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The Effect of Anxiety and Depression on College Students' Academic Performance: Exploring Social Support as a Moderator

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ABSTRACT

The purpose of this study is to explore how social support is related to the overall well-being of college students. Literature suggests social support buffers a negative effect of distress on academic performance. This study attempts to provide practical information for a program called Student Opportunities, Advocacy, and Resources (SOAR) at Abilene Christian University (ACU), which assists students and connects them to resources available to support their path to success. A multiple linear regression was conducted to examine the association between anxiety, depression, social support, and academic performance using a sample of 93 students enrolled in this program in Fall of 2016. Some findings were not congruent with the literature. Although social support had a significant moderating effect, it did not necessarily buffer the negative influence of depression on academic performance. Surprisingly, among the group who reported having low social support, depression had a positive relationship with academic performance. After eliminating an insignificant moderating effect of social support on the relationship between anxiety and academic performance, the total effect of anxiety on academic performance was not significant. The findings show gender was the strongest predictor; females performed higher than males. Past academic performance had a positive effect on current academic performance. The implication of the findings is not to disregard mental health issues; rather, it is possible that these students are more difficult to reach due to less visible symptoms and/or succeeding academically. Knowing that this population could be silently suffering makes it imperative for college campuses to

implement programs such as SOAR that reaches out to students who may not seek support or show signs that they are experiencing difficulties due to various stressors during this developmental transition. Considering limitations of this study, further investigation is needed to validate these findings.

The Effect of Anxiety and Depression on College Students' Academic Performance:

Exploring Social Support as a Moderator

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This thesis, directed and approved by the candidate's committee, has been accepted by the Graduate Council of Abilene Christian University in partial fulfillment of the requirements for the degree

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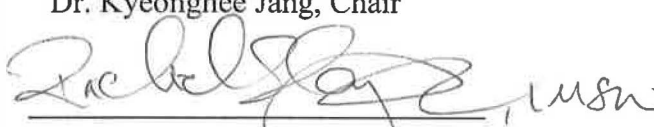
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CHAPTER I

INTRODUCTION

Mental health issues affect many people across the country. These types of challenges are not new and have been around for a long time. However, awareness of these issues has increased in recent years. Approximately twenty percent of individuals in the United States may have a mental illness that has been, or could be diagnosed (Khubchandani, Brey, Kotecki, Kleinfelder & Anderson, 2016). Depression and anxiety are the most common types of mental disorders, and comorbidity is also very common with these two disorders. Many individuals with anxiety also have depression and vice versa. Anxiety and depression have been found to be more prevalent among college students than the general population (American College Health Association, 2013; Beiter, Nash, McCrady, Rhoades, Linscomb, Clarahan, & Sammut 2015; Holliday, Anderson, Williams, Bird, Matloc, Ali, & Suris, 2016). Many colleges and universities have implemented counseling and/or programs on campus that are specifically designed to help to combat and address the mental health issues of their students.

Save our Students (SOS) was created after seeing a need for more student support at Abilene Christian University (ACU), a private, Christian university located in Abilene, Texas. The program's name was then changed to 'Support our Students' as a more positive and approachable option for students. During a transition in leadership, the program was renamed 'Student Opportunities, Resources, and Advocacy' or 'SOAR' in the summer of 2014. SOAR is a program that is designed to create an environment where

students can discuss any difficulties they are facing, receive social support, as well as connect them with resources to help them to overcome them. The mission of SOAR is to: "Partner with faculty, staff, parents and students to assist ACU students and connect them to resources available to support their path to success, and build a caring community at ACU by connecting students with faculty, staff, parents, and peers" (Overview of SOAR, 2016, para. 2). Level of social support is something that most of the SOAR coordinators gauge when meeting with the ACU students. The coordinators also survey their academic performance (including progress reports, GPA, courses withdrawn from) before meeting with them to assess their current level of success and potential issues. SOAR is a referral program where anyone concerned about a student may recommend him/her, the most common sources of recommendations are ACU faculty and staff, peers, and parents.

A significant portion of the students recommended to SOAR self-disclose that they have symptoms of anxiety and/or depression or have been diagnosed. Frequently, these students are struggling academically because of maladaptive coping. Some examples of these struggles are: low class attendance, failing to turn in assignments, lack of focus, low quality of work, and difficulty taking tests. Some repercussions of this are failing or withdrawing from courses, academic probation, academic suspension, or withdraw from the university.

The direct impact of failing to address anxiety and depression can impact the students academically, and other areas of their lives. SOAR is designed to provide a safe environment for students to discuss these issues and direct them to appropriate resources. Because of the nature of the program, it is difficult to measure whether the students with anxiety and/or depression accessed the support offered and whether that helped them to

better manage their symptoms. A literature review was done to examine the impact of anxiety and depression on academic performance, as well as the role that social support has in relation to these variables. Research involving social support as it relates to academic achievement in college students is limited. Particularly, there is a gap in literature exploring this relationship with students that have anxiety and/or depression. Few studies have been done to examine the effect of social support for students with anxiety and depression on academic performance. The following overarching research question was sought to answer: How do social support and psychological distress influence on academic performance among college students?

The purpose of this study is to explore how social support is related to the overall well-being of college students. This study can be used to better inform SOAR coordinators, but also may provide useful insight for faculty and staff at ACU and other campuses to better serve their students experiencing anxiety and depression symptoms.

CHAPTER II

LITERATURE REVIEW

Academic Performance as an Outcome

Academic performance becomes relevant at a young age. In grade school,

children are given report cards to inform their caretakers on how they are doing. In

middle school, academic performance determines whether you are in remedial, regular, or

advanced courses. In high school, students that perform well academically can take

advanced placement (AP) classes which can lead to college credit, depending on AP test

scores. At the high school level, grade point average (GPA) and class ranking carry more

weight as they are relied on by college admissions staff. Students study for and take

Scholastic Aptitude Tests (SAT) and American College Tests (ACT) and hope to get

higher scores to increase their chances of getting accepted to the colleges that they apply

to. The pressure increases to perform well academically as a student journeys through the

education system, and after high school this pattern continues. College students are under

immense pressure internally and externally to succeed. Most higher educational settings

reinforce the message that performing well academically is critical to being successful.

Many universities invest resources to assist students to succeed, such as tutoring,

supplemental instruction, or other support services, such as SOAR. SOAR provides

support and connects students to available resources. Some students perform better than

others in this environment depending on a multitude of factors. Intellectual aptitude,

cognitive ability, physical health, and mental health are just some of the factors that affect

students' ability to be successful in college (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005).

Factors such as past academic performance as well as standardized testing influence academic performance (Larson, Orr, & Warne, 2016). Standardized test scores and GPA are frequently used to measure intellectual aptitude. There is much debate as to how effectively grades measure academic performance. One of the arguments for this is the subjective nature of grades. Grades given by different professors can vary significantly for the same level of work. Some may even say that this undermines a GPA as a reliable measurement of academic achievement (Koper, Felton, Sanney, & Mitchell, 2015). It may be useful to have some brief background on how grades arose in the educational setting.

There are several constituencies of higher education that are interested in a way to assess institutions and students. These constituencies include, but are not limited to, governmental agencies (such as the Department of Education), non-profit organizations (foundations), and corporations (Felton and Koper, 2005). This can be to assess funding of the colleges and universities, as well as distributing financial aid. There are many merit-based grants and scholarships that allocate these funds to students using their GPA as a measurement. In addition, a GPA provides graduate programs with a tangible way to evaluate applicants and organizations with information that may be used in the hiring process. It is often a flawed system, but grading as a measurement has been used by some colleges as early as the 1860s (Bluemle, 2002). Acknowledging the drawbacks to the GPA measurement, Felton and Koper (2005) state:

As the political demands on the educational establishment require some

assessment of educational performance, the focus of the effort should be on

grades since other forms of assessment are subject to the same limitations and

political pressures that generate inflated grades. Other forms of assessment will be

no less corrupt than grades and would be redundant if relatively meaningful

grading standards were in effect. (p. 562)

GPA is influenced by a variety of factors such as cognitive ability, physical

health, and mental health. Intellectual aptitude and other cognitive factors can have an

influence on how students perform academically in a higher educational setting. Only

approximately twenty-five percent of variance in academic performance is attributed to

cognitive factors. (Wolfe & Johnson, 1995). The rest of variance in academic

performance can be attributed to factors related to physical and mental health. To

understand mental health of college students, it is important to be aware of the

developmental challenges and strengths that this demographic faces.

A study done by Larson, Orr, and Warne (2016) explored both physical and

mental health issues. Some of the physical health difficulties the study measured included

asthma, allergies, mononucleosis, strep throat, and urinary tract infections. The study

found that mental health issues were significantly and negatively associated with GPA.

The results of the study also showed that physical health issues were often correlated with

mental health issues. For example, students who had high levels of stress, or difficulties

handling stress, reported physical health issues affecting their diet and sleep. In working

with students with anxiety and depression, the physical health symptoms are often

reported as the presenting problem because they are the symptoms that are externalized (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005; Hartley, 2011).

Erikson's (1966) theory of psychosocial development is made up of eight stages in which an individual is confronted with various challenges. Because most individuals entering college are young adults, many of them are in the fifth and sixth stages of psychosocial development. The fifth stage is labeled identity vs. role confusion and the sixth stage of psychosocial development is labeled intimacy vs. isolation. This means that college students are trying to figure out their identity as well as learning to interact and connect with others. Social interactions and experiences can also affect and reshape identity by shifting values, attitudes, and goals (Brook & Willoughby, 2015).

Many individuals go to college or a university to pursue the career they would like, and for many, it is the logical next step. There are other benefits to higher education, such as lower crime rates, lower welfare rates, health, and happiness (McMahon and Oketch, 2013). Students in college or attending a university face several challenges. Increased academic expectations, meeting new people, being away from family for the first time, living on their own, increased exposure to alcohol and drugs, are some of the trials that this population experience. (Mitchell, MacInnes, & Morrison, 2008). Many college students can get through this transition successfully, but others have difficulty adjusting academically and/or psychosocially (Brook & Willoughby, 2015).

Because of these challenges, college students are a population that are at a high risk for mental health issues (Khubchandani, Brey, Kotecki, Kleinfelder, & Anderson, 2015). Depression and anxiety are found to be the most common mental health issues that are reported by this population. Difficulties with mental health symptoms can become

serious and even fatal if they go untreated. In a study done by Drum, Bronson, Denmark & Smith (2009), it was found that eighty percent of college students that committed suicides had no current or prior counseling. These results were found after surveying university and college counseling center directors and indicated that many students with mental health issues suffer silently and do not seek or receive treatment. Psychological distress, including depression and anxiety, has been associated with lower GPAs (Drybye, Thomas, & Shanafelt, 2006; Holliday et al., 2016). It is also important to note that sometimes academic pressures as well as adjusting to college can contribute to psychological disorders (Tanaka & Huba, 1987).

Anxiety and Academic Performance

The word anxiety is derived from Latin word "angere," meaning to cause distress (Sharma & Sharma, 2015). Anxiety has also been defined as a vague, uncomfortable feeling exacerbated by prolonged stress and the presence of multiple stressors (Lazarus & Folkman, 1984). Per the DSM V, generalized anxiety is "anticipation of future threat" and is often associated with "vigilance in preparation for future danger and cautious or avoidant behaviors" (American Psychiatric Association, 2013, p. 189). A study recently done by the Anxiety and Depression Association of America (n.d.) revealed that seven out of ten adults in the United States experience a moderate level of anxiety or stress daily (as cited in Beiter et al. 2014). Normative anxiety may include being concerned about issues such as money, health, and/or family problems, but those with an anxiety disorder are extremely worried about these or other things, even when there is little or no reason to worry about them. They are very anxious about getting through the day, have a

negative outlook, and think that things will go wrong. (National Institute of Mental Health, 2013).

Anxiety disorders feature excessive fear or anxiety that persist beyond developmentally appropriate lengths of time. These disorders cause clinically significant impairment or distress in important areas of functioning (American Psychiatric Association, 2013). The different types of anxiety disorders are categorized by the type of objects or situations that cause the anxiety and can have different ages of onset (American Psychiatric Association, 2013). One type of anxiety is social anxiety, which is marked by fear or anxiety of social situations in which individuals feel that he/she will be scrutinized by others. Social anxiety has been found as a barrier to developing social ties in several studies (Brook & Willoughby, 2015; Goguen, Hiester, & Nordstrom, 2010; Pascarella & Terenzini, 2005). This type of anxiety is found to be more prevalent in college students, ranging from ten to thirty-three percent, when compared to the general population, ranging from seven to thirteen percent (Russell & Shaw, 2009).

To meet criteria for an anxiety disorder diagnosis, the individual must experience the excessive anxiety and worry that he/she finds difficult to control for at least six months to the extent which it causes significant distress or impairment in functioning. The individual must also experience three or more of these symptoms: sleep disturbances, difficulty concentrating, restlessness, fatigue, irritability, and muscle tension.

Many children develop an anxiety disorder when they are young and often go untreated, causing the symptoms and negative effects to persist and manifest in various forms (American Psychiatric Association, 2013). Anxiety can also start during the teen years or young adulthood as peer interaction becomes increasingly important (National

Institute of Mental Health, 2013). Symptoms may get better or worse at different times, and often are worse during times of stress. Young adults often use maladaptive coping skills such as safety or avoidant behaviors, risk-taking behaviors, alcohol and/or drug abuse to try to manage their anxiety alone. Many of these will reduce the symptoms in the short-term, while continuing to strengthen and maintain the disorder in the long term.

Anxiety disorders are twice as common among females than males. Culturally, individuals in the United States that are of European descent are more likely to have an anxiety disorder than those of non-European descent, such as Asian, African, and Native American. Also, those from developed countries are more likely to experience an anxiety disorder than those that are from non-developed countries.

Anxiety among college students in the United States has increased from 6.7% in 2000 (American College Health Association, 2000) to 12.9% in 2013 (American College Health Association, 2013). In 2014, the American College Health Association reported that 23% of college students reported anxiety as a factor affecting their functioning in the past year (as cited in Holliday et. al, 2016). Work and school performance are often domains that individuals with anxiety persistently and excessively worry about (American Psychiatric Association, 2013). As individuals go from grade school, middle school, high school and then to college, the level of difficulty increases as well as the level of pressure to perform well. For those with anxiety, this may cause the anxiety to increase as well. This ripple effect is concerning because anxiety can go undetected and/or untreated and continue to affect social, occupational, academic, or other important areas of functioning. The excessive worry hinders the ability to do things efficiently and in a timely manner. The time and energy that is spent worrying would leave less time to

study or do homework and negatively affect an individual in many other areas. Some longitudinal studies have demonstrated that untreated anxiety in adolescents and young adults may lead to several behavioral, physical, and mental difficulties (Mahmoud, Staten, Lennie, & Hall, 2015). Hypertension, coronary heart disease, alcohol dependence, nicotine addiction, depression, and suicidality are some of the complications that may be experienced by those with untreated anxiety (Boden, Fergusson, & Horwood, 2006; Goodwin, Fergusson, & Horwood, 2004; Sonntag, Wittchen, Höfler, Kessler, & Stein, 2000; Stein, Fuetsch, Muller, Hofler, Lieb, & Wittchen, 2001; Volgelzangs, Seldenrijk, Beekman, vanHout, deJonge, & Penninx 2010; Yan, Liu, Matthew, Daviglus, Ferguson, & Kiefe, 2010). These difficulties and complications have a negative impact on those experiencing them and can worsen anxiety, making it a challenging for students to be successful. Furthermore, untreated anxiety may lead to pathological anxiety disorders (Emilien, Durlach, & Lepola, 2002). In a study done by Beiter et al. (2015), students living off-campus, transfer students, and upperclassmen all scored higher on depression, anxiety, and stress scales when compared to students living on-campus, non-transfer students, and underclassmen.

In a study done by Nail, Christofferson, Ginsburg, Drake, Kendall, McCracken, & Sakolsky (2015) which surveyed teachers and parents, excessive anxiety has been associated with academic underachievement, including low grades and academic performance. One longitudinal study found that youth scoring in the top third on a measure of anxious symptoms in first grade were more likely to score in the bottom third of the sample in academic achievement in the fifth grade (Ialongo, Edelsohn, Werthamer-Larsson, Crockett, & Kellam, 1995). Completing assignments, concentrating on work,

doing homework, getting good grades, giving oral reports, taking tests/exams, and writing in class are some of the academic tasks that may indicate overall academic performance (Nail et al., 2015). Anxiety can affect all these tasks, but concentrating on work was found to be the most frequently reported academic difficulty of those with anxiety. These findings are applicable to the college student population because when anxiety develops in youth and goes untreated, this can lead to maladaptive coping skills throughout development (American Psychiatric Association, 2013). For example, if an individual develops anxiety in elementary, middle, or high school and it is not treated, they may abuse alcohol or drugs to cope, which can have negative consequences for many areas of his/her life. Social anxiety, as well as other forms, may affect students' ability to engage with faculty and their peers, which can be an important aspect of academic achievement (Gougen, 2010).

In another study, two types of anxiety, state and trait, were researched, as well each one's effect on academic performance. State anxiety is "the emotional state of an individual in response to a particular situation or moment that includes symptoms of apprehension, tension, and activation of the autonomic nervous system, and can include tremors, sweating, or increased heart rate and blood pressure (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983, p. 27). Trait anxiety is the tendency of an individual to respond to stress with state anxiety. It was found that average state and trait anxiety have a positive effect on academic performance and lead to good academic performance, but high and extremely high state and trait anxiety leads to poor academic performance. This finding could indicate that some anxiety might be conducive to academic achievement, but also that more than average anxiety could be counterproductive.

Many individuals that have symptoms of anxiety also have symptoms of depression. According to the American Psychiatric Association (2013), "Individuals whose presentation meets criteria for generalized anxiety disorder are likely to have met, or currently meet, criteria for other anxiety and depressive disorders" (p. 226). Many college students experience anxiety and depression. Especially depression is serious problem given it has a higher prevalence among this population when compared to the general population.

Depression and Academic Performance

Depression is a condition that is marked by sadness, emptiness, hopelessness, and loss of interest for most of the day (American Psychiatric Association, 2013). Other indicators can include: significant weight loss or gain, insomnia or hypersomnia, fatigue/loss of energy, psychomotor agitation or retardation, feeling worthless, excessive guilt, inability to concentrate, thoughts of death, and suicide ideation (American Psychiatric Association, 2013). Five of the symptoms must be notable for a two-week period or longer and cause impairment in functioning to meet the criteria for a depressive disorder.

Moreover, several of the depressive symptoms are things that would have a negative impact on academic functioning. Sleep disturbances and fatigue may make it difficult to show up or stay awake during class. Loss of interest and perpetual feelings of sadness may be barriers to a student being able to retain information and do well in his/her classes. The American Psychiatric Association (2013) states that "those engaged in cognitively demanding pursuits are often unable to function…a precipitous drop in

grades may reflect poor concentration" (p. 164). These symptoms and effects show a connection between depression and poor academic performance.

The American College Health Association (2013), has estimated that 14% of students on college campuses reported depression as affecting their functioning over the past year (as cited in Holliday et al., 2016). Seven percent of the United States population has experienced major depressive disorder that persists for twelve months or more (American Psychiatric Association, 2013). This information indicates that depression occurs among college students at double the rate of the normal population. From age eighteen to twenty-nine, the prevalence of this disorder is three times higher than in those that are sixty years and older. Traditional college students would fall in the eighteen to twenty-nine age range, and therefore, are at a much higher risk of depression. Depression levels tend to increase in older students (Bostanci, Oguzhanoglu, Ozdel, Ergin, Atesci, & Karadag 2005; Naushad, Farooqui, Sharma, Rani, Singh, & Verma, 2014). Depression is more prevalent among females, and the risk for suicide attempts is higher; however, the completion of suicide is lower than the rate for males (American Psychiatric Association, 2013). There are no specific culture-related diagnostic issues in the Diagnostic and Statistical Manual of Mental Disorders currently. However, in a study done by Holliday et al. (2016), both depression and anxiety were found to be more prevalent among Hispanic female students when compared to non-Hispanic female college students.

Social Support as a Predictive Factor of Academic Performance

College students may vary in the amount of social support they have, depending on where they are from, their background, personality, and other factors that may influence the amount of support they seek and receive. Cohen and Wills (1985) outline

two main perspectives for conceptualizing social support: the main-effect model and the buffering model. The first model involves the actual use of support and views the social support as a coping strategy (Lazarus & Folkman, 1984). The second perspective of social support focuses on the perception of support to cope with difficult situations and to minimize the impact these situations may have on well-being. (Malecki & Demaray, 2002). The main effect model supports the idea that social networks provide individuals with a sense of stability and community, as well as increases the amount of positive experiences (Cohen & Wills, 1985). Proponents of this model view regular social support as a means to recognize self-worth. For students that are at-risk or struggling with physical or mental health, the buffering model would be more useful. In the buffering model, social support may intervene to prevent or minimize negative responses to stressors. The view of this model is that others provide helpful resources as well as boost an individual's perception of their ability to cope with the stressors in his/her life. Social support may be utilized for college students to buffer the impact that their difficulties may have not only on their academic performance, but also other areas of their lives.

Conceptualizing social support is difficult because there are a multitude of definitions (Barrera, 1986). Cobb (1976) defines social support as "the perception that a person has about being cared, loved and appreciated, and belonging to a network of people that the individual can count on in case of need" (as cited in Iglesia, Stover, & Liporace, p. 638). The perception of support is subjective and is determined by the individual's certainty that he/she may depend on another individual in certain situations (Barrera, 1986).

It has been proposed through various theories that social support is an important predictor of academic achievement in college/university. Engaging and integrating into social systems has been suggested by both Tinto's Theory of Student Departure (2006) and Astin's Theory of Involvement (1999) to be vital to student success (as cited in Brook & Willoughby, 2015). The study done by Brook and Willoughby (2015) showed that "social and academic goals are linked" (p. 1148) and that during the transition that college students experience, engaging in social activities is important and has been supported by other literature (Goguen, Hiester, & Nordstrom, 2010; Swenson, Nordstrom, & Hiester, 2008; Woolf, Potts, Patel, & McManus, 2012). Therefore, barriers to developing social support may hinder academic performance. Mental health issues, including anxiety and depression, can make it difficult to pursue or maintain social support.

Several studies have shown that social support has been associated with better academic performance at the elementary and high school level (Chen & Rubin, 1992; Crean, 2004; Elias & Haynes, 2008; Garcia D'Avila-Bacarji, Marturano, & dos Santos Elias, 2005; Konishi, Hymel, Zumbo, & Li, 2010; Perry, Liu, & Pabian, 2010). Research involving social support as it relates to academic achievement in college students is limited. One study found that social support was correlated with better academic performance but only with some of the college population (Iglesia, Stover, & Liporace, 2014). In this study, correlation of academic achievement with perception of social support was only found to be significant for female students. The findings also show that social support did not significantly impact GPA, only classes passed and dropped. Those

students with a higher perception of support had a higher rate of passed classes as well as less classes dropped out of.

Conceptual Model

Anxiety and depression are prevalent among students attending college. Symptoms of these mental health issues can affect the students' ability to be successful academically and have a negative impact on their overall well-being (Mitchell, MacInnes, & Morrison, 2008). University staff working with students that have anxiety and/or depression symptoms may benefit from understanding what can be done to address these issues. Social support has been shown to enhance academic achievement in elementary, middle school, and high school students (Crean, 2004; Elias & Haynes, 2008; Garcia D'Avila-Bacarji, Marturano, & dos Santos Elias, 2005; Konishi, Hymel, Zumbo, & Li, 2010; Perry, Liu, & Pabian, 2010), but there is limited research for college students. Some research indicates that involvement in social activities may be correlated to better academic performance, but this is not necessarily indicative of social support. There is also a gap in literature on college students that are struggling specifically with anxiety and depression and examining social support as a predictive factor of academic performance.

The conceptual model that was formulated after the literature review before research was conducted can be seen in Figure 1. This conceptual model is meant to show that anxiety and depression have an impact on academic performance. After reading the literature, it is hypothesized that anxiety and depression symptoms will decrease academic performance. The model also illustrates social support as influencing the relationship between anxiety and depression and academic performance. Social support

has been shown to have a positive effect on academic performance in several studies done in students in elementary school, middle school, and high school. However, there is little research that examines this same relationship among students that struggle with anxiety and/or depression. It is hypothesized that social support will moderate or 'buffer' the negative influence that anxiety and depression symptoms have on academic performance. This conceptual model that was formulated from the literature was used to develop the methodology of the research.
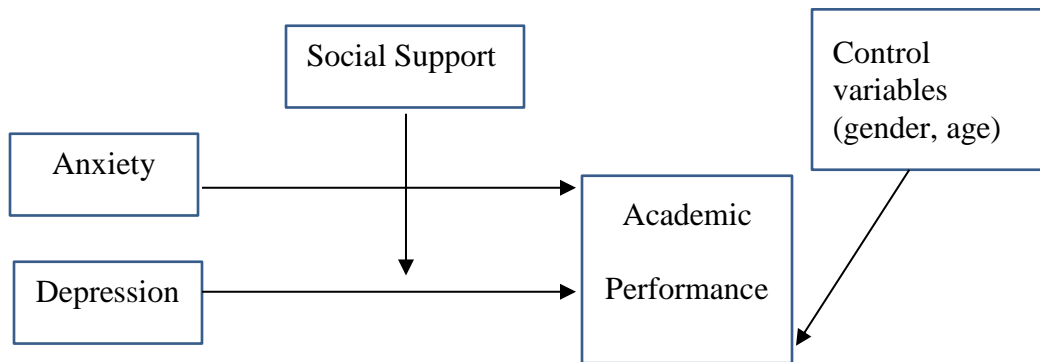
Figure 1. Conceptual model of moderating effect of social support.

CHAPTER III

METHODOLOGY

Purpose

The purpose of this study was to examine the impact that depression and anxiety have on academic performance among college students, as well as analyze how that relationship is affected based on the level of social support. This study was designed to decipher whether students with anxiety and depression symptoms may prevent lower academic performance through social support.

Research Design and Sample

Data was collected using a cross-sectional online survey. The requirements to participate include being 18 years of age or older and having been enrolled at the university in Fall of 2016. The ACU Institutional Review Board approval letter can be found in Appendix A. The surveys were administered online in conjunction with an informed consent form via e-mail. The informed consent form can be found in Appendix B and explained to the participants the nature of the study, informed them of the confidentiality of their responses, notified them of any risk, and provided them contact information for the investigator. An alteration of consent form was also submitted because a traditional consent form requires signatures from the participants. Since the survey was online, students were asked to indicate their consent electronically instead. Convenience sampling was used; the surveys were sent to the ACU students previously served by SOAR in Fall of 2016. The reason for selecting this sample is twofold. First,

SOAR students are considered a vulnerable population at ACU, and many of the students show symptoms of anxiety and depression. Second, information on the effectiveness SOAR program is currently limited, and this study can provide more information and insight on the students that it serves. The results can be helpful for the program director, future SOAR coordinators, as well as interested constituencies. A total of 358 surveys were sent out to students that were recommended to the SOAR program in the Fall of 2016. The response rate was 26.3% with 94 students completing the survey.

Data Collection

An application of the proposed research was submitted to the ACU International Review Board (IRB) for review. After IRB approval was obtained, the email addresses of potential participants were accessed upon request by the SOAR program director. A link for a survey was sent to these email addresses, which included an invitation to become a participant in the study. Blind carbon copy (bcc) was used to keep the identity of the students to one another confidential. The online survey was distributed via ACU email through a link. The survey was formulated using Google Forms and included several demographic questions: gender, race, age, and classification (in school). Additional items were included to measure depression and anxiety using the DASS-21 (see Appendix C), academic performance through self-disclosure of GPA, social support using The Multidimensional Scale of Perceived Social Support (MSPSS) (see Appendix D), and items related to the SOAR program (see Appendix E).

Instruments

The following instruments were used to measure independent and dependent variables in this study: academic performance, depression, anxiety, and social support.

Academic Performance

Academic performance was measured using grade point average (GPA). First, the students were asked to select the range their GPA fell within. Participants may choose from five categories: 0.0-0.9, 1.0-1.9, 2.0-2.9, 3.0-3.9, and 4.0. The students were also asked to report their current GPA. Both value and category questions were asked to account for students that may not know their exact GPA. This was to increase the chances of a higher response rate. As cited in the literature, GPA is the most commonly used measurement to assess academic performance (Bluemle, 2002; Felton and Koper, 2005).

Depression and Anxiety

The Depression and Anxiety Stress Scale 21 (DASS-21) was used to measure depression and anxiety among the participants. DASS-21 is a shorter version that the creators of the original instrument Lovibond and Lovibond developed (1995) for research purposes in non-clinical samples. The original version includes 42-item self-report measure of depression, anxiety, and stress (DASS). The DASS-21 is a 21-item self-report scale that measures three dimensions: depression, anxiety, and stress. The scale consists of three 7-item self-report scales taken from the full version of the DASS, and each subset is used to measure the three constructs. Therefore, for this study, only 14 items from the DASS-21 were used to measure depression and anxiety; the 7 items used to measure stress were not included (see Appendix C). Each item is rated using a 4-point Likert scale ranging from 0 to 3. A score of 0 representing 'did not apply to me at all' and 3 representing 'applied to me very much'. Some of the DASS-21 items that are used to measure anxiety are: "I experienced breathing difficulty" (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion), "I was worried about

situations in which I might panic and make a fool of myself," and "I felt scared without any good reason." Some of the statements such as "I couldn't seem to experience any positive feeling at all," "I felt that I had nothing to look forward to," and "I felt I wasn't worth much as a person," are the items in the DASS-21 which are used to assess depression symptoms. Scoring of this scale can indicate normal, mild, moderate, severe, or extremely severe depression and anxiety symptoms (see Appendix F).

The reliabilities of the DASS-21 in the original scale using Cronbach's alpha were .81 for the Depression scale, and .73 for the Anxiety scale (Tonsing, 2014). This internal consistency shows that DASS-21 can distinguish between anxiety and depression, relative to other existing measures. The DASS-21 has been widely used in various studies to measure these three subscales of psychological distress. According to Henry and Crawford (2005), the DASS-21 has been shown to have adequate construct validity and is more concise which is ideal for participants or clients with less time or limited concentration. The DASS-21 scale is commonly employed to survey mental health in young adults, including college students, in non-clinical settings. A study done by Mahmoud, Hall, and Staten (2010) examined the reliability and validity of the DASS-21 specifically with college students. The findings of the study supported the reliability and validity of the DASS-21 for the college population. They also concluded that the DASS-21 is a useful instrument for distinguishing between depression and anxiety.

Social Support

The Multidimensional Scale of Perceived Social Support (MSPSS) was utilized to measure participants' social support. The MSPSS measures three components of perceived support: family, friends, and significant others (Zimet, Dahlem, Zimet, &

Farley, 1988). Each subscale has 4 items; therefore, the total scale is 12-items. A 7-point Likert scale is used and ranges from 1 (very strongly disagree) to 7 (very strongly agree). The 12-items are presented as statements, and the participants were asked to indicate their feelings about each statement by rating it on the Likert scale (Appendix D). Some of the statements in the scale include: "I can count on my friends when things go wrong," "I get the emotional help and support I need from my family," "there is a special person in my life who cares about my feelings." Social support is measured by the sum of the 12 items and totals range from 12 being the lowest and 84 being the highest. Scoring on this scale can distinguish between low, moderate, or high support (see Appendix F).

The MSPSS has demonstrated internal consistency and validity in several other studies. Internal reliability of .88 has been reported for this scale (Kazarian & McCabe, 1991). The subscales of friend, family, and significant other have been found to have high reliabilities as well at .87, .85, and .91. These MSPSS internal reliabilities and construct validity have been found among multiple different samples, including those among college students (Clara, Cox, Enns, Murray & Torgrudc, 2003; Friedlander, Reid, Shupak, & Cribbie, 2007).

Demographic Information

Students were also asked some basic demographic questions as well including gender, age, race, and classification (i.e. Freshman, Sophomore, Junior, Senior, Graduate Student, or no longer enrolled).

<div align="center">

Statistical Analysis

</div>

After collection of the data from the surveys, the data was reviewed, and the characteristics of the sample were reported. Descriptive analyses were conducted to

summarize characteristics of the sample (gender, race, age, or classification) and descriptive statistics of the predictor variables and outcome variable. A plan to conduct a hierarchical logistic regression analysis for assessing the effect on a serious academic performance problem (i.e., probation) was not implemented because this group of students was very small (n=5, 5.3%). A hierarchical linear regression analysis was conducted to examine the effects of independent variables (depression, anxiety, and social support) on the dependent variable (academic performance measured by GPA score). When a moderating effect was found statistically significant, this effect was examined graphically using the PROCESS macro that Hayes (2013) developed.

CHAPTER IV

FINDINGS

Description of Sample

Characteristics of the Sample

A total of 93 surveys were analyzed and used for the remainder of this study after excluding one student that was unable to consent to participate because of the age criteria.

Gender. As seen in Table 1, of the 93 students that completed the survey, 63 (67.7%) identified as female, and 30 (32.3%) identified as male.

Classification. The respondents were asked to provide their classification in school; the majority were undergraduate students. Freshman responded at the highest rate of (n=28, 30.1%). The rest of sample was comprised of (n=21, 22.6%) sophomores, (n=23, 24.7%) juniors, (n=18, 19.4%) seniors, and (n=3, 3.2%) graduate students.

Race. Of the students in the sample, majority of respondents (n=62, 66.7%) identified their race as white, followed by African American (n=1, 1.1%), American Indian or Alaskan Native (n=9, 9.7%), two or more races (n=9, 9.7%), and some other race (n=7, 7.5%). Respondents were also asked if they were of Hispanic, Latino, or Spanish origin. Majority (n=74, 78.7%) indicated they were not of Hispanic, Latino, or Spanish origin, a small portion (n=13, 13.8%) identified as Mexican, Mexican American, or Chicano, and only 7 (7.4%) identified as another Hispanic, Latino, or Spanish origin. Therefore, a total of 20 (21.3%) students were Hispanic, Latino, or Spanish.

Table 1

Characteristics of the Sample (N=93)

Variable	Category	N	%	Range	Mean	SD	SK	KT
Hispanic	No	73	78.7					
Gender	Female	63	67.7					
Race	White	62	66.7					
	African American	14	15.1					
	American Indian	1	1.1					
	2+ races	9	9.7					
	Some other race	7	7.5					
Age				19-50	21.28	5.03	4.41	21.48
Classification	Freshman	28	30.1					
	Sophomore	21	22.6					
	Junior	23	24.7					
	Senior	18	19.4					
	Graduate	3	3.2					

Note. SD: Standard deviation; SK: Skewness; KT: Kurtosis**.**

Reliability Analyses to Check Internal Consistency of Composite Variables

A series of preliminary analyses were performed to check the internal consistency of three composite variables (depression, anxiety, and social support). Cronbach's alpha is a widely-used tool for assessing the reliability of a scale. This value refers to "the extent that correlations among items in a domain vary, there is some error connected with the average correlation found in any particular sampling of items" (Nunnally, 1978, p. 206). Nunnally (1978) argued the alpha level of equal or higher than .60 considered to be indicative of minimally adequate internal consistency.

Anxiety

As noted in Table 2, the subscale of anxiety exhibited high internal consistency (α = .877). Therefore, the scores on the 7 items were summed to generate a composite value to measure anxiety as Lovibond and Lovibond (1995) suggested.

Table 2

Internal Consistency of Anxiety (N= 93)

Variable	α	Item Total	α Without
Total	0.877		
I was aware of dryness of my mouth		0.424	0.887
I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)		0.627	0.864
I experienced trembling (e.g., in the hands)		0.692	0.856
I was worried about situations in which I might panic and make a fool of myself		0.736	0.849
I felt I was close to panic		0.736	0.849
I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)		0.66	0.86
I felt scared without any good reason		0.738	0.849

Depression

As noted in Table 3, the subscale of depression exhibited high internal

consistency (α = .938). Therefore, the scores on the 7 items were summed to generate a

composite value to measure depression as Lovibond and Lovibond (1995) suggested.

Social Support

As noted in Table 4, the subscale of social support exhibited high internal consistency (α

= .923). Therefore, the scores on the 12 items were averaged to generate a composite

value to measure social support as Zimet, Dahlem, Zimet, and Farley (1988) suggested.

Descriptive Statistics of Major Variables

Grade Point Average

Students were asked to provide their GPA for the fall of 2016. Table 5 and Figure 1 show

that the mean for GPA was 3.11 with a standard deviation of 0.68.

Table 3

Internal Consistency of Depression (N= 93)

Variable	α	Item Total	α Without
Total	0.938		
I couldn't seem to experience any positive feeling at all		0.746	0.933
I found it difficult to work up the initiative to do things		0.676	0.939
I felt that I had nothing to look forward to		0.855	0.923
I felt down-hearted and blue		0.868	0.922
I was unable to become enthusiastic about anything		0.846	0.924
I felt I wasn't worth much as a person		0.826	0.926
I felt that life was meaningless		0.766	0.931

Table 4

Internal Consistency of Depression (N= 93)

Variable	α	Item Total	α Without
Total	0.923		
There is a special person who is around when I am in need		0.697	0.916
There is a special person with whom I can share my joys and sorrows		0.738	0.915
My family really tries to help me		0.578	0.921
I get the emotional help & support I need from my family		0.626	0.920
I have a special person who is a real source of comfort to me		0.757	0.913
My friends really try to help me		0.673	0.917
I can count on my friends when things go wrong		0.746	0.914
I can talk about my problems with my family		0.530	0.924
I have friends with whom I can share my joys and sorrows		0.812	0.912

Anxiety

Anxiety was measured using 7 items from the DASS-21. The sum of these items was used to measure level of anxiety: normal (0 through7), mild (8 through 9), moderate (10 through 14), severe (15 through 19), and extremely severe (20+). Data on anxiety sums in the sample can be seen in Table 5 and Figure 3. The mean of the anxiety sum

was 7.55 with a standard deviation of 0.58. Furthermore, on the anxiety sum scale, 15 (16.1%) students fell within the normal range, 19 students (20.4%) were in the mild range, 11 (11.8%) were in the moderate range, and only one student (1.1%) was in the severe range.

Depression

Depression was measured using 7 items from the DASS-21. The sum of these items was used to measure level of depression: normal (0 through 9), mild (10-13), moderate (14-20), severe (21-27), and extremely severe (28+). Data on depression sums in the sample can be seen in Table 5 and Figure 2. The mean of the depression was 9.66 with a standard deviation of 6.55. Furthermore, on the depression sum scale, 48 (51.6%) students fell within the normal range, 14 (15.1%) were in the mild range, 27 (29%) were in the moderate range, and 4 (4.3%) were in the severe range.

Social Support

Social support was measured using MSPSS, a 12-item instrument. The average of these responses was used to measure level of social support: low (1 through 2.9), moderate (3 through 5) and high (5.1 through 7). Of the respondents, 9 (9.7%) rated as low level of support, 30 (32.3%) were considered to have a moderate level of support, and 54 (58.1%) had a high level of support; as seen in Table 5 and Figure 4.

Hypothesis Testing

A multiple regression analysis was performed to test the following hypotheses:

- Hypothesis 1: Anxiety will have a negative total effect on academic performance.
- Hypothesis 2: Depression will have a negative total effect on academic performance.
- Hypothesis 3: Social support will have a positive total effect on academic performance.

- Hypothesis 4: Social support will buffer the negative effect of anxiety symptoms on academic performance.
- Hypothesis 5: Social support will buffer the negative effect of depression symptoms on academic performance.

Table 5

Descriptive Statistics during 2016 Fall (N=93)

Variable		N	%	Range	Mean	SD	SK
GPA				.72-4	3.11	0.68	0.59
Depression	Sum			0-21	9.66	6.55	0.06
	normal	48	51.6				
	mild	14	15.1				
	moderate	27	29				
	severe	4	4.3				
Anxiety	Sum			0-20	7.55	0.58	0.41
	normal	47	50.5				
	mild	15	16.1				
	moderate	19	20.4				
	severe	11	11.8				
	extremely severe	1	1.1				
	Mean			1.83-7	5.1	1.38	-0.61
Social support	low	9	9.7				
	moderate	30	32.3				
	high	54	58.1				
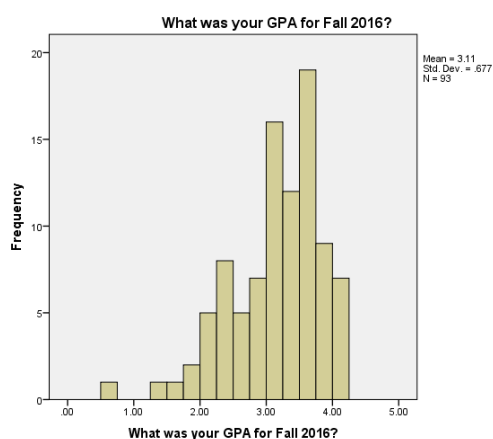
Figure 2. GPA for Fall 2016
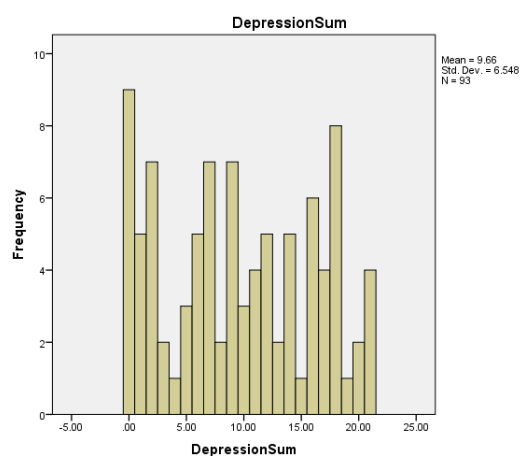
Figure 3. Depression Sum
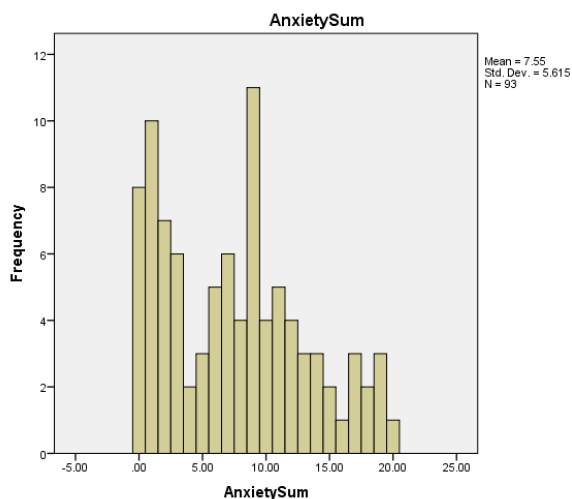
Figure 4. Anxiety Sum
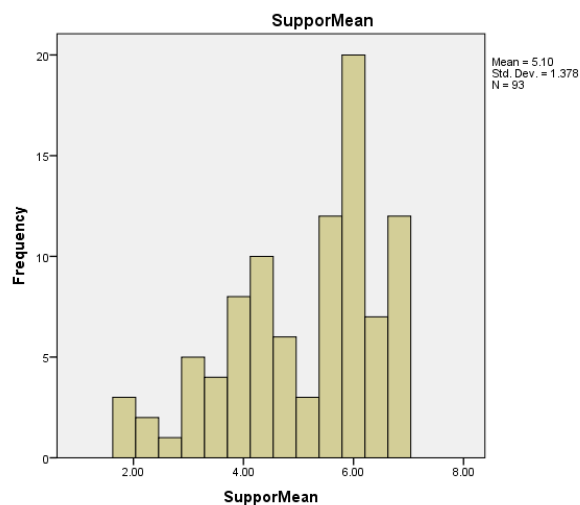
Figure 5. Social Support Mean

The proposed model includes demographic information (gender and age), risk factors (anxiety and depression), protective factors (social support) and the interaction terms ('depression X social support' and 'anxiety X social support'). This proposed model did not significantly statistically explain the variance of academic performance (GPA). The results indicate that the overall regression model was not statistically significant ($R^2 = 0.135$, F = 1.889, p = .081) explaining the variance in depression by 13.5%.

A model revision was performed. To increase R^2, the variable of age was excluded because it was a control variable and not significant in determining the outcome variable. A new variable LowPastAP (low past academic performance) was included. Although past academic performance is a predictor of current academic performance (Larson, Orr, & Warne, 2016), this survey did not collect high school GPA. LowPastAP was indirectly measured by aggregating a group member that had the lowest cumulative GPA based on the ACU student population data.

A multiple linear regression analysis was conducted using this revised model. This moderating model is expected to have a high multicollinearity because interaction terms were included. Although it may not be a concern, it is recommended to address this issue by 'centering' the variables (i.e. subtracting their means) before crafting the product terms. In addition, assumptions of linear regression were investigated by looking at Figure 5 and a normal distribution of errors was considered assumed. The examination of residual plots is considered a preferable method of detection for the assumptions for linear regression including linearity and homoscedasticity (Berry & Feldman, 1985; Cohen & Cohen (1983); Pedhazur, 1997). Table 6A shows bivariate correlations among predictors included in the revised regression model.

Table 6B and Figure 6 demonstrate the results of the revised model. Model 1 presents the results of testing the effect of predictors before the inclusion of interaction terms (Hypotheses 1 through 3). In this model, demographic information (gender and age), risk factors (anxiety and depression) and protective factors (social support) were included. The results show that none of the predictors (depression, anxiety, and social support) were not significant. Therefore, hypotheses 1, 2, and 3 were not supported. The hypotheses 4 and 5 were tested by including the interaction terms ('depression X social support' and 'anxiety X social support') in *Model 2* (as seen in Table 6B and Figure 6). The results indicate that the overall regression model was statistically significant ($R^2 =$ 0.172, F = 2.520, p = .021) explaining the variance in depression by 17.2%.
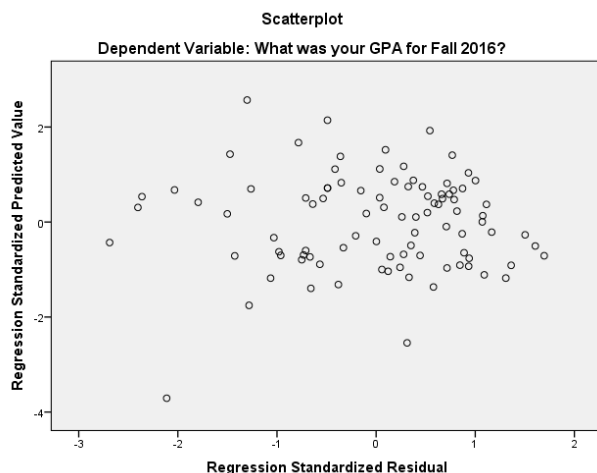
Figure 6. Scatterplot for GPA

Table 6A

Bivariate Correlations among Predictors Included in the MLR

	GPA (1)	Gender (2)	LowPastAP (3)	Anxiety (4)	Depression (5)	Support (6)	XAnxSS (7)	XDepSS (8)
1	1							
2	0.25**	1						
3	-0.18*	0.18*	1					
4	0.03	0.15	0.03	1				
5	-0.05	0.01	0.01	0.72	1			
6	-0.12	-0.09	0.02	-0.22	-0.25	1		
7	0.06	0.19*	0.06	0.08	0.20	-0.03	1	
8	-0.09	0.13	0.05	0.19	0.31**	-0.23*	0.71	1

*$p < .05$, ** $p < .01$, *** $p < .001$

Inclusion of interaction terms (Model 2) did not increase the R^2 significantly (R^2 change $=.046$, $p = .09$). However, the moderating effect of social support between depression and academic performance found to be significant ($\beta = -.32$, $t = -2.133$, $p = .036$). Figure 6 shows this effect visually. The three lines in the figure represent the three levels of social support as determined by the Multidimensional Scale of Perceived Social Support (MSPSS) scale (low, moderate, and high). Line 1 represents low social

support, Line 2 represents moderate social support, and Line 3 represents high social support. The Line 1 shows that for the group of students who had a low level of social support, depression had a positive effect on GPA. It means more depressed students had a higher GPA. At a moderate level of social support (Line 2), more depressed students had a lower GPA score. Finally, at a high level of social support (Line 3), the negative effect of depression on GPA was even stronger.

Table 6B

Predictors of Academic Performance (N= 93)

Category	Predictors	Model 1		Model 2	
		b(beta)	t	b(beta)	t
	Constant	2.92	23.98***	3.36	8.97***
Demographic characteristics	Gender (f)	.39 (0.27)	2.57*	.365 (0.25)	2.41*
	LowPastGPA	-.41 (-.22)	-2.19*	-.40 (-.22)	-2.18*
Risk factors	Anxiety	.01 (0.06)	0.40	0.01 (0.07)	0.49
	Depression	-.01 (-.12)	-0.80	-.01 (-.10)	-0.63
Protective factors	SS	-.05 (-.10)	-0.98	-.08 (-.16)	-1.53
Interaction	XAnxSS			.03 (0.27)	1.82
	XDepSS			-.026 (-.32)	-2.13*
R^2 (ΔR^2)		126 (0.13)		172 (0.05)	
Adj. R^2		0.075		0.10	
F (ΔF)		2.50*(2.50*)		2.52*(2.37)	
Tolerance		.46-0.97		.43-.97	

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: SS: Social Support; XAnxSS= interaction term of anxiety and social support; XDepSS= interaction term of depression and social support

The moderating effect of social support between anxiety and academic performance was not significant. Even after controlling for these predictors, gender and past academic performance were still statistically significant factors. Of these variables, gender was the strongest predictor. Female students were shown to have a higher

academic performance than male students. Also, students who belong to a group with low past academic performance have low current GPA scores.
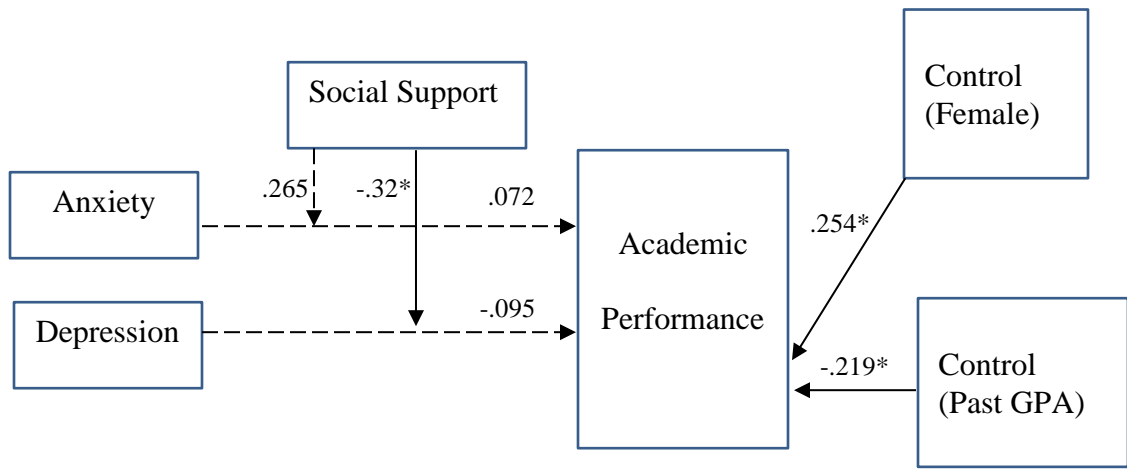
Figure 7. Results from the revised model of moderating effect of social support
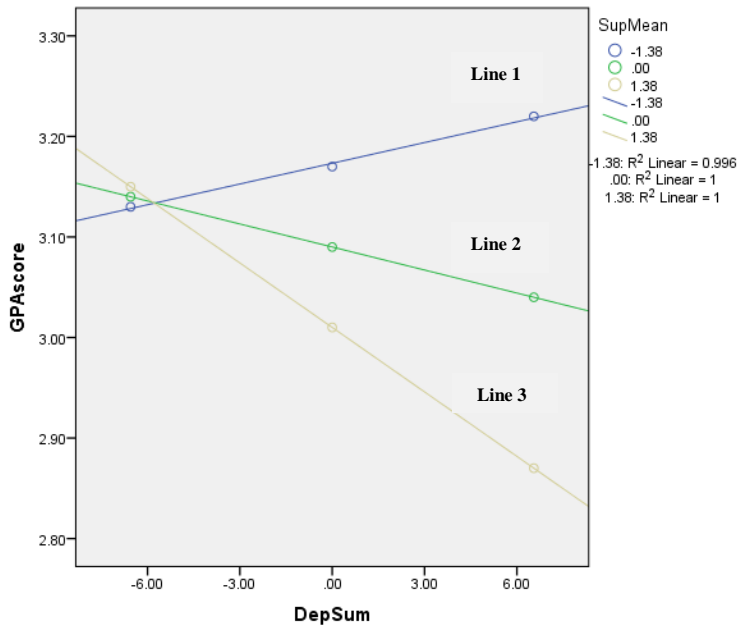
Figure 8. Interaction between GPA, depression (DepSum), and social support (SupMean)

CHAPTER V

DISCUSSION

Characteristics of the Sample

It is important to note that the population for this study is all SOAR students that

were recommended in the fall of 2016, not the population of all ACU students. However,

there is no data for the SOAR population, therefore the statistics of the population of

ACU students during the Fall of 2016 semester were examined. In doing so, this may also

reveal certain characteristics that are specific to the SOAR population.

Gender

Female students seem to be more likely to use SOAR service than males. When

viewing the statistics of the ACU student population in comparison to the sample, gender

was similar. The statistics of the student population at ACU show that there are 59.5%

females and 40.5% males. Therefore, the percentage of females in the sample (66.7%) is

slightly higher than that of the ACU population (59.5%).

Classification

Freshman are recommended to the SOAR program more than the other

classifications of students. When comparing the sample to the entire ACU student

population, the largest differences are the freshman and the graduate students. There are

nearly twice as many freshman in the sample (30.1%) than in the population (15.4%). In

addition, there are significantly less graduate students in the sample (3.2%) than in the

population (24.1%). These differences suggest that freshman are more likely to be

recommended to SOAR and that graduate students are the least likely to be recommended. SOAR is a program designed to assist students facing challenges and unforeseen circumstances. In the literature, some of the challenges that college students face are increased academic expectations, meeting new people, being away from family, living on their own, increased exposure to alcohol and drugs (Mitchell, MacInnes, & Morrison, 2008). Freshman are experiencing a lot of these challenges for the first time. Therefore, it is not surprising that freshman may be recommended at a higher rate than the other classifications. Going to college is a significant transition that requires substantial adjustment.

On the other hand, the data suggests that graduate students are the least likely to be recommended. This may be because they have already completed an undergraduate program and have acquired coping skills to deal with the stressors of academic endeavors. Also, most graduate programs have criteria that must be met, such as a minimum GPA or standardized testing (i.e. GRE, MCAT, etc.). It could be argued that students that meet the criteria are more academically inclined and therefore once in school, do not struggle as much in performance. Whether it be experience or academic ability, graduate students are not seen by faculty, peers, or family as needing extra support.

Race

There were two questions related to race. First, students were asked whether they were of Hispanic, Latino, or Spanish origin. The students that identified as Hispanic, Latino, or Spanish origin in the sample is slightly higher than the ACU student population.

Second, the respondents were also asked to indicate their race from a list that aligns with that of the Census Bureau (white, black or African American, American Indian or Alaskan Native, two or more races, and some other race). It is difficult to compare the SOAR sample to the ACU population with race because the measurements are different. In the survey for this research, race has two separate questions and the data for the ACU population has one. However, it can be noted that 66.7% of the respondents in the sample and 63.8% in the population identified as white. Therefore, 33.3% of the respondents in the sample and 36.2% in the population could be identified as non-white or minority. It is interesting that there was a higher percentage of whites and lower percentage of minorities in the sample when compared to the ACU population. A reason could be white students responded to the survey at higher rates than minority students.

Descriptive Statistics of Major Variables

Grade Point Average

The mean GPA for respondents (M = 3.11) was slightly lower than the mean GPA for the ACU student population (M = 3.27). This finding would align with the reason many students are recommended to SOAR. Many students are recommended by faculty and staff because they are struggling in their courses. This can often be the symptom of a deeper issue, such as psychological, physical, and/or social difficulties.

Depression

The mean of the depression (9.66) shows that SOAR clients fell into between the normal range (0-9) and the mild range (10-13). A portion of students (29%) fell within the moderate depression range and some students (4.3%) fell within the severe depression range. It is possible that the previous SOAR students that are moderately and severely

depressed do not check or respond to emails and/or have medically withdrawn from the university. Of the student cases assigned that were moderate or severely depressed, many of them were recommended because they stopped attending classes and would not respond to the professors' emails. Also, the students that proceeded with a medical withdrawal due to depression, would have incentive to complete the survey and may no longer check their ACU email if they are no longer enrolled.

Anxiety

The mean of the anxiety sum was 7.5484 which falls between the normal range (0-7) and the mild range (8-9). Some students (11.8%) were in the moderate anxiety range, and only one (1.1%) was in the severe range. These results indicate that majority of respondents had a fairly normal level of anxiety. It is possible that the previous SOAR students that are moderately and severely anxious do not check or respond to emails and/or have medically withdrawn from the university. Vitasari, Wahabb, Othmanc, Herawant, and Sinnadurai (2010) argue that "under certain circumstances, actually anxiety can help us to evaluate and mobilize resources in order to improve performance in some tasks" (p. 492). If this applies in the context of many of the students at ACU, then some of the students with anxiety may be less likely to be recommended to SOAR. If these students are worried about school performance and study, seek out tutoring, or other resources and then do well, they may not be recommended for services by their professors.

Social support

Majority of the respondents rated at high levels of support. The students were sent the surveys after receiving services through SOAR, this could be factored into the way

they rated some of the MSPSS items. When rating items such as "there is a special person who is around when I am in need" or "there is a special person in my life who cares about my feelings", students may rate these higher if they feel that the person that reached out to them from SOAR is someone that cares about their feelings and/or is around when they are in need. It is also possible that because ACU is a smaller, private, Christian university, that students have more support from family, friends, and/or professors than at a larger, public university.

Hypotheses Testing

The results of a regression analysis indicate that the overall regression model was statistically significant, explaining the variance in depression in the revised model. This is something that needs to be considered carefully due to model specification error. Specification errors may occur by inclusion of irrelevant variables, omission of relevant variables, and/or measurement errors in variables. In addition, specification errors can make it difficult to determine the magnitude and direction of the bias and the inconsistency for the estimators cause the impact of variables to be underestimated, overestimated, or misconstrued. Sensitivity of alternative estimators to deviations from the maintained hypothesis, especially with respect to assumptions about the functional forms of the underlying distributions" (Ramsey & Kmenta, 1980, p. 5). In other words, the results of a multiple regression analysis are affected by which set of factors are included in the model. Having seen this from the findings, we learned that it is important to identify a set of predictors from the literature and always remain open to other alternatives.

The regression analysis showed there was no moderating effect of social support on anxiety and GPA. Furthermore, there was no significant effect of anxiety on GPA. The Alpert and Haber Achievement Anxiety Test (1960), identified two types of worriers that have test anxiety (as cited in Kader, 2016). The worrier type has test anxiety that is debilitating and the non-worrier type has test anxiety that is facilitating. While taking a test, anxiety caused performance to decrease in worriers and increase in non-worriers, and both represent the cognitive component of test anxiety. Kader (2016) states that, "debilitating test anxiety is associated with decreased problem solving capability, and, hence, lower exam scores while facilitating test anxiety is associated with enhanced and proactive problem solving, and, hence, higher exam scores" (p. 45). Therefore, it is possible that more of the respondents could have a non-worrier type of anxiety. Other literature shows that there can be both positive and negative symptoms of anxiety, so they may cancel out, which would lead to anxiety having no effect on GPA.

A significant interaction was found was between depression, social support and GPA. Looking at associations between these three variables is based on cross-sectional data. This does not mean social support will decrease the effect of depression of GPA. Rather, it means some other factor can have an influence on those variables.

Limitations

There are several limitations of this study that must be considered when appraising the findings. First, the sampling method was not randomized. The surveys were sent out only to students that were recommended to SOAR in fall of 2016. Additionally, from this population, the researchers lacked control of which students

responded and which did not. Because it was not a truly randomized sample, this could affect the study's validity.

Secondly, since participation was voluntary, the survey was completed by the students that chose to fill it out. Therefore, the measures were self-reported. This means that the accuracy of the responses could be compromised and the researchers are unable to verify the validity. Before answering any question, students were notified of the provisions of confidentiality in the informed consent section. Regardless of the confidential nature of the survey, it is a possibility that some students may not have responded truthfully. There can be a stigma associated with anxiety and depression that could have an impact on the level of rating for these items. In addition, grade inflation may be a limitation to the current study, especially among those students who have the lowest actual GPAs. According to Fostersling and Binser (2002), students that were depressed and those with lower grades were more likely to distort their grades positively than those with higher grades. Therefore, until future studies that use alternative methods to self-report can be conducted, results of the current study should be considered preliminary.

There are several different types of anxiety disorders: generalized anxiety disorder, social anxiety, panic disorder, agoraphobia, obsessive-compulsive disorder, etc. Therefore, another limitation would be that the measurement for anxiety does not account for the different types. An example of this would be the item 'I was worried about situations in which I might panic and make a fool of myself'. This item may apply more to social anxiety than agoraphobia or another anxiety disorder. Due to the nature of the measurement, this is a limitation for assessing anxiety in the respondents.

Another limitation is that this is a cross-sectional study. The SOAR students were asked to respond to the items based on how they felt during the fall 2016 semester, and were also asked to report their GPA for the fall 2016 semester. Some of the SOAR students are recommended due to academic issues. They are connected to resources such as academic coaching, academic tutoring, learning disability services, counseling, etc. Although it is possible that the support provided by SOAR and these resources could lead to improved academic and/or overall functioning, these changes may take some time to occur.

Another issue to consider that may be a limitation to this study is causality. Anxiety and depression and GPA have been found in some studies to affect one another. Fosterling and Binser (2002) believe that further investigation is needed to examine the relationship among grades, depression and distortion to better understand the causal relation. If low GPA leads to more anxiety and depression, it would be important to assign the independent and dependent variables differently, which could provide different results for the moderating variable (social support).

Implications

As mentioned in limitations, because this was a cross-sectional study, this may have had an impact on the findings. Further studies should be done to look at the relationships of these variables based on longitudinal data. Data could be collected during and after services in order evaluate any changes, specifically in the outcome variable, GPA. Findings from longitudinal research could more adequately show the relationship between the variables, specifically depression, social support, and GPA. Another recommendation for research would be to do a similar study that measures or sorts out

the types of anxiety. Different types of anxiety may manifest in different ways, which makes it difficult to assess the relationship between anxiety and the other variables. The DASS-21 also has several questions related to the physiological symptoms of anxiety which may affect the rating levels of anxiety if a student experiences his/her anxiety more psychologically or socially. It would also be beneficial to explore more predictive variables of academic performance. Because there was no significant correlation found between anxiety, depression, and social support and GPA, other possibilities should be explored.

Low past academic performance, was found to be significantly correlated with academic performance. Social workers, and others working with college students, may be mindful of students that have previous low academic performance. These students may be more at-risk academically and should be connected to available resources. Academic coaching, academic advising, tutoring, supplemental instruction, etc. are some of the resources that practitioners could connect college students with after assessing their needs. Part of this assessment should include reviewing high school GPA, SAT/ACT scores, and any prior college credits completed. It is important for SOAR and other university programs utilize this information, in conjunction with meeting with the student, may help to inform the practitioner on which resources to allocate.

Another implication for practice is to consider these findings regarding students that struggle with anxiety and depression. Although students may be experiencing distress or unwanted symptoms due to anxiety and/or depression, this may not be affecting their academic performance. GPA should not be an outcome measure for SOAR program. The SOAR program, as well as other practitioners working with college

students, should take the overall well-being of the student into consideration when providing interventions. An implication for SOAR policy would be to include an assessment tool with a social work framework. Using a strengths-based and systems approach would allow coordinators to assess each client comprehensively; some examples would be a biopsychosocial assessment or an ecomap. The assessment tool should be chosen by the program director, ideally after discussion with the SOAR coordinators. Also, it is recommended that the coordinators complete the assessment tool in collaboration with each student upon the first meeting. This could prevent the process from feeling too formal, as well as build rapport with the students.

Not only is there a need for assessing clients comprehensively, but also for providing different approaches to treatment based on the assessment. If a student is showing signs of depression and/or anxiety, engaging him/her in mental health services is encouraged. University faculty and staff, family, and friends may be especially aware of these issues, and could serve an important role in detecting at-risk students and encouraging them to seek out appropriate supportive services. Practitioners in higher education should partner with others at the university and those that are a part of the students' life to best serve this population.

Further research should be done to examine the relationship between anxiety and depression and academic performance. Understanding the direction of this relationship (i.e. causality) would allow for better informed practice with college students. A recommendation would be to include perfectionism as a part of research. Perfectionism is marked by "a person's striving for flawlessness and setting excessively high performance standards, accompanied by overly critical self-evaluations and concerns regarding others'

evaluations." (Samuel, 2014). Yang and Stoeber (2012) state that individuals with tendencies toward perfectionism can often become depressed or anxious if they do not reach their goals (as cited in Samuel, 2014). In the context of this study, this research could give some insight on the findings. It may suggest that those with perfectionist tendencies may have symptoms of anxiety and/or depression but are less likely to seek out support due to their concern of perceptions and evaluations of others. Furthermore, this subpopulation of students may need a more psychological oriented approach to address these deeper issues. Some of these issues could be related to the conflicting forces that occur during each of Erikson's (1966) psychosocial stages of development. The theory conveys that each stage builds upon successful completion of the previous stage. If an individual does not successful resolve the conflict that is present at each stage, these conflicts may reappear and cause problems in the future. An implication for practice would be those working with this population should offer support to students rather than waiting for them to ask support. This would allow for students to become aware of some of these deeper issues and begin to address them while receiving support. With SOAR, the recommendation system allows for students that are not necessarily looking for support to receive it. The students are contacted by the SOAR coordinators via phone, text and email. The program is voluntary with a large role of the coordinators is persistence in trying to reach the students and encouraging at least an initial meeting to determine needs. Therefore, an implication would be to continue this system and ensure that ACU faculty and staff are aware of it and understand the purpose. Furthermore, implementing similar programs in other higher education institutions would help to reach these students.

Conclusion

This research study sought to better understand the association among anxiety, depression and academic performance, as well as examined the possibility of social support as a moderator in relation to these variables. The researchers gathered data through a survey method, collecting information on the students' anxiety and depression symptoms, GPA, and perceived social support. Analyzing this data, it was found that the sample mean on both anxiety and depression was between the normal and mild range. For social support, the findings showed that 9 (9.7%) students had low support, 30 (32.2%) moderate support, and 54 (58.1%) high support. The variables found to have statistical significance on academic performance were gender and low past academic scores. A linear regression was used to determine the association between the dependent, independent, and moderating variables. A significant interaction was found between depression, social support and GPA. These results should be considered with caution and further research should be done to better understand the relationships between these variables. Furthermore, those working with college students should consider the overall well-being of the student, as it is possible that their academic performance may not be affected by anxiety and/or depression.

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APPENDIX A

IRB Approval Letter

ABILENE CHRISTIAN UNIVERSITY
Educating Students for Christian Service and Leadership Throughout the World

Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885

2/21/2017

Katherine Bisson

Department of Social Work

ACU Box 27866

Abilene Christian University

Dear Ms. Bisson:

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled The Effect of Anxiety and Depression on College Students' Academic Performance: Exploring Social Support as a Moderator

was approved by expedited review (46.110(b)(1) category 7) on 2/21/2017 for a period of one year (IRB # 17-008). The expiration date for this study is 2/21/2018 . If you intend to continue the study beyond this date, please submit the <u>Continuing Review Form</u> at least 30 days, but no more than 45 days, prior to the expiration date. Upon completion of this study, please submit the <u>Inactivation Request Form</u> within 30 days of study completion.

If you wish to make **any** changes to this study, including but not limited to changes in study personnel, number of participants recruited, changes to the consent form or process, and/or changes in overall methodology, please complete the <u>Study Amendment Request Form</u>.

If any problems develop with the study, including any unanticipated events that may change the risk profile of your study or if there were any unapproved changes in your protocol, please inform the Office of Research and Sponsored Programs and the IRB promptly using the <u>Unanticipated Events/Noncompliance Form</u>.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs

Our Promise: ACU is a vibrant, innovative, Christ-centered community that engages students in authentic spiritual and intellectual growth, equipping them to make a real difference in the world.

APPENDIX B

Consent Form

Title of Study: The effect of anxiety and depression on college students' academic performance: Exploring social support as a moderator

You may be eligible to take part in a research study. This form provides important information about that study, including the risks and benefits to you, the potential participant. Please read this form carefully and ask any questions that you may have regarding the procedures, your involvement, and any risks or benefits you may experience. You may also wish to discuss your participation with other people, such as your family doctor or a family member.

Also, please note that your participation is entirely voluntary. You may decline to participate or withdraw from the study at any time and for any reason without any penalty or loss of benefits to which you are otherwise entitled.

Please contact Katherine Bisson if you have any questions or concerns regarding this study or if at any time you wish to withdraw. This contact information may be found at the end of this form.

Purpose and Procedures

As a former SOAR student, you are invited to participate in this study that measures anxiety and depression symptoms and academic performance to determine if there is a correlation. You will be asked to rate the current level of social support you receive, as well as the level of support you feel you received from SOAR. This research is designed to see if social support helps students experiencing anxiety and depression symptoms to buffer negative impact on their academic performance. The research will be conducted by Katherine Bisson, a social work graduate student and SOAR coordinator at Abilene Christian University. The data you provide will be utilized to better inform the SOAR program, as well as faculty and staff at ACU and other universities that are interested in the results.

If selected for participation, you will be asked to complete a one-time survey over the course of spring 2017 semester. The survey is expected to take 10-15 minutes.

Once you consent to participation in the study, you will be asked to participate in the following procedures:

- A survey will be sent to your ACU email to fill out and submit.
- No identifying information will be disclosed or used. You will be anonymous and all information will be de-identified.

Risks and Discomforts

The primary risk with this study is a breach of confidentiality, which is a minimal risk. The researchers have taken steps to minimize the risks associated with this study. You will not be asked for your name, Banner ID number or other identifying information to further protect your identity. However, if you experience any problems, you may contact Katherine Bisson or Kyeonghee Jang in the social work department.

There are potential benefits to participating in this study. Such benefits may include a better understanding of academic outcomes influenced by one's perception of events leading to academic goals. The researcher cannot guarantee that you will experience any personal There are potential benefits from participating in this study. However, the researcher hopes that the information.

Potential Benefits

There are potential benefits to participating in this study. Such benefits may include an increased awareness of depression and anxiety symptoms, how those may have an impact on academic performance, as well as the amount of social support you are receiving and how that could play a role. The researchers cannot guarantee that you will experience any personal benefits from participating in this study. However, the researchers hope that the information learned from this study will help others in similar situations in the future.

Provisions for Confidentiality

Information collected about you will be handled in a confidential manner in accordance with the law. Some identifiable data may have to be shared with individuals outside of the study team, such as members of the ACU Institutional Review Board. Aside from these required disclosures, your confidentiality will be protected by de-identifying the survey. Also, password protected documents and data will be stored in a secure location.

Costs and Compensation

If you participate in the survey you will be entered into a random drawing to win $100 in Bean Bucks. One participant will be selected randomly after the study is conducted. He/she will be notified and the $100 in Bean Bucks will be applied to his/her account. If you chose to withdraw from the study, you will not be eligible for consideration in the drawing.

Contacts

If you have any questions, concerns, or comments, you may contact the Principal Investigator of this study. The Principal Investigator is:
Katherine Bisson, MSSW Candidate
512-577-3604,
khb15b@acu.edu
ACU Box 27866, Abilene, TX, 79699

If you are unable to reach the Principal Investigator or wish to speak to someone other than the Principal Investigator, you may contact:

Kyeonghee Jang, PhD, MSW
325-674-6428
khj15a@acu.edu
ACU Box 27866, Abilene, TX 79699

If you have concerns about this study or general questions about your rights as a research participant, you may contact ACU's Chair of the Institutional Review Board and Director of the Office of Research and Sponsored Programs, Megan Roth, Ph.D. Dr. Roth may be reached at
(325) 674-2885
megan.roth@acu.edu
320 Hardin Administration Bldg, ACU Box 29103
Abilene, TX 79699

Consent Signature Section

Please click the button below if you voluntarily agree to participate in this study. Click only after you have read all the information provided and your questions have been answered to your satisfaction. If you wish to have a copy of this consent form, you may print it now. You do not waive any legal rights by consenting to this study.

APPENDIX C

Depression, Anxiety and Stress Scale 21

1. I was aware of dryness of my mouth	0	1	2	3
2. I couldn't seem to experience any positive feeling at all	0	1	2	3
3. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
4. I found it difficult to work up the initiative to do things	0	1	2	3
5. I experienced trembling (e.g., in the hands)	0	1	2	3
6. I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
7. I felt that I had nothing to look forward to	0	1	2	3
8. I felt down-hearted and blue	0	1	2	3
9. I felt I was close to panic	0	1	2	3
10. I was unable to become enthusiastic about anything	0	1	2	3
11. I felt I wasn't worth much as a person	0	1	2	3
12. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
13. I felt scared without any good reason	0	1	2	3
14. I felt that life was meaningless	0	1	2	3

0-Did not apply to me at all

1-Applied to me to some degree or some of the time

2-Applied to me a considerable degree or a good part of the time

3-Applied to me very much or most of the time

APPENDIX D

Multidimensional Scale of Perceived Social Support

1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. My family tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help & support I need from my family.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6. My friends try to help me.	1	2	3	4	5	6	7
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8. I can talk about my problems with my family.	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems with my friends.	1	2	3	4	5	6	7

APPENDIX E

SOAR (On-Campus Support)

1. Contact with SOAR has been helpful to me	1	2	3	4	5	6	7
2. SOAR helped me to connected to resources I needed or found useful.	1	2	3	4	5	6	7
3. I feel I could return to SOAR for support.	1	2	3	4	5	6	7

1-Very strongly disagree

2-Strongly disagree

3-Mildly disagree

4-Neutral

5-Mildy agree

6-Strongly agree

7-Very strongly agree

Scoring

1) For questions numbered 2, 4, 7, 8, 10, 11, and 14 add up the numbers circled then multiply that number by 2 and enter it here: _____

2) For questions numbered 1, 3, 5, 6, 9, 12, and 13 add up the numbers circled then multiply that number by 2 and enter it here: _____

Refer to the chart below and for each numbered question above, refer to the same number in the table below to determine how mild or serious each condition may be.

Rating	Depression	Anxiety
Normal	0-9	0-7
Mild	10-13	8-9
Moderate	14-20	10-14
Severe	21-27	15-19
Extremely Severe	28+	20+

MSPSS Scale Scoring

Scale Reference:

Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment 1988;52:30-41.

Scoring Information:

Total Scale: Sum across all 12 items, then divide by 12:
        1 to 2.9-Low support
        3 to 5-Moderate support
        5.1 to 7-High support

Significant Other Subscale: Sum across items 1, 2, 5, & 10, then divide by 4.
Family Subscale: Sum across items 3, 4, 8, & 11, then divide by 4.
Friends Subscale: Sum across items 6, 7, 9, & 12, then divide by 4.