mechanism and major depressive symptoms may not only have individual health benefits, but social benefits as well. Problem-focused coping e.g. management of stressful events and ability to solve problems will result in help-seeking behaviors, information gathering, decision making procedures, diagnosis and treatment. While in the emotion-focused coping such as avoidance, these theories would help college students navigate emotional reactions (e.g., depression, functional limitations, and changes in valued life roles). It will help to support social change by improving positive perceptions of self, social relationships, and meaningful life patterns. Also, new efforts to redirect energy toward setting new goals, and the ability to acknowledge, understand, and express emotions would be encouraged.

The study is significant for its positive contribution to social change, and would be used to reduce the level of depressive symptoms among college students, which will significantly promote healthy environments for students. The educators, therapists, program developers and other researchers may use the results of this study for personal and professional needs. The prediction and treatment of depression in college students is sub-optimal. The result of this study indicates that independent variables selected for this

study has predicted depression, therefore, information would be provided for practitioners and community partners about specific limitations in coping mechanisms in their clients. The identification of effective coping and preventive strategies will help combat the MDD symptoms among college students.

The results of this study offer valued information for the general public concerning the quality intervention strategies and in association with the reduction of major depression symptoms. On a broad spectrum, the results of the study shows the importance of the early identification and treatment of the symptoms of depression, especially in the school environment, and how it may nourish health and improve academic performance for years ahead and into the future. This study will add to our current body of literature on college students and help fill the gap in knowledge concerning their emotional, self-efficacy and mental health. It is my desire that this work will motivate other researchers to conduct more research that examine other mental health problems to enlighten our students of warning signs of MDD and help seeking behaviors.

Since this study is the first of its kind, future in-depth studies is recommended to examine whether undergraduate students are protected against other mental disorders such as substance use disorders, and psychotic disorders. While there has been a strong desire in MDD research to empirically focus on the negative, this study calls for other researchers and psychologists with similar vision, and are working towards a powerful and constructive change within our own field to see the urgency and need to continue to explore the relationship between MDD and other predictive factors as coping skills employed by college students and the general public. Communication among colleagues in other specialty areas, such as psychiatry is important and may help in the development

of better coping behaviors, which may prevent adverse effects from MDD. Early prevention, intervention and treatment may lead to better health in life; clearly, the significant findings of this study suggest that research in this area is beneficial towards future prevention of MDD disorders and other related disorders.

In addition, future studies examining MDD should employ a primary data collection approach. This would allow the researchers to gain a better control of the study including tools for study measurement instruments and variables of interest, and data collection procedures. Future studies should utilize quasi-experimental design methodology for a more in-depth study on these predictive factors using control groups in connection to MDD development. Also, a valid and reliable screening instrument for depressive disorders is recommended to be developed. The instrument would take cultural variations and international students experiencing depressive symptoms into consideration for researcher's working with targeted population. Results would contribute to a better understanding of the relationship between health risk behaviors and depressive disorders which can allow for properly addressing these issues. Also, on campus mental health programming would also prepare students to better cope, a skill that would benefits the students well after graduation.

Finally, the inclusion of religion and spirituality is recommended as one of the possible predictive factors for the college students experiencing symptoms of depression and inability to respond effectively to the stresses as well practice coping skills. Thus, the replication of this study using mixed method of both quantitative and qualitative design would provide additional insights to other factors that may alert early occurrence of symptoms and/or non –identification of warning signs and coping difficulties. A mixed

method will also provide more enlightenment and information in regards to student's social support system (family, friends, community support, and other health care professionals).

Conclusion

In conclusion, this study offers an investigation of the implications of early awareness of major depression experiences and the relationship with predictive factor. Being knowledgeable of these factors may lead to positive response outcome and effective coping that promotes healthy living and lifestyles. Perhaps, it may also lead to a reduction in suicidal plans and attempts, rate of students drop out of school, poor academic performance, and work towards completion and receiving their bachelor's degree from colleges and universities which can serve as foundations to successful lifestyle. The implication of positive social change of this study has aligned with the social learning theory that stresses the significance of observation and modeling of the behaviors, as well as attitude, and emotional reaction of the responses from people (Bandura, 2011). Theory describes how environmental, cognitive and behavioral factors interrelate to influence human learning and behavior; therefore, the result of this study has provided evidence for the need to better understand and acknowledge the challenges that college students face daily. The study has provided effective coping strategies where college students would learn, observe, imitate and model help-seeking behavior to prevent and reduce MDD symptoms. This will help undergraduate students concentrate on their studies, as well as living healthy. It is hoped that the addition of this study to existing literature would impact open discussion on depressive symptoms without any

stigmatization or bias as well as generating future research in the general population and our society as a whole.

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Appendix A:

Data Use Agreement form (Walden DUA)

Data Use Agreement

This data use agreement (the "Agreement") is by and between The Regents of the University of Michigan ("The Regents"), a Michigan constitutional corporation with its principal place of business in Ann Arbor, Michigan, and Walden University Minneapolis ("User") and is effective as of the date 9/25/14 (the "Effective Date").

WHEREAS, The Regents maintains certain information that User wishes to use and/or disclose for research, public health, or other purposes:

NOW, THEREFORE, the parties, in consideration of the mutual promises and obligations set forth herein, the sufficiency of which is hereby acknowledged, and intending to be legally bound, agree as follows:

1. The Regents shall provide User with access to certain data in accordance with the terms and conditions of this Agreement.

2. The following individuals (the "Authorized Parties") are authorized to use the data or any part of it on behalf of User and agree to abide by the terms of this Agreement:

   Name: GRACE BICKHAM Signature: Grace Bickham

   Name: _____ Signature: _____

   Use an attachment to list any additional individuals. The attachment must be signed by authorized representatives of User and The Regents.

3. User, and any Authorized Party on User's behalf, may use the data only for the following purposes:

   The de-identified information obtained from the Healthy Minds Study (HMS) will be used for research purposes only as the secondary dataset for the study entitled: Major Depressive Disorder: Precursors, Predictors, and Coping Mechanism Among Undergraduate students. The overall purpose of the study is to determine if coping mechanisms and self-efficacy improve the prediction of Major Depressive Disorder (MDD) beyond conventional predictors, such as gender using a national sample of college students in the U.S. In addition, the study will evaluate the cognitive and behavioral elements of coping mechanisms employed by college students across the nation.

   Use an attachment to list any additional permitted uses. The attachment must be signed by authorized representatives of User and The Regents.

4. User and each Authorized Party agrees as follows:

   - ✓ Not to use or further disclose the data or any information contained therein other than as permitted by this Agreement or required by applicable law.
   - ✓ To use appropriate technical, administrative, and procedural safeguards to prevent use or disclosure of the information other than as provided for by this Agreement.
   - ✓ To report to The Regents within five (5) days any use or disclosure of the data or any part of it not provided for by this Agreement of which User or any Authorized Party becomes aware.
   - ✓ To ensure that any agents, including subcontractors, to whom User or an Authorized Party provides the data or any part of it to agree to the same restrictions and conditions that apply to the User and Authorized Parties under this Agreement.
   - ✓ Not to use the information contained in the data to contact the individuals whose information is contained in the data under any circumstances.

5. In the event The Regents becomes aware of any use of the data or any part of it that is not authorized under this Agreement or required by applicable law, The Regents may (i) terminate this Agreement upon notice; and/or(ii) disqualify (in whole or in part) the User and/or any Authorized Parties from receiving information in the future.

WHEREFORE, the parties, through their authorized representatives, hereby accept and agree to the terms and conditions of this Agreement.

THE REGENTS OF THE UNIVERSITY OF MICHIGAN

Signature: _____

Name (Printed): Alex Kanous

Title: Sr. Project Representative Office of Res. & Spon. Proj.

Date: 9/29/14

WALDEN UNIVERSITY MINNEAPOLIS USER

Signature: _____

Name (Printed): LEILANI ENDICOTT, Ph.D.

Title: "Director, Office of Research Ethics and Compliance and IRB Chair"

Date: 9/25/14

Appendix B

Institutional Review Board Approval (Walden)

Notification of Approval to Proceed to Final Study

workflow@laureate.net 6:33 PM (18 hours ago)

to me, medha.talpade, scott.friedman

Congratulations! Your Walden Institutional Review Board application has been approved. As such, you are approved by Walden University to proceed to the final study.

If you have questions about the final study process, please contact research@waldenu.edu.

Confirmation of Receipt of Community Partner Approval

IRB 6:33 PM (18 hours ago)

to me, Medha

Dear Ms. Bickham,

This email confirms receipt of the data use agreement for the community research partner. As such, you are hereby approved to conduct research with this organization.

Congratulations!

Libby Munson

Research Ethics Support Specialist, Office of Research Ethics and Compliance

Leilani Endicott

IRB Chair, Walden University

Conditional IRB Approval - Grace Bickham

IRB Aug 29 (6 days ago)

to me, Medha

Dear Ms. Bickham,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "Major Depressive Disorder: Precursors, Predictors, and Coping Mechanism Among Undergraduate Students," conditional upon the approval of the community research partner, which will need to be documented in the appropriate university approval. Walden's IRB approval only goes into effect once the Walden IRB confirms receipt of that university approval. Please note, documentation beyond a data use agreement will likely be necessary and you will need to determine whether or not you are required to go through the University of Michigan's IRB process in order for the data to be released. If you are, we will need documentation of their notification of approval or exemption (depending on their procedures) in addition to the data use agreement. If you are not required to go through their IRB process, you will need to include documentation confirming that fact, such as a copy of an e-mail from one of the IRB administrators, a copy of the school policy, etc. when the signed data use agreement is submitted.

Your approval # is 08-29-14-0122376. You will need to reference this number in your dissertation and in any future funding or publication submissions.

Your IRB approval expires on August 28, 2015. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Please note that this letter indicates that the IRB has approved your research. You may **NOT** begin the research phase of your doctoral study, however, until you have received official notification from the IRB to do so. Once you have received this notification by email, you may begin your data collection. Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application materials that have been submitted as of this date. This includes maintaining your current status with the university. Your IRB approval is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, your IRB approval is suspended. Absolutely NO participant recruitment or data collection may occur while a student is not actively enrolled.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not

accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you a made commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden web site or by emailing irb@waldenu.edu: http://inside.waldenu.edu/c/Student_Faculty/StudentFaculty_4274.htm

Researchers are expected to keep detailed records of their research activities (i.e., participant log sheets, completed consent forms, etc.) for the same period of time they retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d

Sincerely,

Libby Munson

Research Ethics Support Specialist

Office of Research Ethics and Compliance

irb@waldenu.edu

Phone: 612-312-1341

Fax: 626-605-0472

Office address for Walden University:

100 Washington Avenue South

Suite 900

Minneapolis, MN 55401

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link: http://researchcenter.waldenu.edu/Office-of-Research-Ethics-and-Compliance-IRB.htm

Appendix C

Consent Form: Patient Health Questionnaire -9 PHQ-9

General Programming Notes

1. Any words in all caps will be emphasized in bold blue text on the web. We have replaced all underlined emphasis with this format (it is our standard). We believe it is a better approach, but we can modify this if desired.
2. All questions are optional unless otherwise specified.
3. All questions are placed one per screen, unless otherwise noted or if specified as a "grid" question.
4. Support email address to display: healthyminds@ssgresearch.com
5. Short URL for survey should be: https:www.ssgresearch.com/hms
6. Logo to use: Each school will have a unique logo to display driven from QPRE1.
7. Header will contain the following information:

   hms@ssgresearch.com
   For emergency 24 hr. help:
   Psychiatric Emergency Services at (QPRE3)
   Or 1-800-273-TALK

PRELOADS

CUSTOMID=customid
QPRE1=school number
QPRE2=school name
QPRE3=local counseling phone number
QPRE4=grad vs. undergrad

Welcome to the Healthy Minds Survey!

Please click Start Survey to begin!

User ID _____

[INSTITUTION NAME]

[LOCAL IRB CONTACT PERSON]

[LOCAL IRB CONTACT E-MAIL]

[LOCAL RESOURCES FOR INTERVENTION/MENTAL HEALTH ASSISTANCE]

CONSENT

CONSENT

Healthy Minds Study Consent Form: Main Survey

- Who is doing this study?

This study is a partnership between Daniel Eisenberg, PhD, Assistant Professor at the University Of Michigan School Of Public Health and [insert local contact].

- Why are you doing this research?

We are trying to better understand issues related to undergraduate and graduate students' well-being, sources of support, and mental and emotional health. This study is important to furthering knowledge about how students are handling the stresses of university life and how well their mental and emotional health needs are being met. We will provide the results (without any individually identifiable information) to school administrators and other community members to help them think about how to improve student life.

- What will taking this survey be like?

The survey takes 10-20 minutes for most students to complete, though it may take less or more time for some students. You must be 18 or older to take this survey. You will be asked questions about your moods and emotions, mental health and emotional issues you have experienced, support you may or may not have received, and your academic life. While in the survey, you will be able to stop at any time by closing your browser. You may then return to the questionnaire later. All responses you had entered and submitted will be saved. We ask that you complete the survey within 14 days.

- What are the risks associated with my participation?

Some of the questions will ask you about sensitive or personal information such as your emotional health. These questions might make you feel uncomfortable or anxious. You can skip any questions you do not want to answer. At the conclusion of the survey you will receive a list of resources on campus that can provide you with help and support. If responding to any questions makes you feel worried or unhappy, we urge you to call any of the resources listed. Your participation is voluntary -- your refusal to participate will involve no penalty of any sort. You may discontinue participation at any time.

- Who will benefit from my participation in this research?

We expect this research to be used to improve student life, so students at your school and nationwide may ultimately benefit from the knowledge obtained in this study.

Additionally, you will be entered into a sweepstakes to be conducted on June 15, 2010 for cash prizes totaling $4,000 (ten $250 prizes and three $500 prizes) regardless of whether you complete the survey. The drawing will be conducted by the Survey Sciences Group, LLC on 220 E. Huron St. in Ann Arbor, MI. The chance of winning a prize is approximately 1 in 300. Winners will be notified immediately by email, and prizes will be mailed as checks.

- How will my privacy and confidentiality be protected?

Your confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties. The survey was designed to protect your privacy and confidentiality. The Survey Sciences Group, LLC (SSG), has been hired to help ensure your confidentiality by maintaining all study records. They will use Secure Sockets Layer (SSL) encryption technology to ensure that your responses are not intercepted in transmission, and will provide physical and logical restrictions to protect your data once it has been collected. The researchers will never know your name, email address, or any other identifiable information. Any reports or articles that we write will describe the data in the aggregate and will contain no information that could allow somebody to identify you. Survey Sciences Group, LLC has conducted several studies of sensitive issues among college student populations, and they use the most sophisticated technology available to assure security and confidentiality. The security and confidentiality maintained by the Survey Sciences Group has never been breached.

The data from this study, without any identifiable information, will be retained in a secure repository for future research purposes. Records will be kept confidential to the extent provided by federal, state, and local law. However, the Institutional Review Board, the sponsor of the study, or university and government officials responsible for monitoring this study may inspect these records. Also, please be aware that even though researchers will not know your name, the data collection firm will have your name in

order to send you follow up emails if necessary. If you participate in the present study, you may be contacted in future years for a follow-up study.

To provide additional protections to your privacy, we have obtained a Certificate of Confidentiality from the National Institutes of Health. With this Certificate, the researchers cannot be forced to disclose information that may identify you, even by a court subpoena, in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings. The researchers will use the Certificate to resist any demands for information that would identify you, except as explained below. The Certificate cannot be used to resist a demand for information from personnel of the United States Government that is used for auditing or evaluation of federally funded projects or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA). You should understand that a Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer, employer, or other person obtains your written consent to receive research information, then the researchers may not use the Certificate to withhold that information. The Certificate of Confidentiality does not prevent the researchers from disclosing voluntarily, without your consent, information that would identify you as a participant in the research project if you indicate that you are at imminent and serious risk to harm yourself or others.

- What if I have questions about the survey?

If you have questions about this research, the survey questions, or this consent process, you can contact the researchers at info@healthymindsstudy.net or (734) 213-4600, ext 470. You may also contact the PI of this study, Dr. Daniel Eisenberg at (daneis@umich.edu) or 734-615-7764, or the local PI, [insert local contact info].

Should you have questions regarding your rights as a research participant or feel that you have been harmed by this research, please contact the Institutional Review Board at the University of Michigan, 540 E. Liberty Street, Suite 202, Ann Arbor, MI 48104-2210, (734) 936-0933, email: irbhsbs@umich.edu.

Please click the link at the bottom of the screen if you wish to print a copy of this consent form.

- *Yes, I have read the information given above, I am at least 18 years old, and I CONSENT to participate in this study.*
- *No, I do not wish to participate in this study and understand that there is no penalty for not participating.*
- **ENDING 1: IF SUICIDALITY WAS INDICATED (B1i=2,3,or 4, or B10=1)**

- The Healthy Minds Study
- Thank you very much for completing The Healthy Minds Study. Your response is valuable for our research, which we think will lead to improvements in student life at [college/university] and schools nationwide.
- As stated before you began the survey, all of your answers will remain confidential.
- Because you indicated that you have had suicidal thoughts or attempts in the past year, we are especially concerned about whether you are receiving support you may need. We strongly urge you to contact one of the resources shown below if you are not already receiving help.
- If you feel you should talk to someone about a mental health issue, here are some resources available to you on campus. We urge you to call on these resources to give you mental health support if you think you need help**.**

- **(a complete list of local mental health resources will be in this space)**

ENDING 2: IF SUICIDALITY WAS NOT INDICATED

- The Healthy Minds Study
- Thank you very much for completing The Healthy Minds Study. Your response is valuable for our research, which we think will lead to improvements in student life at [college/university] and schools nationwide.
- As stated before you began the survey, all of your answers will remain confidential.
- If you feel you should talk to someone about a mental health issue, here are some resources available to you on campus. We urge you to call on these resources to give you mental health support if you think you need help**.**

- **(a complete list of local mental health resources will be in this space)**

Appendix D

Patient Health questionnaire -9

Healthy Minds Study 2012

Basic Information

A1. How old are you? *(You must be 18 years or older to complete this survey)*

1 18 years old
2 19 years old
3 20 years old
4 21 years old
5 22 years old
6 23-25 years old
7 26-30 years old
8 31-35 years old
9 36-40 years old
10 41+ years old

A2. What is your gender?
1 Female
2 Male
3 Transgender

{PRG: SHOW A2a IF A2=3, OTHERWISE SKIP TO A3}

A2a. Please indicate which of the following best describes you:
1 Female to male
2 Male to female
3 Intersexed
4 Rather not say

A3. How do you usually describe your race and/or ethnicity? *(Select all that apply)*

1 White or Caucasian
2 African American/Black
3 Hispanic/Latino
4 American Indian/Alaskan Native
5 Arab/Middle Eastern or Arab American
6 Asian/Asian-American
7 Pacific Islander
8 Other (specify) [OPEN TEXT]
9 Not applicable—I would prefer not to identify my race/ethnicity

A4. Are you a US citizen or permanent resident?

0 Yes
1 No

A5. How would you describe your sexual orientation?

1 Heterosexual
2 Bisexual
3 Gay/Lesbian/Queer
4 Questioning
5 Other (specify) [OPEN TEXT]

A6. Where do you live?

1 Campus residence hall
2 Fraternity or sorority house
3 Other university housing
4 Off-campus, non-university housing
5 Parent or guardian's home
6 Other (specify) [OPEN TEXT]

A7. What year are you in your current degree program?

1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9+

A8. In what degree program are you currently? *(Select all that apply)*

1 Associate's degree
2 Bachelor's degree
3 Master's degree
4 JD
5 MD
6 PhD or equivalent
7 Other (specify) [OPEN TEXT]

A9. What is your field of study? *(Check all that apply)*

1 Humanities (English, language, history, philosophy, etc.)
2 Social science (Economics, psychology, sociology, political science, etc.)
3 Natural science and mathematics (Math, biology, chemistry, physics, etc.)
4 Art and Design
5 Architecture and Urban Planning
6 Business
7 Dentistry
8 Education
9 Engineering
10 Information
11 Kinesiology

12 Law
13 Medicine
14 Music
15 Natural Resources and Environment
16 Nursing
17 Pharmacy
18 Public Health
19 Public Policy
20 Social Work
21 Other (specify) [OPEN TEXT]
22 Undecided

A9a. Which of the following best describes your grade point average this year?

1 A
2 A-
3 B+
4 B
5 B-
6 C+
7 C
8 C-
9 D
10 No grade or don't know

A10. How religious would you say you are?

1 Very religious
2 Fairly religious
3 Not too religious
4 Not religious at all

A11. How would you characterize your current financial situation?

1 It's a financial struggle
2 It's tight but I'm doing fine
3 Finances aren't really a problem

A12. Which of the following best describes your family's financial situation growing up?

1 Very poor, not enough to get by
3 Had enough to get by but not many "extras"
4 Comfortable
5 Well to do

A12a. What is the highest level of education completed by your **mother**?

1 Eighth grade or lower
2 Between 9th and 12th grade (but no high school degree)
3 High school degree
4 Some college (but no college degree)
5 Associate's degree

6 Bachelor's degree
7 Graduate degree
8 Don't know

A12b. What is the highest level of education completed by your **father**?

1 Eighth grade or lower
2 Between 9th and 12th grade (but no high school degree)
3 High school degree
4 Some college (but no college degree)
5 Associate's degree
6 Bachelor's degree
7 Graduate degree
8 Don't know

A13. How would you characterize your current relationship status?

1 Single
2 In a relationship
3 Married or domestic partnership
4 Divorced
5 Widowed

A14. Have you ever served in the U.S. Armed Forces, military Reserves, or National Guard? *(Please select the answer that is most applicable)*

1 No, never served in the military
2 Yes, currently in Reserve Officers' Training Corps (ROTC)
3 Yes, currently in military Reserves or National Guard
4 Yes, now on active duty
5 Yes, on active duty during the last 12 months, but not now
6 Yes, on active duty in the past, but not during the last 12 months

How You are Doing

The next set of questions will ask you about your general well-being and emotional health. As noted earlier, all of your answers will remain confidential.

B0. Below are 8 statements with which you may agree or disagree. Using the 1–7 scale below, indicate your agreement with each item by indicating that response for each statement.

7 Strongly agree (7)
6 Agree (6)
5 Slightly agree (5)
4 Mixed or neither agree nor disagree (4)
3 Slightly disagree (3)
2 Disagree (2)
1 Strongly disagree (1)

B0a. I lead a purposeful and meaningful life.

B0b. My social relationships are supportive and rewarding. B0c. I am engaged and interested in my daily activities
B0d. I actively contribute to the happiness and well-being of others
B0e. I am competent and capable in the activities that are important to me
B0f. I am a good person and live a good life
B0h. I am optimistic about my future
B0i. People respect me

B1. Over the **last 2 weeks**, how often have you been bothered by any of the following problems?

1 Not at all
2 Several days
3 More than half the days
4 Nearly every day

B1a. Little interest or pleasure in doing things
B1b. Feeling down, depressed or hopeless
B1c. Trouble falling or staying asleep, or sleeping too much
B1d. Feeling tired or having little energy
B1e. Poor appetite or overeating
B1f. Feeling bad about yourself--or that you are a failure or have let yourself or your family down
B1g. Trouble concentrating on things, such as reading the newspaper or watching television
B1h. Moving or speaking so slowly that other people could have noticed; or the opposite—being so fidgety or restless that you have been moving around a lot more than usual
B1i. Thoughts that you would be better off dead or of hurting yourself in some way

{PRG: SHOW B1j IF ANY B1a-B1i = 2-4 AND PRE_0=1; OTHERWISE SKIP TO B1k IF PRE_0=1, C1
IF PRE_0=2}

B1j. If you checked off **any** problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

1 Not difficult at all
2 Somewhat difficult
3 Very difficult
4 Extremely difficult

Think about **the two week period in the past year** when you experienced the two problems below the most frequently. During that period, how often were you bothered by these problems?

1 Not at all
2 Several days
3 More than half the days
4 Nearly every day

B1k. Little interest or pleasure in doing things
B1l. Feeling down, depressed or hopeless

B2. In the **last 4 weeks**, have you had an anxiety attack--suddenly feeling fear or panic?

1 Yes
0 No

{PRG: SHOW B2a-B3 IF B2=1; OTHERWISE SKIP TO

B4a} B2a. Has this happened before?

1 Yes
0 No

B2b. Do some of these attacks come suddenly out of the blue--that is, in situations where you don't expect to be nervous or uncomfortable?

1 Yes
0 No

B2c. Do these attacks bother you a lot or are you worried about having another attack?

1 Yes
0 No

B3. Think about your last bad anxiety attack.

1 Yes
0 No

B3a. Were you short of breath?
B3b. Did your heart race, pound or skip? B3c. Did you have chest pain or pressure? B3d. Did you sweat?
B3e. Did you feel as if you were choking? B3f. Did you have hot flashes or chills?
B3g. Did you have nausea or an upset stomach, or the feeling that you were going to have diarrhea? B3h. Did you feel dizzy, unsteady, or faint?
B3i. Did you have tingling or numbness in parts of your body? B3j. Did you tremble or shake?
B3k. Were you afraid you were dying?

B4a. Over the **last 4 weeks**, how often have you been bothered by feeling nervous, anxious, on edge, or worrying a lot about different things?

1 Not at all
2 Several days
3 More than half the days

{PRG: SHOW B4 IF B4a=2-3; OTHERWISE SKIP TO B5a}

B4. Over the **last 4 weeks**, how often have you been bothered by any of the following problems?

1 Not at all
2 Several days
3 More than half the days

B4b. Feeling restless so that it is hard to sit still
B4c. Getting tired very easily
B4d. Muscle tension, aches, or soreness
B4e. Trouble falling asleep or staying asleep
B4f. Trouble concentrating on things, such as reading a book or watching TV
B4g. Becoming easily annoyed or irritable

B5a. Do you currently weigh less than other people think you ought to weigh?

1 Yes, much less
2 Yes, moderately less
3 Yes, slightly less
4 No

B5b_new. During the **past six months**, did you often eat within any two hour period what most people would regard as an unusually large amount of food?

1 Yes
0 No

{SHOW B5c_new IF B5b_new=1, OTHERWISE SKIP TO B5e}

B5c_new. During the times when you ate this way, did you often feel you couldn't stop eating or control what or how much you were eating?

1 Yes
0 No

{SHOW B5d_new IF B5c_new=1, OTHERWISE SKIP TO B5e_new}

B5d_new. During the **past six months**, how often, on average, did you have times when you ate this way – that is, large amounts of food plus the feeling that your eating was out of control? (There may have been some weeks when it was not present – just average those in.)

1 Less than one day a week
2 One day a week
3 Two or three days a week
4 Four or five days a week
5 Nearly every day

{PRG: IF A2=1, SHOW B5e; OTHERWISE SKIP TO B5f}

B5e. Have you ever lost your menstrual period as a result of being at a low weight?

1 Yes, I missed 3 or more menstrual periods in a row
2 Yes, I missed 1 or 2 menstrual periods

3 I think I am only menstruating because I take the birth control pill
4 No

B5f. Are your body shape and weight among the most important things that affect how you feel about yourself?

1 Yes, they are the most important aspect of my self-regard
2 Yes, they are one of the most important aspects of my self-regard
3 No, other aspects are more important

B5g. Do you need to be very thin in order to feel good about yourself?

1 Yes
0 No

B5h. I think I am…

1 Very underweight
2 Somewhat underweight
3 Normal weight
4 Somewhat overweight
5 Very overweight

B6. Have you ever been diagnosed with any of the following conditions by a health professional (e.g. primary care doctor, psychiatrist, psychologist, etc.)? *(Select all that apply)*

1 Depression or other mood disorders (e.g., major depressive disorder, bipolar/manic depression, dysthymia)
2 Anxiety (e.g., generalized anxiety disorder, phobias, obsessive-compulsive disorder, post- traumatic stress disorder)
3 Attention disorder or learning disability (e.g., attention deficit disorder, attention deficit hyperactivity disorder, learning disability)
4 Eating disorder (e.g., anorexia nervosa, bulimia nervosa)
5 Psychosis (e.g., schizophrenia, schizo-affective disorder)
6 Personality disorder (e.g., antisocial personality disorder, paranoid personality disorder, schizoid personality disorder)
7 Substance abuse disorder (e.g., alcohol abuse, abuse of other drugs)
8 No, none of these
9 Don't know

{PRG: SHOW B6a.1 IF B6=1; OTHERWISE SKIP TO B8}

B6a.1 Specifically, which of the following **depression** problems were you diagnosed with by a professional? *(Select all that apply)*

1 Major depressive disorder
2 Dysthymia (chronic depression)
3 Bipolar/manic depression
4 Cyclothymia (can be thought of as low-level bipolar disorder)
5 Other (specify) [OPEN TEXT]
6 Don't know

{PRG: SHOW B6a.2 IF B6=2; OTHERWISE SKIP TO B8}

B6a.2. Specifically, which of the following **anxiety disorders** were you diagnosed with by a professional? *(Select all that apply)*

1 Generalized anxiety disorder
2 Panic disorder
3 Agoraphobia
4 Specific phobia (e.g. claustrophobia, arachnophobia, etc)
5 Social phobia
6 Obsessive-compulsive disorder
7 Acute stress disorder
8 Post traumatic stress disorder (PTSD)
9 Other (specify) [OPEN TEXT]
10 Don't know

{PRG: SHOW B6a.3 IF B6=3; OTHERWISE SKIP TO B8}

B6a.3. Specifically which of the following **attention or learning disability disorders** were you diagnosed with by a professional? *(Select all that apply)*

1 Attention deficit hyperactivity disorder (ADHD or ADD)
2 Other learning disability
3 Other (specify) [OPEN TEXT]
4 Don't know

{PRG: SHOW B6a.4 IF B6=4; OTHERWISE SKIP TO B8}

B6a.4. Specifically, which of the following **eating disorders** were you diagnosed with by a professional? *(Select all that apply)*

1 Anorexia
2 Bulimia
3 Binge-eating Disorder
4 Other (specify) [OPEN TEXT]
5 Don't know

{PRG: SHOW B6a.5 IF B6=5; OTHERWISE SKIP TO B8}

B6a.5. Specifically, which of the following **psychotic disorders** were you diagnosed with by a professional? *(Select all that apply)*

1 Schizophrenia
2 Schizo-affective disorder
3 Brief psychotic disorder
4 Delusional disorder
5 Schizophreniform disorder
6 Shared psychotic disorder
7 Other (specify) [OPEN TEXT]
8 Don't know

{PRG: SHOW B6a.6 IF B6=6; OTHERWISE SKIP TO B8}

B6a.6. Specifically, which of the following **personality disorders** were you diagnosed with by a professional? *(Select all that apply)*

1 Antisocial personality disorder
2 Avoidant personality disorder
3 Borderline personality disorder
4 Dependent personality disorder
5 Histrionic personality disorder
6 Narcissistic personality disorder
7 Obsessive-Compulsive personality disorder
8 Paranoid personality disorder
9 Schizoid personality disorder
10 Schizotypal personality disorder
11 Other (specify) [OPEN TEXT]
12 Don't know

{PRG: SHOW B6a.7 IF B6=7; OTHERWISE SKIP TO B8}

B6a.7. Specifically, which of the following **substance abuse disorders** were you diagnosed with by a professional? *(Select all that apply)*

1 Alcohol abuse or other alcohol-related disorders
2 Other (specify) [OPEN TEXT]
3 Don't know

B8. In the **past 4 weeks**, how many days have you felt that emotional or mental difficulties have hurt your academic performance?

1 None
2 1-2 days
3 3-5 days
4 6 or more days

B9. This question asks about ways you may have hurt yourself on purpose, without intending to kill yourself. **In the past year**, have you ever done any of the following intentionally? *(Select all that apply)*

1 Cut myself
2 Burned myself
3 Punched or banged myself
4 Scratched myself
5 Pulled my hair
6 Bit myself
7 Interfered with wound healing
8 Carved words or symbols into skin
9 Rubbed sharp objects into skin
10 Punched or banged an object to hurt myself
11 Other (specify) [OPEN TEXT]
12 No, none of these

{PRG: SHOW B9a IF B9=ANY 1-11; OTHERWISE SKIP TO B10}

B9a. On average, how often **in the past year** did you hurt yourself on purpose, without intending to kill yourself?

1 Once or twice
2 Once a month or less
3 2 or 3 times a month
4 Once or twice a week
5 3 to 5 days a week
6 Nearly every day, or every day

B10. In the **past year**, did you ever seriously think about attempting suicide?

1 Yes
0 No

{PRG: SHOW B10b-B10c IF B10=1; OTHERWISE SKIP TO

C1} B10b. In the **past year**, did you make a plan for attempting

suicide?

1 Yes
0 No

B10c. In the **past year**, did you attempt suicide?

1 Yes
0 No

C1. Now we would like to ask you a few questions about your current lifestyle. Remember that your responses will be kept confidential.

How often, if ever, have you used any of the substances listed below? Do not include anything you used prescribed to you by a doctor.

1 Never used
2 Used, but NOT in past 12 months
3 Used in past 12 months, but NOT in past 30 days
4 Used in past 30 days

C1aa.
Cigarettes
C1a. Marijuana (or hashish, blunts, Spice,
K2) C1b. Cocaine (crack, coke)
C1d. Barbiturates or sedatives (prescription-type sleeping pills like Seconal, Ambien, Nembutal, downs or Yellow Jackets)

C1f. Tranquilizers (prescription-type drugs like Valium, Librium, Xanax, Ativan, Klonopin) C1e. Amphetamines (methamphetamines, crystal meth, speed, uppers, ups)
C1g. Heroin
C1h. Other opiate-type prescription drugs (codeine, morphine, Demerol, Percodan, Percocet, Vicodin, Darvon, Darvocet)
C1i. LSD
C1j. Other psychedelics or hallucinogens like mushrooms, mescaline or PCP C1k. Ecstasy (MDMA)
C1m. Club drugs (Special K, Super K, Ketamine, Liquid G, GHB) C1l. Waterpipe smoking (hookah, arghile, shisha)

C3. In the **past 30 days**, about how many **hours per week** on average did you spend exercising*? (include any exercise of moderate or higher intensity, where "moderate intensity" would be roughly equivalent to brisk walking or bicycling)*

1 Less than 1
2 1-2
3 3-4
4 5 or more

C3a. About how much do you weigh?

[INSERT NUMERIC RESPONSE 50-1000] pounds

{PRG: C3b1 AND C3b2 ON SAME SCREEN}

C3bTEXT. About how tall are you?

C3b1. [INSERT NUMERIC RESPONSE 3-7] feet
C3b2. [INSERT NUMERIC RESPONSE 0-11] inches

ALC6. {PRG: IF PRE_0=1 DISPLAY "The following questions ask about how much you drink. A "drink" means any of the following:

A 12-ounce can or bottle of beer
A 4-ounce glass of wine
A shot of liquor straight or in a mixed drink"}

During the **last two weeks**, how many times have you had **{PRG: IF A2=1 DISPLAY "four"; OTHERWISE DISPLAY "five"} or more drinks** in a row?

1 None
2 Once
3 Twice
4 3 to 5 times
5 6 to 9 times
6 10 or more times

{PRG: IF ALC6 > 1, SHOW ALC7; OTHERWISE SKIP TO C5}

ALC7. The last time that you had {PRG: IF A2=1 DISPLAY "four"; OTHERWISE DISPLAY "five"} OR MORE drinks in a row, how many drinks did you actually have?

{PRG: DISPLAY RESPONSE 1 IF A2=1}

1 4 drinks
2 5 drinks
3 6 drinks
4 7 drinks
5 8 drinks
6 9 drinks
7 10-14 drinks
8 15 or more drinks

ALC8. How long did it take you to consume the drinks you indicated in the previous question?

1 1 hour or less
2 2 hours
3 3 hours
4 4 hours
5 5 hours
6 6 hours or more

C5. **In the past 12 months**, on approximately how many days did you make any sort of bet? *(By "bet" we mean betting on sports, playing cards for money, playing gambling games online, buying lottery tickets, playing pool for money, playing slot machines, betting on horse races, or any other kind of betting or gambling)*

0 None
1 Record number of days: [NUMERIC RESPONSE 0-365] days

ALC39a. How many people have you had sexual intercourse with in the PAST 30 DAYS?

1 0
2 1
3 2
4 3 or more

C6. **In the past 12 months**, how many times have you been treated unfairly because of your race, ethnicity, or cultural background?

1 Never
2 Once in a while
3 Sometimes
4 A lot
5 Most of the time
6 Almost all of the time

C7. During this semester so far, about how many **hours per day on average** have you spent doing school work?

1 Less than 1 hour
2 1 hour
3 2 hours
4 3 hours
5 4 hours
6 5 hours
7 6 hours
8 7 hours
9 8 or more hours

C8a. During this school year, at approximately what time have you typically gone to sleep on: *(Please record your response using the format 00:00**AM** or 00:00**PM**.)*

C8a_1. Weeknights? [TIME RESPONSE]
C8a_2. Weekend nights? [TIME RESPONSE]

C8b. During this school year, at approximately what time have you typically woken up on: *(Please record your response using the format 00:00**AM** or 00:00**PM**.)*

C8b_1. Weekdays? [TIME RESPONSE]
C8b_2. Weekend days? [TIME RESPONSE]

C9a. During this school year, on how many days have you taken naps during a typical week?

0 I don't take naps
1 1
2 2
3 3
4 4
5 5
6 6
7 7

{PRG: SHOW C9b IF C9a > 0, OTHERWISE SKIP TO D1}

C9b. How long is your typical nap?

1 Less than 1 hour
2 Between 1 and 2 hours
3 Between 2 and 3 hours
4 More than 3 hours

Knowledge and Beliefs About Services

The next questions will ask you about your knowledge and beliefs about {PRG: IF PRE_0=1 DISPLAY "services and treatment for mental health", OTHERWISE DISPLAY "treatment and counseling services for someone who has an alcohol problem"}.

Please indicate how strongly you agree or disagree with the following statement:

D1. If you needed to seek professional help for your mental or emotional health while attending [DISPLAY PRE_1], you would know where to go.

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree

D2. What have you heard from other students about the quality of mental health and psychological counseling services on your campus?

1 I have mostly heard negative opinions
2 I have heard an even mix of negative and positive opinions
3 I have mostly heard positive opinions
4 I haven't heard anything

D4. How helpful on average do you think **therapy or counseling** is, when provided competently, for people your age who are clinically depressed?

1 Very helpful
2 Quite helpful
3 A little helpful
4 Not at all helpful

{PRG: SHOW D5 IF PRE_0=1, OTHERWISE SKIP TO D6}

D5. How helpful on average do you think **medication** is, when provided competently, for people your age who are clinically depressed?

1 Very helpful
2 Quite helpful
3 A little helpful
4 Not at all helpful

Please indicate whether you agree or disagree with the following statements.

1 Strongly agree
2 Agree
3 Somewhat agree
4 Somewhat disagree
5 Disagree
6 Strongly disagree

D6a. Most people would willingly accept someone who has received mental health treatment as a close friend
D6e. Most people feel that receiving mental health treatment is a sign of personal failure
D6g. Most people think less of a person who has received mental health treatment

Please indicate whether you agree or disagree with the following statements.

1 Strongly agree
2 Agree
3 Somewhat agree
4 Somewhat disagree
5 Disagree
6 Strongly disagree

D7a. I would willingly accept someone who has received mental health treatment as a close friend
D7c. I feel that receiving mental health treatment is a sign of personal failure
D7b. I would think less of a person who has received mental health treatment

D11. As far as you know, how many of your close friends or family have ever sought professional help for an emotional or mental health problem?

1 None
2 1 or 2
3 3 or more
4 Don't know

Experiences With Services and Support

The next questions will ask you about your experiences using mental health services (medication or counseling/therapy).

E0. How much do you agree with the following statement: In the **past 12 months**, I needed help for emotional or mental health problems such as feeling sad, blue, anxious or nervous.

1 Strongly agree
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly Disagree

{PRG: MAKE E1.7.TEXT REQUIRED IF E1.7 IS SELECTED. DISPLAY CUSTOM ERROR MESSAGE: "Please specify your response in the text field provided."}

E1. In the **past 12 months** have you taken any of the following types of medications?

Please count only those you took, or are taking, several times per week. *(Select all that apply)*

1 **Psychostimulants** (e.g., methylphenidate (Ritalin, or Concerta), amphetamine salts (Adderall), dextroamphetamine (Dexedrine), etc.)
2 **Antidepressants** (e.g., fluoxetine (Prozac), sertraline (Zoloft), paroxetine (Paxil), escitalopram (Lexapro), venlafaxine (Effexor), buproprion (Wellbutrin), etc.)
3 **Anti-psychotics** (e.g., haloperidol (Haldol), clozapine (Clozaril), risperidone (Risperdal), olanzapine (Zyprexa), etc.)
4 **Anti-anxiety medications** (e.g., lorazepam (Ativan), clonazepam (Klonopin), alprazolam (Xanax), buspirone (BuSpar), etc.)
5 **Mood stabilizers** (e.g., lithium, valproate (Depakote), lamotrigine (Lamictal), carbamazapine (Tegretol), etc.)
6 **Sleep medications** (e.g., zolpidem (Ambien), zaleplon (Sonata), etc.)
7 Other medication for mental or emotional health (specify) [OPEN TEXT]
8 None
9 Don't know

{PRG: SHOW E1a.-E1d. IF E1=ANY 1-7; OTHERWISE SKIP TO E2}

E1a. Who wrote your most recent prescription for the medication(s) you noted in the last question? *(Select all that apply)*

1 A general practitioner, nurse practitioner, or primary care physician
2 A psychiatrist
3 Other type of doctor (specify) [OPEN TEXT]
4 Took the medication(s) without a prescription
5 Don't know

E1b. **In the past 12 months** how many times have you discussed with a doctor or other health professional your use of the medication(s) you just noted?

1 Not at all
2 1-2 times
3 3-5 times
4 More than 5 times
5 Don't know

{PRG: SHOW E1c AND E1d IF E1=ANY 1-7; OTHERWISE SKIP TO E2}

E1c. Of the medication(s) you just noted, which are you **currently** taking?

{PRG: SHOW 1 IF E1=1}
1 **Psychostimulants** (e.g., methylphenidate (Ritalin, or Concerta), amphetamine salts (Adderall), dextroamphetamine (Dexedrine), etc.)
{PRG: SHOW 2 IF E1=2}
2 **Antidepressants** (e.g., fluorxetine (Prozac), sertraline (Zoloft), paroxetine (Paxil), escitalopram (Lexapro), venlafaxine (Effexor), buproprion (Wellbutrin), etc.)
{PRG: SHOW 3 IF E1=3}
3 **Anti-psychotics** (e.g., haloperidol (Haldol), clozapine (Clozaril), risperidone (Risperdal), olanzapine (Zyprexa), etc.)
{PRG: SHOW 4 IF E1=4}
4 **Anti-anxiety medications** (e.g., lorazepam (Ativan), clonazepam (Klonopin), alprazolam (Xanax), buspirone (BuSpar), etc.)
{PRG: SHOW 5 IF E1=5}
5 **Mood stabilizers** (e.g., lithium, valproate (Depakote), lamotrigine (Lamictal), carbamazapine (Tegretol), etc.)
{PRG: SHOW 6 IF E1=6}
6 **Sleep medications** (e.g., zolpidem (Ambien), zaleplon (Sonata), etc.)
{PRG: SHOW 7 IF E1=7}
7 {Display E1.7 TEXT}
8 None of the above

E1d. **During the past year**, for how long, in total, have you taken the following medication you just noted:

1 Less than 1 month
2 Between 1 and 2 months
3 2 months or more

{PRG: DISPLAY IF E1=1}
E1d.1 **Psychostimulants** (e.g., methylphenidate (Ritalin, or Concerta), amphetamine salts (Adderall), dextroamphetamine (Dexedrine), etc.)
{PRG: DISPLAY IF E1=2}
E1d.2 **Antidepressants** (e.g., fluorxetine (Prozac), sertraline (Zoloft), paroxetine (Paxil), escitalopram (Lexapro), venlafaxine (Effexor), buproprion (Wellbutrin), etc.)
{PRG: DISPLAY IF E1=3}
E1d.3 **Anti-psychotics** (e.g., haloperidol (Haldol), clozapine (Clozaril), risperidone (Risperdal), olanzapine (Zyprexa), etc.)
{PRG: DISPLAY IF E1=4}
E1d.4 **Anti-anxiety medications** (e.g., lorazepam (Ativan), clonazepam (Klonopin), alprazolam (Xanax), buspirone (BuSpar), etc.)
{PRG: DISPLAY IF E1=5}
E1d.5 **Mood stabilizers** (e.g., lithium, valproate (Depakote), lamotrigine (Lamictal), carbamazapine (Tegretol), etc.)
{PRG: DISPLAY IF E1=6}
E1d.6 **Sleep medications** (e.g., zolpidem (Ambien), zaleplon (Sonata), etc.)
{PRG: DISPLAY IF E1=7}
E1d.7 {Display E1.7 TEXT}

E2. In the **past 12 months** have you received counseling or therapy for your mental or emotional health from a health professional (such as psychiatrist, psychologist, social worker, or primary care doctor)?

1 Yes
0 No

{PRG: SHOW E2a.-E2d. IF ANY E2=1; OTHERWISE SKIP TO FILTER BEFORE E2F}

E2a. Are you **currently** receiving counseling or therapy?

1 Yes
0 No

E2b. . How many total visits or sessions for counseling or therapy have you had in the past 12 months?

1 1-3
2 4-6
3 7-9
4 10 or more

{PRG: NOTE: Response options 1-3 will be programmed according to a list that we will request from each school.}

E2c. From which of the following places did you receive counseling or therapy? *(Check all that apply)*

1 [Insert name of institution's student counseling services]
2 [Insert name of institution's campus health services]
3 [list other campus counseling or health service providers]
4 Psychiatric Emergency Services/Psych Emergency Room (ER)
5 Inpatient psychiatric hospital
6 Partial hospitalization program
7 Provider in the local community (not on campus)
8 Provider in another location (such as your hometown)
9 Other (specify) [OPEN TEXT]
10 Don't know

6. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at [Insert name of institution's student counseling services]?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d_14581301_1. Convenient hours
E2d_14581301_2. Location
E2d_14581301_3. Quality of therapists/counselors
E2d_14581301_5. Respect for your privacy concerns
E2d_14581301_6. Ability to schedule appointments without long delays

E2d_13677401_1- E2d_13677401_6. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months [Insert name of institution's campus health services]?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d_13677401_1. Convenient hours
E2d_13677401_2. Location
E2d_13677401_3. Quality of therapists/counselors
E2d_13677401_5. Respect for your privacy concerns
E2d_13677401_6. Ability to schedule appointments without long delays

E2d_13677402_1- E2d_13677402_6. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at [list other campus counseling or health service providers]?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d_13677402_1. Convenient hours
E2d_13677402_2. Location
E2d_13677402_3. Quality of therapists/counselors
E2d_13677402_5. Respect for your privacy concerns
E2d_13677402_6. Ability to schedule appointments without long delays

{PRG: SHOW GRID E2d1_4-E2d5_4 IF E2c=4; OTHERWISE SKIP TO E2d5}

E2d4. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at **the Psychiatric Emergency Services/Psych Emergency Room (ER)**?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d4_1. Convenient hours
E2d4_2. Location
E2d4_3. Quality of therapists/counselors
E2d4_5. Respect for your privacy concerns
E2d4_6. Ability to schedule appointments without long delays
{PRG: SHOW GRID E2d1_5-E2d5_5 IF E2c=5; OTHERWISE SKIP TO E2d6}

E2d5. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at **the inpatient psychiatric hospital**?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d5_1. Convenient hours
E2d5_2. Location
E2d5_3. Quality of therapists/counselors
E2d5_5. Respect for your privacy concerns
E2d5_6. Ability to schedule appointments without long delays

{PRG: SHOW GRID E2d1_6-E2d5_6 IF E2c=6; OTHERWISE SKIP TO E2d7}

E2d6. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at **the partial hospitalization program**?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d6_1. Convenient hours
E2d6_2. Location
E2d6_3. Quality of therapists/counselors
E2d6_5. Respect for your privacy concerns
E2d6_6. Ability to schedule appointments without long delays

{PRG: SHOW GRID E2d1_7-E2d5_7 IF E2c=7; OTHERWISE SKIP TO E2d58}

E2d7. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at **your provider in the local community (not on campus)**?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d7_1. Convenient hours
E2d7_2. Location
E2d7_3. Quality of therapists/counselors
E2d7_5. Respect for your privacy concerns
E2d7_6. Ability to schedule appointments without long delays

{PRG: SHOW GRID E2d1_8-E2d5_8 IF E2c=8; OTHERWISE SKIP TO E2d9}

E2d8. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at **your provider in another location (such as your hometown)**?

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d8_1. Convenient hours
E2d8_2. Location
E2d8_3. Quality of therapists/counselors
E2d8_5. Respect for your privacy concerns
E2d8_6. Ability to schedule appointments without long delays

{PRG: SHOW GRID E2d1_9-E2d5_9 IF E2c=9; OTHERWISE SKIP TO E2g}

E2d9. How satisfied/dissatisfied are you with the following aspects of your therapy or counseling that you received in the past 12 months at **[DISPLAY E2c 9 OPEN TEXT RESPONSE]**?

{PRG: IF E2c 9 OPEN TEXT RESPONSE IS BLANK, DISPLAY "(other counseling or therapy provider not provided)"}

1 Very dissatisfied
2 Dissatisfied
3 Somewhat dissatisfied
4 Somewhat satisfied
5 Satisfied
6 Very satisfied

E2d9_1. Convenient hours
E2d9_2. Location
E2d9_3. Quality of therapists/counselors
E2d9_5. Respect for your privacy concerns
E2d9_6. Ability to schedule appointments without long delays

{PRG: SHOW E2g IF E2=1; OTHERWISE SKIP TO FILTER BEFORE E2f}

E2g. If there is anything else you would like to note about your therapy and counseling experiences, please feel free to do so here.

[OPEN TEXT]

E2f. In the **past 12 months** have you visited any medical provider, such as a primary care doctor or other type of doctor, for a check-up or any other medical reasons?

1 Yes
2 No
3 Don't know

E2g2. In the **past 12 months** have you received counseling or support for your mental or emotional health from any of the following sources? *(Select all that apply)*

1 Roommate
2 Friend (who is not a roommate)
3 Significant other
4 Family member
5 Religious counselor or other religious contact
6 Support group
7 Other non-clinical source (specify)
8 None of the above

E2h. If you were experiencing serious emotional distress, whom would you talk to about this? *(Select all that apply)*

1 Professional clinician (e.g., psychologist, counselor, or psychiatrist)
2 Roommate
3 Friend (who is not a roommate)
4 Significant other
5 Family member
6 Religious counselor or other religious contact
7 Support group
8 Other non-clinical source (specify)
9 No one

The next few questions ask about difficult situations in the past year that you may have witnessed, and whether you have intervened (by trying to help). Please select the most accurate answers.

E2i. In the past year, I have intervened in the following situations:
(Select all that apply)

1 Someone was drinking too much
2 Someone was at risk of being sexually assaulted
3 Someone was using hurtful language (e.g., bullying, sexist, racist, or homophobic comments)
4 Someone was experiencing significant emotional distress or thoughts of suicide
5 Other *(please specify)* [TEXT RESPONSE]
6 None of the above

E2j. In the past year, I witnessed the following risky or difficult situations but did NOT intervene:
(Select all that apply)

1 Someone was drinking too much
2 Someone was at risk of being sexually assaulted
3 Someone was using hurtful language (e.g., bullying, sexist, racist, or homophobic comments)
4 Someone was experiencing significant emotional distress or thoughts of suicide
5 Other *(please specify)* [TEXT RESPONSE]
6 None of the above

{PRG: SHOW E2k IF E2j = 1 OR 2 OR 3 OR 4 OR 5}

E2k. In cases where I decided not to intervene, this was because:
(Select all that apply)

1 I was afraid of embarrassing myself
2 I assumed someone else would do something
3 I didn't know what to do
4 I didn't feel confident
5 I felt it was none of my business
6 I was afraid my friends wouldn't support me
7 I felt it was unsafe
8 I was afraid I'd get in trouble
9 Other *(please specify)* [TEXT RESPONSE]

{PRG: SHOW INTRO1 AND E3 IF ((E1=1-7 OR E2=1); OTHERWISE SKIP TO FILTER BEFORE E4}

INTRO1
The next questions will ask you about difficulties you may have experienced in receiving mental health services (medication and/or counseling/therapy and reasons you **did** receive these services. Please spend some time reading the many listed responses, and select any that apply. These questions are long but **your answers are very important for us to understand why students might not always get help they need.**

E3. In the **past 12 months**, which of the following factors have caused you to receive fewer services (counseling, therapy, or medications) for your mental or emotional health than you would have otherwise received? *(Select all that apply)*

There are financial reasons (too expensive, no insurance)
The location is inconvenient
The hours are inconvenient
I don't have enough time
The number of sessions is too limited
The waiting time until I can get an appointment is too long
I am concerned about privacy
I worry about what others will think of me
I worry that my actions will be documented in my academic record
I worry that my actions will be documented in my medical record
I worry that someone will notify my parents
I fear being hospitalized
People providing services aren't sensitive enough to cultural issues
People providing services aren't sensitive enough to sexual identity issues
I have a hard time communicating in English
I question the quality of my options
I question whether medication or therapy is helpful
I have had bad experiences with medication and/or therapy
The problem will get better by itself
I question how serious my needs are
I don't think anyone can understand my problems
Stress is normal in college/graduate school
I get a lot of support from other sources, such as friends and family
I prefer to deal with issues on my own
Other (specify) [OPEN TEXT]
There have been no barriers that I can think of

{PRG: SHOW E3a IF (E1=1-7 OR E2=1) OTHERWISE SKIP TO E5}

E3a. Earlier in this survey you reported that you have taken medication and/or received counseling/therapy in the past 12 months for your mental or emotional health. Which of the following are important reasons why you received those services? *(Select all that apply)*

1	I decided on my own to seek help
2	A friend encouraged me to seek help
3	A friend pressured me to seek help
4	A family member encouraged me to seek help
5	A family member pressured me to seek help
6	Someone other than a friend or family member encouraged me to seek help (specify person's relationship to you) [OPEN TEXT]
5	I was mandated to seek help by campus staff
8	I acquired more information about my options from (specify where) [OPEN TEXT]
9	Other (specify) [OPEN TEXT]

{PRG: SHOW INTRO2 AND E4 IF E1=8, 9, OR BLANK AND E2=2 OR BLANK OTHERWISE SKIP TO E5}

INTRO2
The next questions will ask you about reasons you may not have used mental health services in the last 12 months. Please spend some time reading the many listed responses, and select any that apply. These questions are long but **your answers are very important for us to understand why students might not get the help they need.**

E4. In the **past 12 months** which of the following explain why you have not received medication or therapy for your mental or emotional health? *(Select all that apply)*

I have not had any need for mental health services
I haven't had the chance to go but I plan to
I prefer to deal with issues on my own
There are financial reasons (too expensive, no insurance)
The location is inconvenient
The hours are inconvenient
I don't have time
The number of sessions is too limited
The waiting time until I can get an appointment is too long
I am concerned about privacy
I worry about what others will think of me
I worry that my actions will be documented on my **academic** record
I worry that my actions will be documented in my **medical** record
I worry that someone will notify my parents
I fear being hospitalized
People providing services aren't sensitive enough to cultural issues
People providing services aren't sensitive enough to sexual identity issues
I have a hard time communicating in English
I question the quality of my options
I question whether medication or therapy is helpful
I have had a bad experience with medication and/or therapy
The problem will get better by itself
I question how serious my needs are
I don't think anyone can understand my problems
Stress is normal in college/graduate school

I get a lot of support from other sources, such as family and friends
Other (specify) [OPEN TEXT]
There have been no barriers that I can think of

E5. What is the source of your current health insurance coverage? *(Select all that apply)*

1 I do not have any health insurance coverage (uncovered)
2 I have health insurance through my parent(s) or their employer
3 I have health insurance through my employer
4 I have health insurance through my spouse's employer
5 I have a student health insurance plan
6 I have health insurance through an embassy or sponsoring agency for international students
7 I have individual health insurance purchased directly from an insurance carrier
8 I have Medicaid or other governmental insurance
9 I am uncertain about whether I have health insurance
10 I have health insurance but am uncertain about where it is from

{PRG: SHOW E7 AND E8 IF E5=2-10; OTHERWISE SKIP TO F1}

E7. Do you know if your health insurance plan would provide **any** coverage for a visit to a mental health professional (psychiatrist, psychologist, clinical social worker, etc.)?

1 Yes, it definitely would
2 I think it would but am not sure
3 I have no idea
4 I think it would **not** but am not sure
5 No, it definitely would not

E8. Does your current health insurance plan meet your needs for mental health services?

1 I have not needed to use my current insurance plan to cover mental health services
2 Yes, everything I have needed is covered
3 No, the coverage is inadequate to meet my needs

{PRG: SHOW E8a IF E8=3; OTHERWISE SKIP TO F1}

E8a. I feel that coverage is inadequate because my plan… *(Select all that apply)*

1 Doesn't cover any mental health services
2 Doesn't cover preexisting conditions
3 Doesn't cover certain conditions
4 Has a co-pay that is too expensive
5 Has a deductible that is too expensive
6 Doesn't cover certain types of services or providers
7 Has a limit on the number of services that are covered

Environment

The next set of questions will ask you about your academic and social environment. The survey is almost over.

F1. During this school year have you talked with any academic personnel (such as instructors, advisors, or other academic staff) about any mental health problems that were affecting your academic performance?

1 Yes
0 No

{SHOW F1a IF F1=1, OTHERWISE SKIP TO F2}

F1a. Overall, how supportive was the response of the academic personnel with whom you talked?

1 Very supportive
2 Supportive
3 Not supportive
4 Very unsupportive

F2. If you had a mental health problem that you believed was affecting your academic performance, which people at school would you talk to? *(Select all that apply)*

1 Professor from one of my classes
2 Academic advisor
3 Another faculty member
4 Teaching assistant
5 Student services staff
6 Dean of Students or class dean
7 No one
8 Other (specify) [OPEN TEXT]

F3. How would you rate the overall competitiveness between students in your classes?

1 Very competitive
2 Competitive
3 Somewhat competitive
4 Not competitive
5 Very uncompetitive
6 Not sure/don't know/not applicable

We are interested in how you feel about the following statements. Please indicate how you feel about each statement.

1 Strongly disagree
2 Somewhat disagree
3 Neutral
4 Somewhat agree
5 Strongly agree

F6a. I get the emotional help and support I need from my family. F6b. My friends really try to help me.

FX. If there is any additional information you feel is important for researchers to know about your experiences with the topics in this questionnaire, please feel free to write it here.

[OPEN TEXT]