5-2022

The Effects of the Transition from Pre-nursing to Nursing on Mental Health

Andrew J. Davis
East Tennessee State University

Paige R. Mullins
East Tennessee State University

Kimberly A. Sell
East Tennessee State University

The Effects of the Transition from Pre-nursing to Nursing on Mental Health

Andrew J. Davis

College of Nursing and Honors College, East Tennessee State University

NRSE 4018 – 001

Dr. Paige Mullins & Dr. Valerie Hooper

April 15, 2022

Abstract

Mental health is an ever-growing crisis among adolescents and young adults, with suicide as second leading cause of death and the number of those negatively affected continually on the rise. Transitions are one of the major stressors prevalent among these age groups, placing individuals at risk for mental health deficits. This quantitative voluntary response comparative study assesses the transitional mental health of pre-nursing students and students in the nursing program at East Tennessee State University. Emailed to all with a declared major of pre-nursing or nursing, this study measured mental health using evidenced based assessment tools. The PHQ-9 for depression and the GAD-7 for anxiety, along with additional demographic information and mental health service usage questions, was sent to and completed by participants. A total of n = 173 responses were received. Of these responses n = 99 or 57.2 percent were nursing students, a participation rate of 9.6 percent, and n = 74 or 42.8 percent were pre-nursing students. The research revealed that depression and anxiety scores were above the cutoff for moderate depression and anxiety in both groups, as well as identified a deficit in availability of mental health resources, with over 10 percent of students unable to access counseling or psychiatric services. Contraindicatory to literature, which predicted improving mental health in the progression through university studies, this study reveals a variable and even worsening trajectory of mental health as students transition into the nursing program and progressed through college.

Keywords: high school mental health, college mental health, nursing student mental health, pre-nursing, university mental health, young adults, transition from high school to college, transitioning to college, mental health deficits, depression, anxiety, and intervention.

The Effects of the Transition from Pre-nursing to Nursing on Mental Health

Mental health deficits among university students are prominent, and college is a developmentally critical time when individuals transition from adolescence to young adulthood; studies suggest 12 to 50 percent of college students meet the criteria for at least one mental illness (Mortier et al., 2017). University students are at high risk for anxiety and depression due to the many life stressors they face; the inability to handle stressors that are associated with the transition from adolescence to young adulthood can lead to depression, anxiety, and suicidality (Rith-Najarian, et al., 2019; Weins, et al., 2020). Nursing students in particular experience high levels of stress factors which result can in mental health deficits at a higher proportion than their college peers, and they are especially at risk if lacking effective coping skills (Li et al, 2018; Karaca et al, 2019) During the transition from high school to university, for many students, life changes more than it ever has before. The transition requires students to learn to adapt as they enter a new life environment with different experiences, expectations, and responsibilities, many of which they have never encountered before. The transition from pre-nursing to nursing is similar, students enter an academic program with higher expectations, grade requirements, and workload than previously experienced (Li et al, 2018). Studying the transition from high school to university is important in order to analyze how the process affects mental health, how current programs identify at risk students, and the effectiveness of current therapeutic support that can be put in place during the transition to reduce mental health deficits. This transitional process in which coping skilled must be learned and change occurs is also exhibited through the transition from pre-nursing courses to nursing courses upon students' entry to their nursing program, which is the topic of this undergraduate thesis.

Background Significance

There is a significant amount of separate research into the mental health of both high school and university students, but little research has been conducted into how the actual transition from high school to college affects mental health. Preexisting mental health issues that an individual was able to cope with effectively before might prove to be overwhelming when faced with the additional stressors of entering and adapting to a new environment within college. Conversely, entering a new environment like a university could actually improve mental health, with interventions such as free counseling services, involvement in extracurriculars, and a more fulfilling sense of identity (Luca et al., 2016; Miller et al., 2018).

Current research details that mental health issues or traumatic experiences that are not properly treated or addressed during the vital developmental phase of adolescence can lead to lifelong mental health deficits (Mortier et al., 2018; Milin et al., 2016; Prochaska et al., 2016). Studies show that 38.7 percent of 13 to 17 year old students scored positive for mental health issues, and the prevalence rate of poor mental health in subjects aged 12 to 17 has been increasing by 0.8 percent every year, nearly doubling from 2011 to 2018 (Wiens et al., 2020; Miller et al., 2018). It is evident that adolescent mental health is a major problem that is only continuing to worsen.

In college, the first onset of suicidal thoughts and behaviors is higher than the general population (Mortier et al., 2018). College freshmen are especially at risk for mental health deficits. One notable causative example resulting in a decline in mental health is sexual assault of women on university campuses. Freshmen females are 2 to 4.6 times more likely to experience sexual assault than upperclassmen; experiencing sexual assault often results in post-traumatic stress disorder (PTSD), depression, and anxiety (Carey et al., 2018). Overall, university students

are at high risk for anxiety and depression due to the many stressors they face (Rith-Najarian et al., 2019).

Suicide is the second leading cause of death among individuals aged 12 to 25 years old and suicide risk at universities are reaching epidemic proportions, with studies reporting 73 percent of college students having experienced a mental health crisis on campus at some point (Thompson et al., 2018; Luca et al., 2016). Suicide is an ever more prevalent cause of death that has in some way touched the lives of almost everyone. When an individual takes their own life, it affects far more than just themselves, and it almost always has a deleterious effects on the family members and friends of the individual (Thompson et al., 2018). For example, one prominent risk factor for suicidal ideation is having experienced the loss of a family member or friend to suicide (Thompson et al., 2018). If those at risk for suicidality can be effectively identified, treated, and provided with therapeutic support, then the mortality and morbidity of suicide and suicide attempts could be decreased among both adolescents and young adults.

According to the American Association of Colleges of Nursing (2020), nursing is an understaffed field with a longstanding worker shortage in a world in which healthcare needs continue to grow with the ever-increasing global population, retirement of current nurses, and lack of sufficient new nurses entering the workforce. In 2010 there was reported to be a need for an 80 percent increase in RNs, which was not met in 2020 (Al-Alawi et al., 2020). About 50 percent of students who start at universities with a declared nursing major cease the nursing academic pursuits. In part, this secession could be due to the prevalence of depressive symptoms in nursing students, which is higher than average university students or other medical programs, at a rate of 34 percent (Al-Alawi et al., 2020; Hsiung et al., 2019, Li et al., 2018). The clinical aspect of nursing students is one of the major components in eliciting higher levels of stress and

making students more vulnerable to anxiety and depression. The initial experience, practicing, and learning of clinical skills demands a high level of moral and ethical principles to be established by students, thereby increasing mental strain and eliciting high levels of anxiety (Hsiung et al., 2019; Li et al., 2018). For pre-nursing students, because higher GPA has shown to be positively correlated with success in nursing programs, requirements for admission to programs are often high due to limited resources. Pre-nursing students my suffer from academic stress that effects mental health in order to achieve higher grades so that they can be accepted to nursing programs (Al-Alawi et al., 2020; Bennet et al., 2016). An understaffed workforce, heavy academic requirements preadmission and within nursing programs, and stressful clinical rotation experiences all combine to place strain on nursing students, thereby effecting their mental health in a way that is often negative.

Theoretical Framework

Mental health issues are best addressed through the lens of Sister Callista Roy's Adaptation Model of Nursing. The adaptation model is centered around helping an individual to adapt to achieve a healthier self (Bittencourt et al., 2018). This is one of the primary goals of psychiatric care, which focuses not just on treating the underlying biological pathophysiological dysfunctions of the brain with pharmacological intervention, but also providing therapeutic support that is inclusive of the person as a whole. This includes interventions such as counseling, trauma therapy, and spiritual welfare. This is associated with one of the important modes of Roy's theory, the need to identify oneself as a unique being, including one's own body image and self-ideals (Bittencourt et al., 2018).

Anorexia nervosa (AN), a chronic and severe psychiatric disorder associated with high morbidity, co-morbidities, and suicide rates, is an ideal example of a mental health issue which

the adaptation model can be applied to (Jennings, 2017). Nurses themselves play a large part in helping patients with AN to adapt, by providing education, administering treatment for associated co-morbidities, and establishing trusting therapeutic relationships (Jennings, 2017). Restricting caloric intake is done in order to cope with internal emotional states caused by external factors that cannot be effectively managed (Bittencourt et al., 2018). This is a deeply rooted response in patients with AN, but if we treat individuals as an adaptive system, we can work to change this response. The perception of stimuli, such as food, must be altered in order for an AN patient's behavior to adapt to a state in which their body's defense mechanisms alter as well (Jennings, 2017).

AN is an ideal example, because like many mental deficits such as anxiety and depression, administering an antidepressant or anxiety medication to treat the visible symptoms can only do so much. The underlying cause of these mental health deficits, for example the potential stress that the transition from high school life to university life or pre-nursing to nursing program causes, must be addressed as well.

Key Concepts

Mental Health

In order to assess what causes mental health problems, it is important to define and understand what mental health is. Fundamentally, when a system is considered have a pathological illness, there is a state that is considered healthy and a range containing defined boundaries of operation. However, mental health is generally assessed by the prevalence of dysfunctions. These dysfunctions can include anxiety, depression, and thoughts of self-harm. For example, anyone who has visited a primary care office or emergency room has likely been asked the question "have you had any thoughts of hurting yourself?" as part of their baseline mental

health assessment. It can also be and is often assessed on a scored scale, such as the General Health Questionnaire (GHQ-12). This scale was used in a multi-wave study of the mental health of Scottish high school students and found that 38.7% of respondents scored above the cutoff for a mental health issue (Miller et al., 2018). Mental health is also unique in that it is an interdisciplinary field. Often counselors, psychiatrists, nurses, and even spiritual leaders all work together to aid in the care of those with mental health deficits, in both the inpatient and outpatient settings (Lecloux et al., 2017).

Depression

Depression is one of the most common mental health disorders and the leading cause of disability among children aged 10-19. Depression has a prevalence rate of 18.5 percent among college students, and 34 percent of nursing students (Orth et at., 2020; Xanthopoulos et al., 2020; Li et al., 2018). Depression is a condition of sadness characterized by decreased energy and a feeling of emptiness that can be experienced acutely due to life circumstances such as stress, but can also be a chronic condition associated with pathophysiologic causes (Karyotaki et al., 2020; LeMoult & Gotlib, 2019). Due to these factors, depression significantly impairs many individuals' quality of life.

Major Depressive Disorder, or chronic depression, in particular is one of the most debilitating mental illnesses, thirty million adults in the United States have met the criteria for the condition at one point in their life and it is leading cause of disability worldwide (LeMoult & Gotlib, 2019). Screening for depression in patients is generally done by observing symptoms such as decreased energy and appetite, and is also done using questionaries such as the CES-D 10 battery for depression screening, which was used in one study to screen the mental health of high schoolers in Texas (Prochaska et al., 2016).

Anxiety

Anxiety is a multifaceted mental health condition with a number of varying causes and presentations. Studies indicate that anxiety disorders affect 30 percent of adolescents aged 13 to 17, and is the most common mental health deficits diagnosed in college, with one in six college students diagnosed with an anxiety disorder and 62 percent experiencing overwhelming anxiety at some point in college (Xanthopoulos et al., 2020). Additionally, 67 percent of depressed students also experience anxiety, which can result in subpar academic performance and increased risk for suicidality (Li et al, 2018). Typically, anxiety is characterized as intense and excessive worrying or fear, and can be chronic or brought on by conditional stressors (Bandelow et al., 2017; Karyotaki et al., 2020). If underlying issues are not addressed or symptom management does not occur to achieve a therapeutic response, an anxiety attack can occur, which is clinically characterized by shortness of breath, increased respirations, and a rapid pulse.

For example, one type of anxiety is social anxiety. Social anxiety is defined as an intense fear of social interactions due to the fear of being judged or thought of as unlikeable, boring, or annoying (Leichsenring et al., 2020). Like many mental health deficits, social anxiety has an onset in adolescence and is one of most prevalent mental disorders with a lifetime prevalence of 13% (Leichsenring et al., 2020). Anxiety is a far-reaching issue that negatively affects the lives of countless individuals, especially university students.

Suicidality

According to the Centers for Disease Control, in 2014, 91,209 adolescents aged 12 to 17 and 103,524 young adults aged 18 to 25 were treated in emergency rooms for nonfatal suicide attempts (Thompson et al., 2018). Suicidality is a term used to define suicidal ideation, which is

defined as seriously considering taking one's own life. This can include both suicide plans and actual attempts (Mortier et al., 2018).

Suicidal thoughts and behaviors are common among college students, and are higher in the student population than the general population, with studies exhibiting five to 35 percent of students having experienced suicidal thoughts within the last 12 months and 0.6-11% having attempted suicide (Mortier et al., 2018). Like every other mental health issues, suicidality is becoming an ever more prevalent mental health issue, with prevalence rates nearly doubling from 2011 to 2016 in Canadian adolescents and young adults (Wiens et al., 2020).

Literature Review Method

Design

To conduct the integrative review of literature, databases and a matrix table were utilized to find and break down scholarly sources into their key components. This included the theoretical or conceptual framework used, the research questions or hypotheses posed by the article, the design and setting of the study and characteristics of the sample, the intervention used if applicable, the measures and statistical analysis used, the results and findings of the research conducted, the conclusions made by the literature, and the level of evidence and external validity of the literature. The matrix table used was created by Judith Garrard, published in *Health sciences literature review made easy,* and modified to include "findings" and "external validity" (Garrard, 2007). An additional six articles were located and integrated into the literature review without use of the matrix table. This was done to provide additional research in relation to the transitional mental health of pre-nursing and nursing students at universities.

Data Bases and Sources

In order to find applicable peer reviewed scholarly literature published within the last five years, the CINHAL databases for psychology, public health, and nursing were all utilized, resulting in ten of the initial 21 articles found. The PubMed databases were also utilized, resulting in an additional five applicable articles. PsycINFO, and the ProQuest Psychology Database, ERIC, and Public Health Database resulted in one article each. Google Scholar was used to trace citations of articles that were applicable to the subject, but too old to meet the inclusion criteria of within the last five years, resulting in four applicable articles. Google Scholar was also utilized to find additional defining articles only used for the "Key Concepts" portion, resulting in four additional articles not included in the matrix table, background information, results, or discussion portion of this integrative review. CINHAL and Google Scholar were additionally used after the initial literature search to find supporting literature for an applicable nursing theory, resulting in two articles only used in the "Theoretical Framework" portion and not included in the matrix table.

An additional six articles were located to focus on the mental health of nursing students and transitional aspects of nursing students. This was done by utilizing CINHAL, PubMed, ERIC, and ProQuest databases to find five scholarly peer-reviewed articles published within the last five years. One additional article which focuses on the correlation of GPA with nursing school success was located from the citation of another article found.

The search terms used to find results were "high school mental health," "college mental health," "university mental health," "nursing student mental health," "pre-nursing," "young adults," "adolescents," "transition from high school to college," "transitioning to college," "mental health deficits," "what is," "depression," "mental health" "anxiety," and "interventions." These search terms were combined in various methods using the Boolean search method. A total

of 39 articles were found, 20 were placed in a matrix table three of which were excluded, and 36 were included in the literature review as a whole.

Inclusion and Exclusion Criteria

Articles chosen were all peer reviewed and published within the last five years. The majority of the articles were intentionally chosen from North America including the United States and Canada. Two articles were chosen because they originated from Western cultures, namely Scotland and Belgium. Two articles were global studies conducted by the World Health Organization and included statistics from less preferred countries, but utilized large sample sizes of multiple Western countries, making their inclusion valid. Most articles from Eastern and African cultures were excluded, as the difference in education and academic culture would make the literature and findings inapplicable to future research in the United States. Articles were selected based on age, preferably studies focusing on developmental aspects of mental health in adolescence and young adulthood, spanning from the ages of twelve to 25 years old. When synthesized into the matrix table to analyze articles, three articles from the initial literature search were excluded because one was a duplicate study, one had a very small sample size of $N<100$, and one had a marginal level of external validity. Of the remaining articles placed in the matrix table, 15 had sample sizes of participatory individuals that ranged from $N=200$ to $N=71{,}000$. Three articles were systemic reviews of literature.

In order to design a study that fit within the scope of the Honors in Discipline (HID) program, it was decided to shift the focus from the transitional mental health of high school students and university students to the transitional mental health of pre-nursing and nursing students. Due to the limited amount of research available on the mental health of nursing students and focused constraints of the new proposed study, articles including demographics

such as Asian cultures N=3, were included in the literature review. All other inclusion criteria, such as age of articles and sample size, remained the same.

Results of Literature Review

Adolescent and High School Mental Health

Adolescent mental health, primarily high school mental health, was one of the primary topics researched. There were eight of the included articles which assessed the age range for adolescence aged 12 to 17 or were focused on mental health in high school (Lee et al., 2016; Orth et al., 2020; Lecloux et al., 2017; Xanthopoulos et al., 2020; Weins et al., 2020; Miller et al., 2018; Prochaska et al., 2016; Thompson et al., 2018). This included four studies that were examining the effectiveness of interventions in place, or likelihood of high schoolers to use interventions (Lecloux et al., 2017; Xanthopoulos et al., 2020; Miller et al., 2018; Proschaska et al., 2016; Milin et al., 2016). Barriers to mental health treatment in adolescents were listed in four articles and include variables such as lack of health insurance, low socio-economic status, lack of communication between parents and healthcare, and student athletes who have higher expectations placed on them and are less likely to seek treatment due to fear of stigma (Lecloux et al., 2017; Lee et al., 2016; Orth et al., 2020; Xanthopoulos et al., 2020; Milin et al., 2016).

College and Young Adult Mental Health

The mental health of university students who are generally young adults aged 18 to 25 was also a primary topic researched, resulting in 11 articles total (Mortier et al., 2018; Lee et al., 2016; Weins et al., 2020; Thompson et al., 2018; Rith-Najarian et al., 2019; Karyotaki et al., 2020; Luca et al., 2016; Carey et al., 2018; Bettis et al., 2017; Reid et al., 2016). Four of the articles focused on the mental of college freshmen, how mental health progresses or changes, and stress factors (Mortier et al., 2018; Luca et al., 2016; Carey et al., 2018; Reid et al., 2016).

Mental health issues are well known to be a prominent problem on college campuses, especially during the first year. Therefore, large amounts of resources are directed towards addressing the mental health of college freshmen. Of the eleven articles, three specifically assessed the effectiveness of experimental or established interventions in place to improve or prevent the decline of mental health in college students (Rith-Najarian et al., 2019; Bettis et al., 2017; Farrer et al., 2019). Another of the primary findings was how mental health changed as college progressed. Three articles that used a longitudinal design displayed improving mental health in college students as time progress as evidenced by decreased stress, anxiety, and depression (Mortier et al., 2018; Farrer et al., 2019; Thompson et al., 2018). Notably, two of these articles found that college students have lower levels of suicidal thoughts and behaviors (STB) than their non-college attending peers even if implemented interventions themselves were ineffective (Mortier et al., 2018; Farrer et al., 2019).

Pre-Nursing and Nursing Student Mental Health

The mental health of pre-nursing and nursing students at universities was identified as the subject of this thesis, resulting in six additional articles containing this demographic after the initial literature search was conducted (Karaca et al., 2019; Savitsky et al., 2020; Hsiung et al., 2019; Li et al., 2018; Bennett et al., 2016; Al-Alawi et al., 2020). Four articles focused on the mental health of nursing students and the effecting factors involved, such as coping skills, anxiety, and depression (Karaca et al., 2019; Savitsky et al., 2020; Hsiung et al., 2019; Li et al., 2018). Two articles were found in relation to pre-nursing students, but on likelihood for success in baccalaureate nursing programs. Though these articles are not directly studying the mental health of pre-nursing students, academic success has been shown to be a positively correlated with the mental health of university students (Bennett et al., 2016; Al-Alawi et al., 2020). One

article is a systemic review of interventions used to improve mental health in nursing students, and yielded promising results showing that interventions such a psychotherapy were positively correlated with improved mental health (Li et al., 2018). One article was found which focuses on the nursing student coping during the wake of the COVID-19 epidemic, which may prove to be a significant variable effecting the results of this study (Stavisky et al., 2020).

Purpose

The purpose of this study is the analyze the mental health of pre-nursing or Health Professions Nursing Interest (HPNU) students and nursing students to understand how mental health changes during the transition into the nursing program at East Tennessee State University (ETSU). In the past, transitional mental health has not been a very broadly studied field, though several studies have shown that as students progress through college, their mental health improves. Traditional students at ETSU generally enter the Bachelor of Science in Nursing program during the second semester of their sophomore year, or the first semester of their junior year. ETSU also offer an accelerated program which starts in the summer. Though mental health has been shown to improve during progression through college, entrance into nursing programs is a pivotal point for prospective and new nursing students, as they are often obligated to manage an increased workload and stress (Hsiung et al., 2019, Li et al., 2018).

Based on existing research, it is important to analyze this transitional period of education from prerequisite courses to nursing courses, which can be compared to the transition from high school to university initially addressed in the literature review. Transitions place stress on students, which in turn puts students at higher risk for developing mental health deficits, such as depression, anxiety, and even suicidality. Therefore, it is imperative to assess whether the current interventions in place to prevent mental health deficits in pre-nursing and nursing students are

adequate or effective. By conducting research in this field, research could be used to implement changes or screening procedures designed to improve the mental health of this population, thereby preventing mental health deficits and protecting the safety and wellbeing of pre-nursing and nursing students as a whole.

Research Question

The primary research question posed for this study is "how does the transition from pre-nursing courses to the nursing program at ETSU affect mental health?" This guiding question is important as it can uncover whether mental health improves or declines during the transition. The implied trajectory of mental health during this transition is of key importance in this study, as it is hypothesized that it will indicate either a sufficient amount of or lack of resources for the mental health of pre-nursing and nursing students.

Definitions

Dependent Variables

The fundamental dependent variable in this study that is assessed is the mental health of college students. Mental health is defined by the manifestation of dysfunctions or deficits and can be broken down into multiple components. As previously defined in the key concepts portion of this thesis, mental health can be measured and understood by the prevalence dysfunctions such as depression, anxiety, and suicidality. However, it must be noted that both depression and anxiety are a normal and can be healthy parts of human functioning. For example, when a loved one dies, an individual often goes through a stage of depression, which is a normal and healthy part of the five stages of grief and is only an issue if the individual is unable to move past the depression faze. Similarly, anxiety is a natural response to stress and can act as a positive reinforcing or motivating factor. For example, if a student has an upcoming exam, it is natural to

feel the compulsory need to study due to anxiety over making an adequate grade on the exam (Bandelow et al., 2017).

Independent Variables

There are several independent variables that must be assessed in order to analyze the mental health of pre-nursing and nursing students, as it is hypothesized that these influence the dependent variable.

Program status and academic year. Namely, the first independent variable is program status, whether students are pre-nursing students or students in the nursing program of a university in northeast Tennessee. Several longitudinal studies have indicated improving mental health as students progress through college as referenced in the results portion of the literature review. Overall, this could impact the results of this study, as students who are in the nursing program have generally completed at least three semesters of college already, and would hypothetically have improved mental health in comparison to their pre-nursing counterparts. Similarly, many students switch majors or conversely have taken credits prior to entry to college, which could alter the time which they start in the nursing program, thereby impacting projected change in mental health.

Age of participants. Next, closely related, is age of the students. As students transition from high school to university life and progress through college, they are also passing through the developmental stage of life in which the transition from adolescence to adulthood occurs, known to be a positively correlated factor influencing mental health (Thompson et al., 2017). Moreover, not all students in pre-nursing or the nursing program are traditional students, which is defined as students who began attending a university immediately following completion of

secondary education. Differences in ages of participants could also result in alternate statistical results.

Gender of participants. Following age as a dependent factor is gender. Gender is influential on mental health as men and women respond to stress in different ways. This is evident in the outcomes in mental health, for example, while women have drastically higher reported prevalence rates of mental health disorders such as depression and anxiety, men make up 75 percent of suicides (Affleck et al., 2018). Research also indicates that women are twice as likely to seek help from mental health services in comparison to men, an underutilization which could contribute to high suicide rates in men. Overall, the way which genders react to stressful stimuli is unique to each, and in large part can be attributed to gender stereotypes, such as the presumed need for men to present themselves as masculine and the act of reaching out for help being viewed as feminine. While women tend to exhibit symptoms like depression at a higher prevalence, turning their ineffective coping inwards towards themselves, men tend to exhibit ineffective coping mechanisms outwardly through poor impulse control and actions like alcoholism or drug abuse, making up 75 percent of substance use disorder cases (Affleck et al., 2018). As mental health is measured and assessed through self-report questionnaires, the question remains as to whether men truly experience lower rates of depression, or whether it is merely masked by the need to maintain a masculine façade. If asking for help is not manly, why would one need to go to therapy? Noting the differences in prevalence, treatment seeking tendencies, and coping strategies of genders is important to this study. Based on the demographic findings from articles in the literature review, women make up 81 to 93 percent of nursing students, which could result in skewed results no generalizable to all genders (Hsiung et al., 2019; Savitsky et al., 2020; Karaca et al., 2019).

Research Method

Study Design

The research conducted was designed in a manner to be within the scope of an undergraduate thesis in the Honors in Discipline of Nursing program at ETSU. Therefore, the amount of time allowed to conduct research and access to resources had to be considered in designing a relevant study. In this program of study, one semester is allotted for data gathering and analysis. Additionally, no grants are given to aide in research unless applied for independently. In an idyllic situation with unlimited time and resources, the most accurate way to analyze changing or transitional mental health among pre-nursing and nursing students would be a longitudinal study, with a random sample in which students would be required to fill out mental health questionnaires every semester, beginning as freshmen upon entrance into college and ending as seniors up graduation. However, due to aforementioned constraints, this study utilizes an electronic voluntary response convenience sample to conduct a comparative study of the mental health of pre-nursing and nursing students. Primarily, mental health is analyzed independently in pre-nursing and nursing students and compared in order to assess for significant differences between the two groups. The change in mental health as students progress through semesters of the nursing program will also be assessed. Data was collected using an online survey link delivered by email. Information gathered consists of demographic data on students academic year, age, program status, perception and usage of mental health services at ETSU, and prevalence and severity of depression and anxiety.

Population, Sample, and Study Site

In order to select a demographic that is within the scope of the HID program, pre-nursing and nursing students at ETSU alone were chosen as the population of this study. This was done

for several reasons. First, the population needed to be one that was physically accessible for research on an undergraduate level at a university. Second, the population of the study needed to be specific and continuous in order to provide reasonably accurate measurements consistent with the purpose of the study. Third, the population needed to be a population not considered to be significantly vulnerable, in order for research to be approved on an undergraduate level. For these reasons listed, the topic of this thesis was shifted from high school and university transitional mental health, which was extensively researched in the literature review, to the transitional mental health of pre-nursing and nursing students at ETSU. To avoid the need to obtain parental consent and sampling a vulnerable population, inclusion criteria is any student 18 years old or older enrolled in pre-nursing or HPNU and nursing courses at ETSU. Exclusion criteria was established by adding an informed consent to the beginning of the survey to ensure students were the appropriate age in order to continue. The informed consent specifies that students must be 18 years old or older, physically present in the United States, and enrolled in pre-nursing or nursing courses.

Instruments

Two evidenced backed clinical assessment tools were used in the survey distributed as the primary data base for this study, along with non-identifying demographic data. Based on the key concepts portion in the literature review of this thesis, clinical tools to assess depression and anxiety were utilized to assess the overall mental health of students, while a questionnaire to assess suicidality was excluded due to limitations of this study.

Demographic data. Informed consent was conducted and demographic data was collected prior to the administration of clinical assessment tools. Age was assessed using checkboxes to select an appropriate age range from 18 to 22, 23 to 29, 30 to 39, and 40 or older

because age is impactful on mental health. The age range 18 to 22 was chosen, as this is the range under which traditionally aged students generally fall, followed by 23 to 29 for middle to late stage young adults, and then in ten year increments till 40 or older. Sex was assessed with the options male, female, and other, because as previously discussed, it is important to analyze how genders respond to mental health questionnaires differently. Academic year was also assessed with the responses of freshman, sophomore, junior, and senior. Next, to place students into their demographic subset for the primary comparison utilized in this study, students were asked whether they were enrolled in pre-nursing or HPNU courses or are currently enrolled in or taking classes in the CON nursing program, to which if students answered "Yes," to the latter, a dropdown appeared with options to select first through fifth semester within the program.

Campus mental health services. The utilization, accessibility, and effectiveness of ETSU's campus based mental health services was also analyzed in the demographic portion of this survey prior to the administration of clinical assessment tools. This question was done so that correlations between mental health scores and the following factors could be analyzed to better understand the effectiveness of interventions currently in place at ETSU to prevent mental health deficits and understand the potential need for additional interventions. The following questions were asked "Have you ever utilized mental health services at ETSU (i.e. Counseling Center or University Health Clinic)?" If participants answered "Yes," a dropdown appeared asking "On a scale of one to five, how would you rate the effectiveness of ETSU's mental health services?" Following these questions, is "Have you ever tried to utilize ETSU mental health services, but not been able to, due to limited availability or other concerns?" "On a scale of one to five, how would you rate the accessibility of ETSU's mental health services?" and "Overall, do you feel as though ETSU has adequate mental health services?" The questions were included

primarily to be analyzed in the discussion portion of this thesis in order to better understand the mental health outcomes of respondents.

Depression. First, the nine item Patient Health Questionnaire (PHQ-9), which is a clinical tool that assesses the two-week prevalence of depression using a numerical scale ranging from zero to three. The questionnaire assesses for symptoms of depression experienced over the past two weeks as not at all, several days, more than half of the days, and nearly every day. The scores of the nine questions are then added together and if one to four, rated as minimal, five to nine, as mild, 10 to 14, as moderate, 15 to 19, as moderately severe, and 20 to 27, as severe (Spitzer et al., 1999)

Anxiety. Next, the seven item Generalized Anxiety Disorder questionnaire was used to assess anxiety. Similar to the PHQ-9, this clinical based evidence backed questionnaire asks seven questions related to anxiety in order to assess for severity. The questionnaire assesses for symptoms of anxiety over the past two weeks experienced not at all, several days, more than half of the days, and nearly every day. The scores are rated from zero to three based off the following answers, and then added together. If the client scores zero to four they have minimal anxiety, five to nine is mild anxiety, 10 to 14 is moderate anxiety, and 15 to 21 is severe anxiety (Spitzer et al., 1999).

Recruitment Process

To recruit pre-nursing and nursing students from ETSU to participate in this study, a voluntary response purposive online sampling method was conducted by email. After explaining the potential benefits and risks of conducting this study to the College of Nursing, and requesting and receiving permission, aide was acquired from faculty in charge of pre-nursing or HPNU advising to send the survey to the students in this demographic. To acquire responses from

students enrolled in the nursing program, the survey link was sent to the first through fifth semester presidents of the Student Advisory Council (SAC) in the CON to be distributed to their prospective cohorts. Assistance from faculty was additionally acquired for to be included in the general news bulletin emailed regularly to the CON, which includes students from both groups.

Data Collection and Participant Protection

Data was collected using an electronic survey with software run by the CON at ETSU. The two clinical assessment tools in the order PHQ-9 and GAD-7 follow demographic data that is proceeded by an informed consent explaining the purpose, benefits, and potential risks of the study and requiring participants to be at least 18 years old, present in the United States, and enrolled in pre-nursing or nursing courses to participate. If students checked under the aged of eighteen, there were locked out of the survey and excluded from the results. The survey software used is Checkbox which allows for unlimited replies under a password locked university run system to secure potentially sensitive information till data analysis is conducted with the assistance of the statistician for the CON. This ensures the participants information is protected, kept anonymous, is unable to be individually shared with outside individuals. As ETSU email can be accessed from any location on a device of the student's choosing, this protects their confidentiality and ensured that they are able to conduct the questionnaires in private. In order to provide confidentiality and protect the participants, students do not have to provide any login information to access the survey, but are instructed to only take it once.

Data Analysis

For the data analysis conducted in this study, Statistical Package for the Social Sciences was used to conduct t-tests, chi square tests, and ANOVA tests were used to analyze, compare, contrast, and correlate different variables. A t-test is a test used to analyze for significant

differences between two groups and was used to compare results of assessment tools for depression and anxiety between pre-nursing and nursing students in the nursing program, male and female genders, and utilization of mental health services or lack of utilization, feeling that there is adequate or inadequate mental health services, and feeling that mental health services are accessible or not. Additionally, the t-test was used to analyze how use of mental health services or lack of use, feelings of adequacy of mental health services or lack of, and feelings of accessibility to mental health services or lack of influence the scores of the assessment tools for depression and anxiety. The ANOVA test is similar to the t-test but is used for data groups of three or more to understand whether there are significant relationships between the independent or dependent variables. For this study, the data compared is the different scores on the assessment tools for depression and anxiety between academic years ranging from freshman to juniors, between the different age ranges, and semesters in the nursing program ranging from first through fifth semester. Next, a chi square is used to determine the association between variables. In this study, the chi square analysis test was used to understand the percentage of students in each age group, academic year, program (nursing or pre-nursing), and semester of nursing school who used or did not use mental health services, believed they were adequate or not, or believed they were accessible or not. Finally, a Pearson correlation test is used to analyze whether or not one variable influence another, or the strength of correlation.

Research Results and Statistical Analysis

To summarize, a total of 173 responses to the anonymous survey were received. Of these results, n = 99 or 57.2 percent were nursing students, and n = 74 or 42.8 percent were pre-nursing or HPNU students. The population of undergraduate nursing students that attend ETSU is N = 1033, which leads to a nursing student respondent rate of 9.6 percent with a sample size of

n = 99. Demographic statistics on the population of pre-nursing or HPNU students were unable to be located.

Demographic Data and Mental Health Service Usage

Nursing student respondents by gender results in n = 20 or 11.6 percent reporting as male and n = 153 or 88.4 percent reporting as female. The population shows that there are N = 147 or an enrollment rate of 14.3 percent consisting of males, and N = 885 or an enrollment rate of 85.7 percent consisting of females, with an additionally N = 1 respondent selecting prefer not to answer. These results are comparable to the results of this study's survey and allow the gender-related data to be relevant. See table 1 for more details.

Table 1

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	20	11.6	11.6	11.6
	Female	153	88.4	88.4	100.0
	Total	173	100.0	100.0	

The age group assessment revealed that the highest percentage of students enrolled are traditionally aged students, with ages 18 to 22 consisting of 87.3 percent of respondents, and ages 23 and above making up 12.7 percent of respondents, see table 2. Seniors' response rate was the highest followed by juniors, see table 3. Data collected on nursing program shows traditional students as the highest respondent rate followed by accelerated students. Comprehensive breakdown showing 0.6 percent of respondents are LPN to BSN students, 0.6 respondents of students are RN to BSN students, 8.7 percent of students are Accelerated BSN students, and finally 47.4 percent students are Traditional BSN program students. Of the semester in the

nursing program, fourth semester had the highest response rate with 30.6 percent of respondents, followed by first semester with 19.4 percent or respondents, see table 4.

Table 2

Age Groups

	Frequency	Percent	Valid Percent	Cumulative Percent
18-22	151	87.3	87.3	87.3
23-29	10	5.8	5.8	93.1
30-39	7	4.0	4.0	97.1
40+	5	2.9	2.9	100.0
Total	173	100.0	100.0	

Table 3

Current Academic Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Freshman	43	24.9	24.9	24.9
	Sophomore	28	16.2	16.2	41.1
	Junior	48	27.7	27.7	68.8
	Senior	54	31.2	31.2	100.0
	Total	173	100.0	100.0	

Table 4

Semester in Nursing Program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1st Semester	19	11.0	19.4	19.4
	2nd Semester	17	9.8	17.3	36.7
	3rd Semester	15	8.7	15.3	52.0
	4th Semester	30	17.3	30.6	82.7
	5th Semester	17	9.8	17.3	100.0
	Total	98	56.6	100.0	
Total		173	100.0		

Results of the study revealed that of pre-nursing and nursing students, n = 30 students or 17.3 percent of respondents have used ETSU mental health services. Additionally, results revealed that 20 respondents or 11.6 percent have tried to use ETSU mental health services, but have been unable to. Data received from the counseling center indicates that students with a declared major of nursing are the third highest users of counseling services, behind psychology in first, and digital media in second. Nursing students consist of 7.8 percent of all appointments at the ETSU Counseling Center, and there are many other counseling services offered at a variety of places on campus. However, accessibility to services has been shown to be difficult by the number of students unable to receive mental health services even after seeking them out.

T-Tests, ANOVA Tests, and Chi-squares

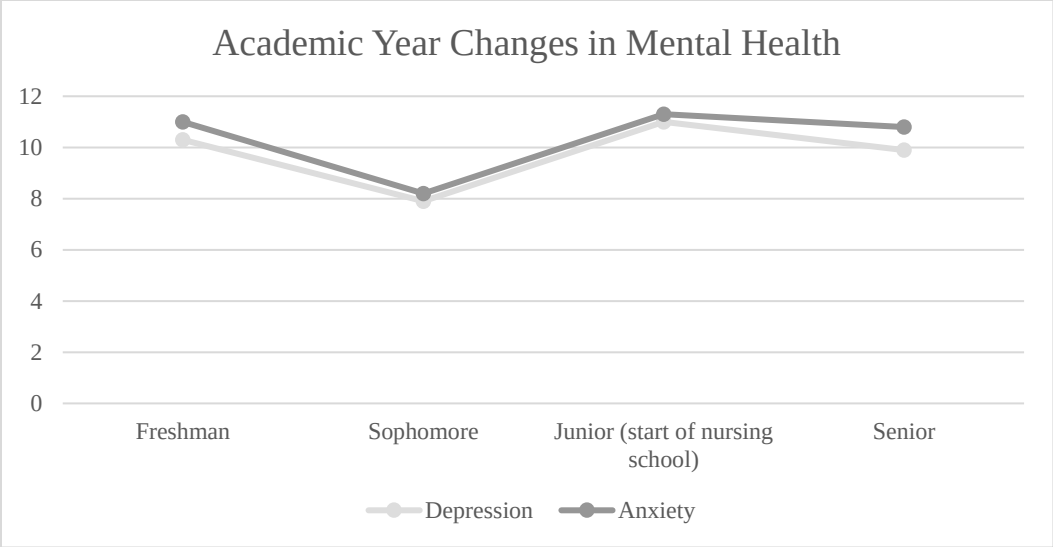
T-tests were performed on data sets to determine if there were significant differences between demographic portions of the survey and the GAD-7 and PHQ-9. As consistent with the findings of the literature review, those identifying as males reported significantly lower levels of depression and anxiety than women. With an average depression score of 7.4, consistent with mild depression (scores five through nine), and an average anxiety score of 7.0, consistent with mild anxiety (scores five through nine). However, those identifying as female reported scores over 50 percent higher, with an average depression score of 10.3 consistent with moderate depression (scores 10 through 14), and an anxiety score of 11.0 consistent with moderate anxiety (scores 10 through 14).

The difference between the depression and anxiety score of pre-nursing and nursing students was not significant. Scores revealed an anxiety score average of 10.2 for nursing students and 9.7 for pre-nursing students, and a depression score of 10.7 for nursing students and 10.3 for pre-nursing students. This result indicated that both groups, if rounded to the nearest

whole number, have scores consistent with both moderate levels of anxiety and depression. Though not significant, these results reveal an interesting finding, as the existing literature displays an improvement in mental health as the students progresses through college. Upon entrance to the nursing program, students have already completed at least three to four semesters of college and would be expected to improve as they learn to adapt the new stressors faced when attending a university. This result could be indicative of the added stress of the transition from pre-nursing to nursing courses, in addition to increased academic load.

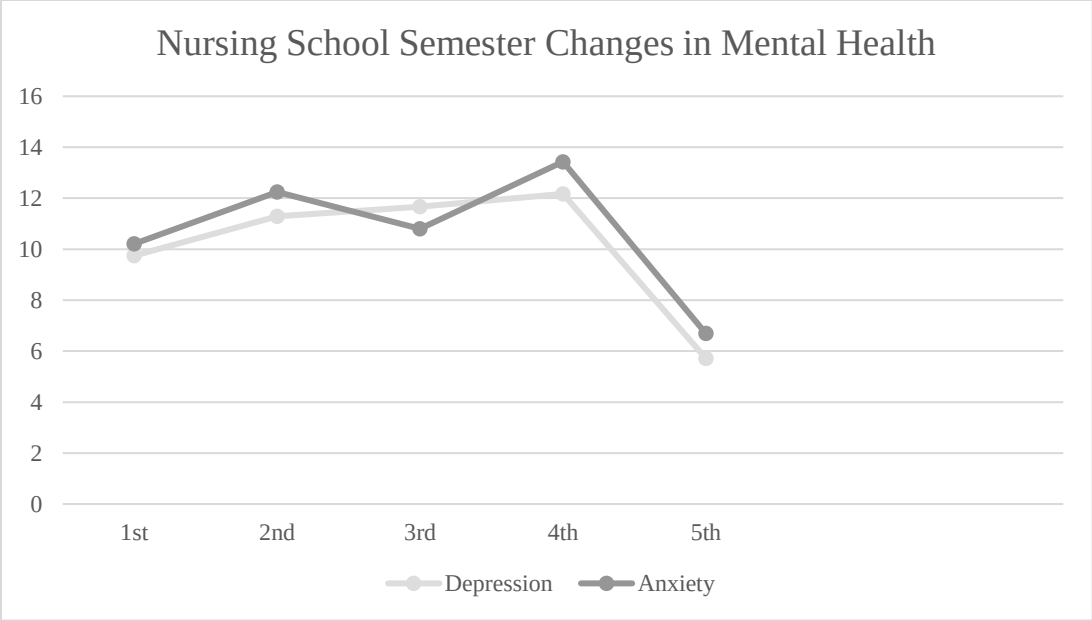
To further emphasize this finding, results from the ANOVA test for academic years does not show a significant difference, but does identify a trend indicating increased stress at the start of nursing school. Students who reported being a Junior and Senior as their academic year were enrolled nursing courses. As the program requires a minimum of three semesters of pre-requisite courses before entering the nursing program, those who responded freshman and sophomore had not entered the program yet, with the exception of inaccurate responses. Based on this information, the results show initially high scores PHQ-9 and GAD-7 scores that begin to decline progressing into sophomore year until the transition into the nursing program during the Junior year, see figure one. Respondents consisted of 43 freshmen, 28 sophomores, 48 juniors, and 54 seniors. The highest depression scores were reported by juniors at 11.0, followed by freshmen at 10.3. The highest anxiety scores were reported by freshmen at 11.0, followed by juniors at 11.3. These results reveal depression and anxiety peaking during nursing students' junior year, contraindicatory to trends suggested by existing literature.

Figure 1



The ANOVA test was also run to compare the depression and anxiety scores across semesters of the nursing program. This was done to assess if nursing students learned to adapt to stressors following the transition from pre-nursing to nursing. Results revealed a significant difference between semesters of the nursing program but did not reveal an overall downward trend as predicted by the results of the literature review, similar to the trend with academic year. Depression revealed an upwards progression trend until fifth semester. The average depression scores per semester was highest in fourth semester at 12.2, followed by second semester at 11.3, both consistent with moderate levels of anxiety. Fifth semester contained the lowest the lowest scores of 5.7. Anxiety revealed a more variable progression, peaking in second and fourth semester, 12.2 and 13.4, and lowest in the fifth semester at 6.7. Results are shown in figure two below.

Figure 2



While not statistically significant due to inadequate sample size, Chi-Square tests reveal similar trends to mental health changes correlated with the usage of mental health services in the progression through and semesters of the nursing program. Similar trends are also indicated in mental health changes through academic years with mental health service utilization. Having used mental health service is as follows for academic years with freshmen 9.3 percent, sophomores 10.7 percent, 12.5 percent, and seniors 31.5 percent. Mental health service usage is as follows for nursing students by semester. For first semesters, 10.5 percent have utilized services, for second semesters 11.8 percent have utilized services, for third semesters 20.0 percent have utilized services, for forth semesters 40.0 percent have utilized services, and for fifth semesters, 23.5 percent have utilized services. See Figures three, four, and five below and compare to trends in mental health by academic year and semester in nursing program to mental health scores represented in Figures one and two. There is a notable correlation between increase in mental health scores and usage of mental health services.

Figure 3

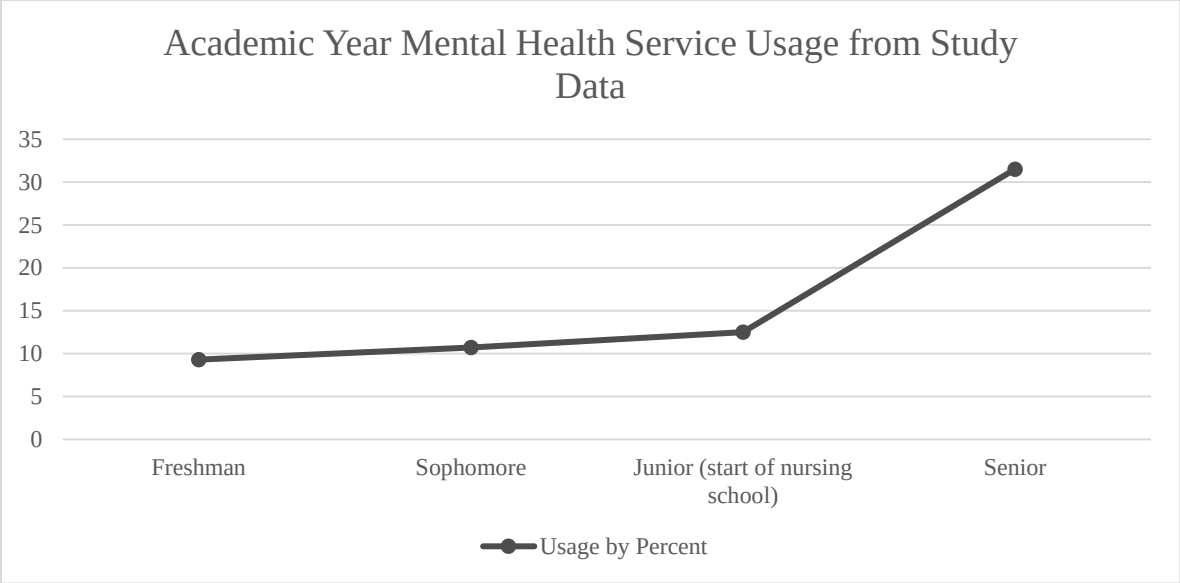


Figure 4

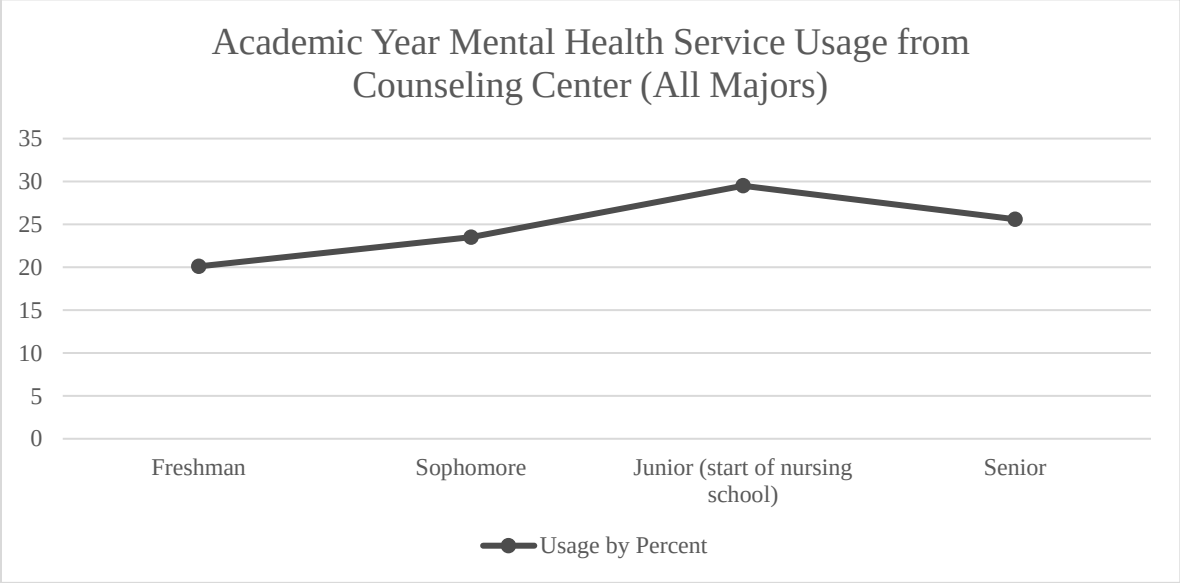
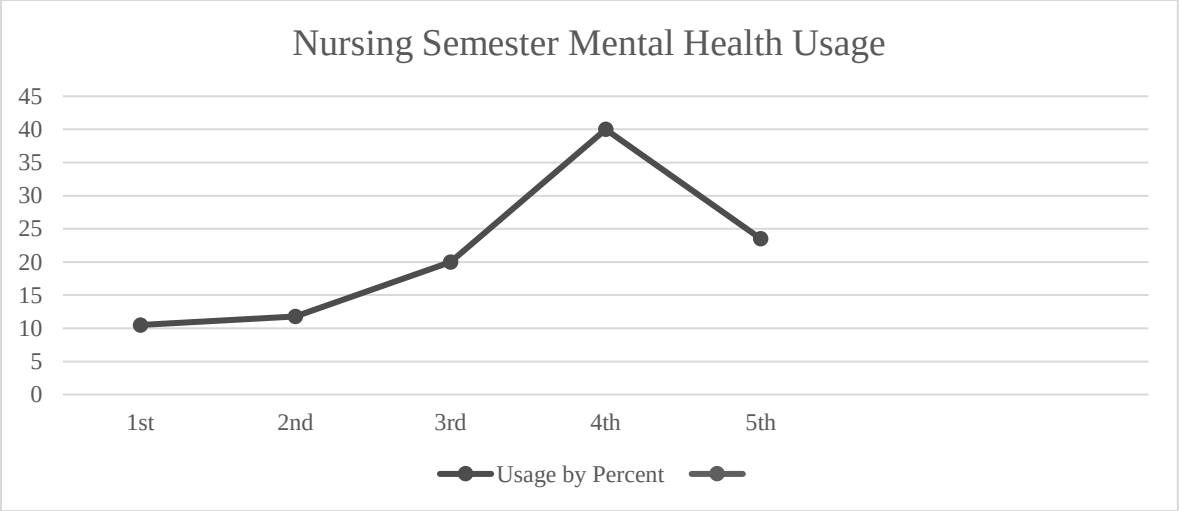


Figure 5



The T-test was also used to compare the questions on usage of mental health services with mental health scores. Usage of ETSU provided mental health services did not indicate a significant difference in the mental health scores of those who utilized services and did not. Those who reported using mental health services n = 30 or 17.3 percent of respondents had an average depression score of 10.6 and anxiety score of 11.5. While those who reported absence of utilization of mental health services, n = 143 or 82.7 percent of respondents, had an average depression score of 9.9 and anxiety score of 10.4.

T-test results indicated significantly higher levels depression and anxiety scores in respondents who reported having attempted to use ETSU mental services but had been unable to due to limited availability or other concerns. According to the results of the survey, n = 20 or 11.6 percent of respondents reported being unable to access mental health services provided. These students' average depression score is 13.0, consistent with moderate depression, and average anxiety score is 14.6, consistent with severe anxiety. Conversely, students who denied inability to access services average scores were 9.4 for depression, consistent with mild depression, and 10.0 for anxiety, consistent with moderate anxiety.

Additional results showed that n = 39 or 22.5 percent of respondents felt that ETSU did not have adequate mental health services available to the pre-nursing and nursing student population. A positive correlation was also identified between the depression scores and the anxiety scores of pre-nursing and nursing students.

Discussion

The intended use of the integrative review of literature was to assess how mental health changes during the transition from high school to college, examine what interventions are already in place, and if the interventions are effective. This was done by assessing the preexisting information in the fields of adolescent and young adult mental health to see if and where there is a gap in the current research. Additional content was then added to the literature review to focus on the mental of health of pre-nursing students and nursing students at universities. This was done in order to narrow the scope of the study into research feasible at an undergraduate level. Information indicating the link between adolescent high school student mental health and university young adult mental health was included, as it is still a significant predictor of the mental health of nursing students and pre-nursing students.

Current research indicates a link between the mental health of adolescents and lifelong mental health outcomes of individuals if mental health deficits are not addressed in adolescence. Additionally, the literature stressed that the age young adults enter college is a critical point in the development of self-concepts, identity, and purpose. This is a point at which many stressors and decisions intersect and can overburden an individual, who if at risk, may not be able to handle additional stress. Based on the review of the existing literature, the current interventions in place to improve mental health deficits or prevent its decline during the transition from high school to college are lacking in effectiveness as well as utilization. Other studies showed that,

when utilized, interventions to improve mental health in nursing students are effective, indicating the importance of accessibility. The results of this study could be indicative that the lack of utilization is related to a lack of accessibility, with over 10 percent of pre-nursing and nursing students unable to access mental health resources after attempting to do so.

One of the primary conclusions of the literature which bares far-reaching implications is the systemic need for a need for a form of mental health screening as students not only initially enter college, but also continue through. This is evidenced by multiple studies, all of which recommend further research be done. These studies show a positive correlation of depression and anxiety with history of bullying prior to college, a positive correlation of suicidality with having experienced partner abuse and betrayal prior to college, increased anxiety and depression resulting from sexual assault in the first year of college, and decreased mental health positively correlated with lower GPA in college (Carey et al., 2018; Reid et al., 2016; Thompson et al., 2018; Luca et al., 2016). The result of this study supports this conclusion as well. Mental health in nursing students is highly variable throughout the progression through college, with scores peaking in the fourth semester of the nursing program during students' senior year well within the cutoff for moderate depression and severe anxiety. Existing research as well as this study point towards one definitive need. There is a need for proper initial screening and continued monitoring systems to identify those who are at highest risk for mental health deficits and to provide therapeutic support and treatment throughout students' progression through college.

This need could be addressed by the development of interventions identifying transitional and time-based risks by targeting individuals where risk factors intersect to reduce mental health deficits, primarily suicide morbidity and mortality (Thompson et al., 2018). Further prevention of mental health deficits relies not only on the creation of new programs, but also evaluating the

systems currently in place; studies show that many of the current interventions in place to reduce suicidality are ineffective (Rith-Najarian et al., 2019; Mortier et al., 2018).

The results of this study indicates similar implications. Based on the data collected, it is hypothesized that the strain of the transition from pre-nursing to nursing negatively effects mental health. These results highly correlate with existing literature indicating high prevalence of depression and anxiety among nursing students (Li et al., 2018). While the overall average scores between pre-nursing and nursing students are not significantly different, there is a notable difference in the anxiety and depression scores between sophomore and juniors, the two groups in semesters before and following the entrance to nursing school. This indicates an increased level of stressors faced related to entrance into nursing school, whether it be the transition itself, or increased workload.

Existing research underlines that the college campus environment is an ideal location to identify at risk students and provide interventions, indicating the importance that further research be done in the field, due to the fact that the help seeking tendencies of college students are higher than in the general population (Mortier et al., 2018). From a wholistic nursing perspective, college is important because low levels of educational attainment are linked with higher levels of health disparities, including major depression and chronic health problems (Lee et al., 2016). Overall, screening college students and providing personalized interventions is important because it could lead to improved academic attainment, mental health, and quality of life, thereby decreasing suicidal tendencies, attempts, and completions.

Next, indicated primarily by the literature review, is the conclusive need for mental health to be more effectively addressed in adolescence. Though mental health in college often gets the most attention, the literature indicates that those with the highest prevalence of, and risk for,

deficits in college, and even nursing school, had issues that began in adolescence and were never properly addressed. For example, according to one study, any form of trauma experienced before the age of 17 greatly increased the prevalence of STB later in life (Mortier et al., 2018). The literature also indicates that adolescents have very low usage of mental health services, with one recent study indicating that 80 percent of children and adolescents in need of mental health services do not receive them (Orth et al., 2020). In order to prevent high risk mental health deficits in college, more therapeutic support should be put in place and made more easily accessible for adolescents, especially high schoolers.

Not only does mental health need to be addressed in adolescents and college students as a whole, but more specifically in nursing students. This is supported by this study identifying high levels of depression and anxiety among these students, in addition to high levels of attendance to mental health interventions, such as counseling. Existing literature identifies a need for mental health services in the nursing student demographic because nursing students face more stressors, have more responsibilities, and are exposed to more risk factors for mental illness than other undergraduate students (Karaca et al., 2019; Savitsky et al., 2020; Hsiung et al., 2019; Li et al., 2018). Additionally, research has highlighted the effectiveness of interventions such as psychotherapy on the mental health of nursing students; therefore, further research could be done to analyze the effectiveness of existing interventions or lack thereof (Li et al., 2018). The results of this study reveal that regardless of the effects of transitions on mental health, it is obvious that the mental health of nursing students is an at risk and underserved category, with 25.9 percent of respondents scoring within the range consistent with moderate to severe anxiety and 22.8 percent of respondents scoring within the range of moderate to severe depression. This is due to not only

the high mental health scores reported by respondents, but also the high usage and attempted usage of mental health services among pre-nursing and nursing students.

Limitations and Weaknesses

Continuity

Due to the constraints of the HID nursing program allowing for limited time for research, continuity is one of the major weaknesses of this study when assessing transitional mental health. Ideally, a longitudinal study would have been utilized to analyze how a continuant cohort of respondent's mental health changes as they progress through college and into the nursing program. While the study is not continuant, it is conducted at only one university, allowing for a close replica of shared experiences from group to group of students in academic year and nursing semester. Further longitudinal research should be done in this understudied field of transitional mental health to increase the accuracy of assessing the impact of the progression through college into nursing school on mental health.

Gender

The existing literature indicates that women report more symptoms than men on assessment questionnaires and experience mental health deficits at a higher prevalence. Because mental health is assessed primarily through self-reported questionnaires such as in this study, it can be difficult to accurately assess. For example, literature indicates that men could choose to report lower scores than what they are actually feeling, due to the societal expectation to not be perceived as weak or vulnerable. It could also be possible that men experience mental health issues at a lower rate, but this is unlikely, as men account for over three fourths of all completed suicide attempts. The difference in mental health scores between genders was shown to be

significant in this study as well, with male respondents scoring only 7.4 and 7.0 in depression and anxiety respectively, consistent with mild anxiety and depression. Female respondents scored 10.3 and 11.0 in depression and anxiety respectively, above the cutoff for moderate anxiety and depression. For this reason, the results of this study may not be generalizable across all genders, as those identifying as female make up 88.4 percent of respondents. The background literature correlates with these findings, with only seven to 19 percent of nursing students being male identifying.

Generalizability

As this study was only conducted at East Tennessee State University, it is not generalizable to the pre-nursing and nursing students at all universities. The bulk of the literature in the review was also taken from western countries, making it ungeneralizable globally, where a myriad of cultures intersect and impact mental health outcomes and treatment. There can be many factors which influence mental health in a region. For example, regional religiosity could be associated with stigma for mental health treatment, thereby worsening outcomes. Further research could be done on this same topic, but across a range of universities to assess mental health to allow for increased generalizability.

Impact of Covid-19

As with all research conducted over the previous few years, the impact of the global pandemic caused by the SARS-CoV-2 virus must be noted. One article written during the Spring of 2020 noted the impact of Covid-19 on the mental health of nursing student, showing increased anxiety in fear of being infected, transition to online classes, and unknown expectations for the future (Savitsky et al., 2020).

Many students at ETSU who were surveyed in this study had to adapt to the transition both to and from online schooling, some entering nursing school entirely virtually or with only virtual college classes prior. Additionally, clinical education was drastically altered, with the temporary introduction of virtual clinicals and reduced clinical times. In addition to these factors, the healthcare system has been severely strained during the pandemic, leading to nursing preceptors being more hostile towards students and potentially adding additional stress. These recurring transitions in education and even life itself could have negatively impacted the mental health of many respondents, resulting in altered mental health scores.

Implications and Conclusions

According to this study, the mental health of nursing students is subpar at best. The respondent's average assessment scores were above the cutoffs for moderate anxiety and depression for both groups, and more than 10 percent of respondents reported scores within the cutoff of severe anxiety and depression. However, this could be related to many factors such as transitional stress in addition increased workload and academic expectations.

Most notably, the findings of this study contraindicate the trends in mental health of college students as a whole revealed in current literature. This is significant because current university based mental health interventions are targeted at college students as a whole. There are currently no targeted interventions for the mental health of nursing students and current interventions do not consider the impact of entering academic undergraduate programs. The bulk of protective interventions to prevent and improve mental health deficits and even suicidality among college students are targeted at freshmen, who typically present with the highest rates of mental health deficits. This is not the case with nursing students in this study, whose mental

health variably worsens rather than improving during the progression through college, climaxing in students' junior year.

While it is evident that there are many factors at play in the mental health of pre-nursing and nursing students, it nonetheless apparent that transitional mental health is an understudied field with far-reaching implications. The introduction of additional mental health resources for both freshmen and nursing students at ETSU is essential to decrease morbidity and even mortality among these high-risk students. These interventions could target those undergoing significant transitional stress and provide effective coping methods in addition to medicinal management as needed. Additionally, results reveal that accessibility is severely lacking at ETSU for students who desire mental health services, with over 10 percent of respondents unable to access mental health resources, indicating that the current interventions in place are inadequate to support those with mental health disorders.

For university students, further research should be done not only into the transitional mental health of nursing students, but also of other health science programs. Furthermore, as indicated by bulk of the research conducted in the literature review, there is a vast gap in research on the transitional effects from high school to university on mental health that is imperative to be addressed by future research. Overall, transitional mental health is sparsely studied and this study indicates a cast gap in research on this topic, further elucidating the need for additional research. In a world where suicide is the second leading cause of death among adolescents and young adults, and with mental health deficits such as anxiety and depression are reaching epidemic proportions, it is vital that support be put in place for those at risk.

References

Affleck, W., Carmichael, V., & Whitley, R. (2018). Men's Mental Health: Social Determinants and Implications for Services. Canadian Journal of Psychiatry : Revue Canadienne de Psychiatrie., 63(9), 581–589. https://doi.org/10.1177/0706743718762388

Al-Alawi, R., Oliver, G., & Donaldson, J. (2020). Systematic review: Predictors of students' success in baccalaureate nursing programs. Nurse Education in Practice., 48. https://doi.org/10.1016/j.nepr.2020.102865

Bandelow, B., Michaelis, S., & Wedekind, D. (2017). Treatment of anxiety disorders. *Dialogues in clinical neuroscience*, *19*(2), 93–107. https://doi.org/10.31887/DCNS.2017.19.2/bbandelow

Bettis, A., Coiro, M., England, J., Murphy, L., Zelkowitz, R., Dejardins, L., Eskridge, R., Adery, L., Yarboi, J., Pardo, D., & Compas, B. (2017). Comparison of two approaches to prevention of mental health problems in college students: Enhancing coping and executive function skills. *Journal of American College Health, 65*(5), 313–322. https://doi.org/10.1080/07448481.2017.1312411

Bittencourt, M. N., Marques, M. I. D., & Barroso, T. M. M. D. A. (2018). Contributions of nursing theories in the practice of the mental health promotion. *Revista De Enfermagem Referência, 4*(18), 125-132. http://dx.doi.org/10.12707/RIV18015

Carey, K. B., Norris, A. L., Durney, S. E., Shepardson, R. L., & Carey, M. P. (2018). Mental health consequences of sexual assault among first-year college women. *Journal of American College Health: Journal of ACH*, *66*(6), 480–486. https://doi.org/10.1080/07448481.2018.1431915

Farrer, L., Gulliver, A., Katruss, N., Fassnacht, D., Kyrios, M., & Batterham, P. (2019). A novel multi-component online intervention to improve the mental health of university students: Randomised controlled trial of the Uni Virtual Clinic. *Internet Interventions: The Application of Information Technology in Mental and Behavioural Health, 18*, 100276–. https://doi.org/10.1016/j.invent.2019.100276

Hsiung, D., Tsai, C., Chiang, L., & Ma, W. (2019). Screening nursing students to identify those at high risk of poor mental health: a cross-sectional survey. BMJ Open, 9(6), e025912–e025912. https://doi.org/10.1136/bmjopen-2018-025912

Jennings K. M. (2017). The Roy Adaptation Model: A theoretical framework for nurses providing care to individuals with anorexia nervosa. *ANS. Advances in Nursing Science*, *40*(4), 370–383. https://doi.org/10.1097/ANS.0000000000000175

Karaca, A., Yildirim, N., Cangur, S., Acikgoz, F., & Akkus, D. (2019). Relationship between mental health of nursing students and coping, self-esteem and social support. *Nurse education today*, *76*, 44–50. https://doi.org/10.1016/j.nedt.2019.01.029

Karyotaki E, Cuijpers P, Albor Y, Alonso J, Auerbach RP, Bantjes J, Bruffaerts R, Ebert DD, Hasking P, Kiekens G, Lee S, McLafferty M, Mak A, Mortier P, Sampson NA, Stein DJ, Vilagut G, & Kessler RC. (2020) Sources of stress and their associations with mental disorders among college students: Results of the World Health Organization world mental health surveys international college student initiative. *Frontline Psychology*. 30;11:1759. doi: 10.3389/fpsyg.2020.01759. PMID: 32849042; PMCID: PMC7406671.

Lecloux, M., Maramaldi, P., Thomas, K. & Wharff, E. (2017). Health care resources and mental health service use among suicidal adolescents. *The Journal of Behavioral Health Services & Research, 44*(2), 195-212. http://dx.doi.org/10.1007/s11414-016-9509-8

Lee, J., Kosterman, R., Jones, T., Herrenkohl, T., Rhew, I., Catalano, R., & Hawkins, J. (2016). Mechanisms linking high school graduation to health disparities in young adulthood: A longitudinal analysis of the role of health behaviours, psychosocial stressors, and health insurance. *Public Health, 139*, 61–69. https://doi.org/10.1016/j.puhe.2016.06.010

LeMoult, & Gotlib, I. H. (2019). Depression: A cognitive perspective. Clinical Psychology Review, 69, 51–66. https://doi.org/10.1016/j.cpr.2018.06.008

Li, C., Yin, H., Zhao, J., Shang, B., Hu, M., Zhang, P., & Chen, L. (2018). Interventions to promote mental health in nursing students: A systematic review and meta-analysis of randomized controlled trials. *Journal of advanced nursing*, *74*(12), 2727–2741. https://doi.org/10.1111/jan.13808

Luca, S. M., Franklin, C., Yueqi, Y., Johnson, S., & Brownson, C. (2016). The relationship between suicide ideation, behavioral health, and college academic performance. *Community Mental Health Journal, 52*(5), 534–540. https://doi.org/10.1007/s10597-016-9987-4

Milin, R., Kutcher, S., Lewis, S. P., Walker, S., Wei, Y., Ferrill, N., & Armstrong, M. A. (2016). Impact of a mental health curriculum on knowledge and stigma among high school students: A randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry*, *55*(5), 383–391.e1. https://doi.org/10.1016/j.jaac.2016.02.018

Miller, K., Wakefield, J., & Sani, F. (2018). Identification with the school predicts better mental health amongst high school students over time. *Special Issue.* 21-29.

Mortier, P., Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., Hwang, I., Kessler, R. C., Liu, H., Nock, M. K., Pinder-Amaker, S., Sampson, N. A.,

Zaslavsky, A. M., Abdulmalik, J., Aguilar-Gaxiola, S., Al-Hamzawi, A., Benjet, C., Demyttenaere, K., Florescu, S., … Bruffaerts, R. (2018). Suicidal thoughts and behaviors among college students and same-aged peers: results from the World Health Organization World Mental Health Surveys. *Social Psychiatry and Psychiatric Epidemiology*, *53*(3), 279–288. https://doi.org/10.1007/s00127-018-1481-6

Mortier, P., Demyttenaere, K., Auerbach, R. P., Cuijpers, P., Green, J. G., Kiekens, G., Kessler, R. C., Nock, M. K., Zaslavsky, A. M., & Bruffaerts, R. (2017). First onset of suicidal thoughts and behaviours in college. *Journal of Affective Disorders*, *207*, 291–299. https://doi.org/10.1016/j.jad.2016.09.033

Orth, Z., & Brian, v. W. (2020). Adolescent mental wellness: A systematic review protocol of instruments measuring general mental health and well-being. *BMJ Open, 10*(8), http://dx.doi.org/10.1136/bmjopen-2020-037237

Prochaska, J. D., Le, V. D., Baillargeon, J., & Temple, J. R. (2016). Utilization of professional mental health services related to population-level screening for anxiety, depression, and post-traumatic stress disorder among public high school students. *Community Mental Health Journal*, *52*(6), 691–700. https://doi.org/10.1007/s10597-015-9968-z

Reid, G., Holt, M., Bowman, C., Espelage, D., & Green, J. (2016). Perceived social support and mental health among first-year college students with histories of bullying victimization. *Journal of Child and Family Studies, 25*(11), 3331–3341. https://doi.org/10.1007/s10826-016-0477-7

Rith-Najarian, L., Boustani, M., & Chorpita, B. (2019). A systematic review of prevention programs targeting depression, anxiety, and stress in university students. *Journal of Affective Disorders., 257*, 568–584. https://doi.org/10.1016/j.jad.2019.06.035

Savitsky, B., Findling, Y., Ereli, A., & Hendel, T. (2020). Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse education in practice*, *46*, 102809. https://doi.org/10.1016/j.nepr.2020.102809

Spitzer, R. L., Williams, J. B. W., & Kronenke, K. (1999). Primary Care Evaluation of Mental Disorders Patient Health Questionnaire. *PRIME-MD*.

Thompson, M., & Swartout, K. (2017). Epidemiology of suicide attempts among youth transitioning to adulthood. *Journal of Youth and Adolescence, 47*(4), 807–817. https://doi.org/10.1007/s10964-017-0674-8

Wiens, K., Bhattarai, A., Pedram, P., Dores, A., Williams, J., Bulloch, A., & Patten, S. (2020). A growing need for youth mental health services in Canada: Examining trends in youth mental health from 2011 to 2018. 1-9. *Epidemiology and Psychiatric Sciences, 29,* http://dx.doi.org/10.1017/S2045796020000281

Xanthopoulos, M.S., Benton, T., Lewis, J. (2020). Mental Health in the Young Athlete. *Current Psychiatry Report 22***,** 63 https://doi.org/10.1007/s11920-020-01185-w