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An Evaluation of an Integrated Multidisciplinary Early Identification and Triage of College Students at Risk for Anxiety and Depression

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This doctoral project, directed and approved by the candidate's committee, has been accepted by the College of Graduate and Professional Studies of Abilene Christian University in partial fulfillment of the requirements for the degree

Doctor of Nursing Practice

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by

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Dedication

This DNP project is dedicated to every student who has struggled in college with mental health conditions, particularly those with symptoms exceeding their own capacity of management. The collective efforts of this project were focused to engage students proactively by providing early identification and targeted treatment so that fewer students are met with help only after symptoms are acute, severe, and threatening to their ability to thrive or, in many cases, survive. May you know hope and be introduced to hope and healing!

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Mom, thank you for standing in the gap while I chased my dream. Your many hours of standing in the gap will never be forgotten!

Jesus, you are my courage and strength to emerge. Thank you for never giving up on me and for giving kind gifts to an imperfect gal. May the return on your investment be a tangible extension of your healing and a sign of the utmost gratitude for the rescue you've given to me. With an eye toward the kingdom, my work is unto you … ALWAYS!

Abstract

College students across the United States are experiencing an increasing prevalence of mental health concerns, such as anxiety and depression. Suicide is currently the second most common cause of death among U.S. college students. At the project site, the university health services report that mental health issues significantly impact the students' academic progress, contributing to poor performance, inability to complete assignments, and sometimes forced attrition. Campus providers traditionally respond when students approach, often at the point of crisis or exacerbation. For this Doctor of Nursing Practice project, the researcher evaluated the impact of a pilot program using an interdisciplinary approach to universal proactive mental health screening and triage. A retroactive chart audit was utilized to evaluate the outcomes of this mental health pilot program. Out of a total of 287 students agreeing to participate during their primary care appointment visit, 61 participants scored at risk for anxiety and/or depression on the Patient Health Questionnaire-4 and were referred to an in-house behavioral health consultant. The majority of at-risk participants (39.3%, $n = 24$) scheduled and attended at least one follow-up appointment with a behavioral health consultant. The results suggest the usefulness of a comprehensive, proactive mental health program in detecting undergraduate students at risk for anxiety and/or depression. This approach has the potential to address mental health issues among college students in a timely fashion and improve not just individual mental health but academic success.

Keywords: PHQ-4, college students, anxiety, depression, interdisciplinary team, triage

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Chapter 1: Introduction

As young adults in the United States transition to college, they are faced with a number of challenges in addition to the pursuit of a degree. There is a steep learning curve as many are learning for the first time to live away from home, adjust to new academic and social pressures, and prepare for the professional world. These transitional adjustments come at a time when mental health concerns, such as anxiety and depression, are also peaking in young adults (Khubchandani et al., 2016; Worfel et al., 2016). University health care providers may not be fully prepared to identify students at risk for anxiety or depression. In this Doctor of Nursing Practice (DNP) project, I specifically evaluated the impact of an interdisciplinary approach to mental health screening in a college health setting. A retrospective chart audit (RCA) was utilized to evaluate the outcomes of a mental health pilot program.

Statement of the Problem

The rising mental health needs of U.S. college students present a significant problem for college health care providers. Students with mental health disorders are at greater risk for academic failure and academic attrition (Eisenberg et al., 2019; Khubchandani et al., 2016). Similarly, the financial impact on U.S. colleges nationwide from caring for students with mental health needs is significant, upward of a million dollars annually, which is not sustainable (Eisenberg, 2015).

A recent campus-wide needs assessment indicated significant levels of anxiety and depression among undergraduate college students at the DNP project site (American College Health Association [ACHA], 2018). Specifically, 15.4% of the college students at the project site reported a current diagnosis of anxiety, while 13.7% reported a current diagnosis of depression (ACHA, 2018). Additionally, as much as 24.4% of these college students reported that they had

experienced negative academic impacts (e.g., lower course grades, lower assignment grades, and/or dropping the course altogether) due to current symptoms of anxiety and depression (ACHA, 2018).

Background

Impact of Mental Illness

Mental illness affects approximately 1 in 5 U.S. adults (National Institute of Mental Health, 2019). A large nationwide study demonstrated that 39% of U.S. college students are affected by at least one mental health problem (Eisenberg et al., 2019). Undergraduate college students ages 18–24 years demonstrate a growing trend in those struggling with depression, anxiety, and other mood disorders (Roy, 2018). Anxiety and depression are often comorbid conditions with peaks noted in early adulthood (Khubchandani et al., 2016; Worfel et al., 2016) and can lead to an increase in suicidal ideation, functional impairment, and disability (Cano-Vindel et al., 2018; Chin et al., 2018; Kroenke et al., 2016; Mills et al., 2015). Mental health conditions are particularly important to college health professionals because college students commonly seek treatment for mental health concerns by a campus health care provider (Eisenberg et al., 2019; Lipson et al., 2019).

Financial Burden of Mental Illness

The cost of mental health disparities places a large drain on the resources of higher education systems. For example, Eisenberg (2015) estimated that the average public college in the United States spends $1 million annually on support staff and mental health providers. However, this figure does not include lost tuition dollars from student attrition, which is substantial because students with significant clinical depression are at nearly double the risk for attrition compared to students with minimal symptoms despite prior academic success

(Eisenberg et al., 2019). Additionally, the most significant predictors of academic failure are anxiety and depression (Khubchandani et al., 2016), which may also contribute to lost tuition dollars.

The financial burden to both college students and institutions of higher learning will continue without a program in place to help identify students proactively before they reach a crisis or exacerbation of anxiety or depression. The current reactionary approach (i.e., waiting for the student to seek out mental health care) at the project site does not serve students well. A proactive and comprehensive approach would help identify students at risk for anxiety and/or depression while guiding them to the appropriate level of care as indicated.

Impact on College Counseling Centers

More than 95% of U.S. college counseling center administrators are overwhelmed and underresourced to respond to the increasing number of students with preexisting, often significant and complex mental health conditions (Lipson et al., 2019). One large nationwide study of college students showed the burden for detection and treatment of mental health concerns cannot be placed solely on college counseling centers as 80% of suicides during an academic year were completed by students who had not engaged with any form of professional therapy (Drum et al., 2009, as cited in Khubchandani et al., 2016).

It is no longer acceptable to refer all students with mental illness symptoms to campus counseling centers. A lack of timely identification and appropriate mental health care can contribute to the exacerbation of mental illness symptoms, including suicide. Sole reliance on campus counseling centers for the management of the mental illnesses affecting college students is not a sustainable model to promote the best patient outcomes. As primary care clinics continue

to be a primary access point for mental health services (Jolly et al., 2016), there must be a more precise and proactive model of mental health care delivery within these settings.

Conflict With National Initiative

Healthy People 2020, developed by the U.S. government, is a collection of health recommendations for health care providers aimed at promoting health through the identification of health priorities and the utilization of preventative measures known to reduce illness, including mental health illnesses. For example, Healthy People 2020 objectives discuss improving mental health nationwide through the use of preventative interventions and connecting patients to appropriate mental health care (Office of Disease Prevention and Health Promotion [ODPHP], n.d.). More specifically, these nationwide initiatives seek to decrease the number of U.S. adults who experience major depression by increasing the number of primary care sites that provide mental health care. Increased screening for depression by primary care providers (PCPs) is recommended as best practice (ODPHP, n.d.).

The path to promoting mental health and decreasing the impact of mental illness is through the use of a more proactive and preventative approach. Unfortunately, PCPs are more often relying on clinical judgment rather than mental health screening tools (Bermejo et al., 2005, as cited in Chin et al., 2018). Therefore, providers must be aware that a mental health issue exists, which often places the burden on the patient to report. Narrow appointment time frames (e.g., 15 minutes) in primary care clinics further exacerbate poor identification of mental health conditions by PCPs.

The current approach to the identification of anxiety and depression within primary care settings is ineffective and can lead to the underdetection of mental illness (Chin et al., 2018). Patients with anxiety and depression who are not engaged in the correct treatment are at risk for

exacerbation of symptoms. A reactionary posture to mental health care delivery is inconsistent with nationally recognized proactive measures outlined in Healthy People 2020, which may lead to poorer patient outcomes.

Significance of the Problem

Significant mental health problems among college students have been noted at the project site: a private, conservative, faith-based university located in the southwestern United States that offers a broad range of undergraduate and graduate programs. A significant number of students at the DNP project site had experienced anxiety and depression as evidenced by higher use of college support services. For example, case management professionals who provide services for emotional care and high-risk cases (e.g., suicidal ideation and attempt) reported a 34% increase in cases over the last 3 academic years (Igram & Stephens, 2019). These same case managers have noted a 41% increase in suicidality and high-risk behaviors over the last 4 years (Igram & Stephens, 2019). The student health center (SHC), which houses and provides psychiatric services, reported a 38.5% increase over the last 3 years for mental health-related appointments. The university's counseling center provided mental health services to approximately 1 in 5 graduate and undergraduate students over the course of the 2017–2018 academic school year (Igram & Stephens, 2019). The learning center, which provides academic accommodations for both physical and mental health diagnoses, reported that 35% of registrants sought services for accommodations due to a mental health diagnosis (Igram & Stephens, 2019).

The high prevalence of mental health needs at the DNP project site was further illuminated by the results of a May 2018 administration of the National College Health Assessment II (NCHA-II) to both undergraduate and graduate students. The NCHA-II is a self-report of health-related behaviors conducted by the American College Health Association

(ACHA, 2018). The NCHA-II has provided the largest and most comprehensive set of data on college student health behaviors since 2000 (Igram & Stephens, 2019). This nationally administered survey includes a wide scope of health questions to provide an understanding of the overall wellness of college students in a specific institution, as compared to others nationwide. The university-specific student data point to a need for mental health services and are consistent with rising national trends (see Table 1).

Table 1

NCHA-II Results, May 2018

Within the last year, diagnosed or treated by a professional for the following	University students at project site (%)	National (%)
Panic attacks	10.0	11.5
Anxiety	15.4	22.3
Depression	13.7	18.4
Intentionally cut, burned, bruised, or otherwise injured yourself	5.0	9.0
Seriously considered suicide	9.0	13.0

The NCHA-II findings also reflect a significant rising trend in mental health diagnoses among college students nationwide. Another large-scale study, the Healthy Minds Survey (HMS), reported even higher levels of anxiety (28%) and depression (25%) in college students nationwide (Eisenberg et al., 2019). The HMS is a nationwide survey conducted annually to understand the mental health needs of graduate and undergraduate students. Eisenberg et al. (2019) concluded that rates of mental health issues among college students nationwide are higher

than what was discovered during previous years of survey administration. Therefore, mental health concerns among college students are not unique to the DNP project site. Rather, the impact of mental health conditions is far-reaching and affects U.S. college students nationwide.

Specifically, the population at the university project site reported that mental health issues significantly impact the students' academic progress, contributing to poor performance, inability to complete assignments, and sometimes forced attrition (see Table 2). Risk to student academic success may be compounded by the whole-person effects of mental health diagnoses, such as sleep disturbances; reduced physical activity; financial concerns; nebulous physical symptoms without an identifiable physical trigger, such as headaches; vague gastrointestinal symptoms; fatigue; and malaise (ACHA, 2018; Eisenberg et al., 2019). The negative physical, emotional, and academic effects of anxiety and depression are patient management concerns for college health providers.

Table 2

Mental Health Academic Impacts NCHA-II Results, May 2018

Factors contributing to significant, negative academic impacts	University students at project site (%)
Anxiety	24.4
Attention deficit/hyperactivity disorder	3.9
Depression	15.2
Eating disorder/problem	1.3
Stress	31.8

Attending to the significant increase in mental health needs at the project site requires a corresponding increase of resources in the form of staffing hours, often from multiple departments working collaboratively for treatment, programming, medication management, and therapy. There is a need to shift from a reactionary approach and move toward a proactive approach that focuses on early detection and intervention for mental health disorders (Eisenberg et al., 2019; Khubchandani et al., 2016; Lipson et al., 2019). Currently, there is a lack of a formal, universally accepted, proactive clinical practice guideline for an interdisciplinary mental health program for college students identified as being at risk for mental health issues. Reactionary care has created gaps in care that have contributed to the exacerbation of symptoms, academic decline, and sometimes withdrawal from college (Eisenberg et al., 2019; Ingram & Stephens, 2019; Khubchandani et al., 2016; Turner et al., 2018). This DNP research project was specifically designed to address the concerns related to the mental health issues in the college student population by evaluating the impact of an interdisciplinary mental health program aimed at early identification and triage of college students at risk for anxiety and depression.

Purpose of the Study

The purpose of this quantitative, retrospective, nonexperimental, descriptive DNP project was to evaluate the impact of an interdisciplinary mental health program for a team of college health professionals aimed at proactively assessing anxiety and depression in college students. An interdisciplinary team resides in the on-campus SHC at a university in the southwestern United States and includes a PCP, a behavioral health consultant (BHC), a psychologist, and a psychiatrist as needed. The interdisciplinary practice program intended to provide early identification and targeted intervention for those students identified in their primary care health appointment as having the potential for or exacerbating mental health issues that could impact

their overall well-being and academic achievement. In addition to providing early identification, the interdisciplinary mental health program assisted with triage of mental health concerns (e.g., anxiety and depression), maximized available resources, and intended to prevent the exacerbation of mental health issues and negative academic impact.

Nature of the Project

This DNP project was designed to evaluate the outcomes of an integrated mental health program at the university SHC, which was used to proactively assess college students at risk for anxiety and depression. The SHC provides primary care services for acute and chronic health conditions, including psychiatry and preventative care, for college students year-round. This on-campus clinic consists of three administrative front office staff, two full-time registered nurses, one full-time board-certified internal medicine physician, one full-time board-certified family nurse practitioner, one part-time board-certified psychiatrist, and one full-time director. A part-time board-certified family nurse practitioner and a variable number of BHCs, who are generally third-to-fifth-year doctoral students receiving training and supervision through the university's doctoral clinical psychology programs, are part of the interdisciplinary team.

Historically, students are referred to on-campus mental health services when they report a mental health concern to a provider or after extensive assessment for which no physical diagnosis is found for the originating physical complaint. At times students urgently access the SHC in emotional distress or crisis, and they are most commonly connected to the on-campus counseling center. The current process underscores the reactionary approach taken at the university, which places the burden on students to understand their need for mental health care, which can lead to additional emotional distress when symptoms are exacerbated to a level (e.g., chest pain related to a panic attack) requiring them to have an urgent evaluation at the SHC.

Detecting mental health concerns in primary care settings can be challenging because, despite a distinct link to a psychological diagnosis, patients are more likely to consult a primary care clinic because of physical complaints (Chin et al., 2018). There are a number of primary care clinics that use the well-validated Patient Health Questionnaire (PHQ-9) as part of their intake for every patient, despite history, to detect depression (Griffith et al., 2015; Manea et al., 2015; Schueller et al., 2015; Umegaki & Todo, 2017), including one study specific to college students (Keum & Miller, 2018). Broad screening for depression mirrors U.S. guidelines for mental health assessment, provided there are appropriate structures in place to manage and triage those identified upon screening (Manea et al., 2015).

In 2009, the Patient Health Questionnaire-4 (PHQ-4), a further abbreviated tool, was developed using two items from the PHQ-9 and two items from the Generalized Anxiety Disorder (GAD-7) metrics. The PHQ-4 is not diagnostic; however, it has been validated as useful for the screening of adult patients at risk for anxiety and depression in primary care settings (Cano-Vindel et al., 2018; Kroenke et al., 2009; Mills et al., 2015) and for broad screening in college students (Khubchandani et al., 2016; Worfel et al., 2016). A needs assessment was conducted by including the PHQ-4 screening tool as part of the patient intake for students seeking care from a PCP at the university SHC. Limited data exist regarding the frequency of administration. One study suggests a good starting point for implementation would be to offer the PHQ-4 annually (Khubchandani et al., 2016). Overall, early identification of mental health issues through universal screening improves the opportunity for further assessment in a timely manner (Rutherford, 2017).

Despite well-developed screening tools, PCPs are often inadequately prepared or do not have structures in place to care for the mental health needs of their patients. Integration of mental

health personnel within primary care centers is a well-documented solution to increase timely access, evaluation, and treatment of mental health conditions (Ede et al., 2015; Jacobs et al., 2018; Jolly et al., 2016). As students were screened and found to be with a score of three or more on either subscale of the PHQ-4, a referral to the in-house BHCs was provided to each student requiring further evaluation. BHCs are trained mental health professionals who provide specialized assessment and thorough diagnostic evaluation to confirm a diagnosis of anxiety, depression, or other mental health disorder. Upon diagnosis, the BHCs provided mental health triage, referral pending acuity, and targeted, brief treatment in-house when indicated. A stepwise approach has been found to be helpful with same-day assessment and high-volume interventions provided by BHCs for those with mild to moderate symptoms. Those with significant mental health history or elevated symptom acuity were referred to a higher level of care (e.g., prolonged therapy and/or referral to psychiatry; Jolly et al., 2016).

Scope and Limitations of the Project

This DNP project was not meant to identify students at risk for anxiety and depression campus-wide and was limited in scope to those who accessed care at the SHC. Undergraduate students 18–24 years old who accessed the on-campus SHC for primary care were offered the PHQ-4 screening tool upon medical appointment check-in. Screening was offered once per semester. Students who came in for additional follow-ups over the course of the semester were not rescreened for the purposes of this project. Students who came for appointments with the psychiatrist were excluded from the project as they had already been identified, diagnosed with a mental health illness, and triaged to the highest level of care for on-campus mental health services. However, there was no way to exclude students who came in for a primary care appointment with a PCP and happened to be an established patient with the psychiatrist. These

undergraduate psychiatry patients were included in the study. Any students who self-selected to opt out of the screening were also excluded from the study.

At this time, graduate students were excluded from the study as the focus of this project was to conduct pilot testing on the largest sample of the university population, which was the undergraduate students. As outcome data were collected on this sample, a future study may be warranted to include graduate students. The participant pool was limited by convenience sampling and a lack of a control group, as all consenting participants were provided the PHQ-4 screener.

PICOT Question

PICOT: What is the impact of a comprehensive interdisciplinary mental health program for undergraduate students utilizing the PHQ-4 screening tool and triage to positively identify students at risk for anxiety and/or depression over a 3-month implementation period?

P: all undergraduate college students ages 18–24 years accessing a primary care appointment medical appointment at the SHC

I: evaluation of a comprehensive interdisciplinary team utilizing the PHQ-4 screening tool and triage

C: none

O: early identification, referral, and triage of students at risk for anxiety or depression

T: 3-month period

The population was limited to traditional undergraduate students aged 18–24 years. Students in this age group are the primary focus of the project because they are the largest subpopulation at the project site. The interdisciplinary team consisted of a PCP (e.g., MD, nurse practitioner), a BHC, a psychologist, and a psychiatrist. There was no comparison group in this

project as the opportunity for PHQ-4 screening was offered to all SHC primary care patients. Very limited and poor preproject data at the SHC excluded the option of comparison data. Similarly, this specific proactive mental health program was a pilot study, meaning there were no comparison data from a previous run of this program. The 3-month period was selected because it was nearly the length of a full semester and that was the time frame in which the BHCs were available to support the necessary infrastructure.

Definition of Key Terms

Interdisciplinary care team. An interdisciplinary care team is a health care partnership consisting of both PCPs and mental health providers focused on the provision of coordinated patient care (Ede et al., 2015). The integration of mental health providers within a primary care setting is projected to be the future model of health care delivery (Ede et al., 2015). The specific team for this DNP project consisted of a PCP, a BHC, a psychologist, and a psychiatrist, which provided the infrastructure needed to identify, triage, and treat students at risk for anxiety and depression. All team members were housed within the SHC, with the exception of the psychologists who were across the campus.

PHQ-4 screening tool. The PHQ-4 is a four-item composite measure utilized to identify adults at risk for depression and anxiety (Kroenke et al., 2009).

Students at risk for anxiety. Students at risk for anxiety are those students scoring three or greater on the two questions related to anxiety (i.e., anxiety subscale) on the PHQ-4 screening tool (Kroenke at el., 2009).

Students at risk for depression. Students at risk for depression are those students scoring three or greater on the two questions related to depression (i.e., depression subscale) on the PHQ-4 screening tool (Kroenke et al., 2009).

Summary

Local university-specific data highlight the prevalence and significance of anxiety and depression on college students and the negative impact on personal and professional goals (ACHA, 2018). Likewise, the lack of a comprehensive mental health program for early detection, triage, and treatment leaves the SHC health care professionals responding in a truly reactionary fashion with less than ideal outcomes. This DNP project has the potential to fill in the gaps of identifying at risk students in a proactive, comprehensive, and preventative manner utilizing the infrastructure of an integrated treatment team. The integrated in-house behavioral health care, with a warm hand off from the PCP, may decrease perceived or actual barriers to mental health treatment. For example, current on-campus counseling services were located off-site from the main campus, required several intake appointments before engaging in therapy, and required a fee per encounter. A stepwise treatment and triage approach may be beneficial in the stewardship of limited mental health resources.

Chapter 2: Literature Review

This literature review was designed to guide the DNP project. All of the articles were acquired through the following databases: CINAHL, PubMed, PsychArticles, PsychInfo, and ACU OneSearch. The search was expanded to include psychological databases because the problem of interest (POI) is focused on anxiety and depression in college students as well as effective mental health measurement screening tools. Initial searches utilizing broad terms such as *anxiety and depression in college students* yielded nearly a half-million citations in ACU OneSearch and 671 in CINAHL. Similarly, when reviewing articles pertaining to the Patient Health Questionnaire-4 (PHQ-4), I found nearly 1,200 citations in CINAHL; however, when the term *college students* or *young adults* was applied, a significant reduction occurred. Some of the key search terms included *PHQ-4*, *college students*, *undergraduates*, *university students*, *anxiety*, *depression*, *behavioral health*, and *integrated care*. Literature review articles cover the most recent information related to the project, which significantly decreased the available literature. The search did broaden the scope of the project interventions to include a comprehensive interdisciplinary, stepwise approach, in addition to the use of the PHQ-4 screening questionnaire.

Purpose

The purpose of this literature review was to explore the current research regarding the mental health concerns of undergraduate students as well as early identification interventions and evaluation methods. However, the majority of the current literature was quantitative in nature and primarily focused on the PHQ-4 screening questionnaire. Very little to no research addressed the infrastructure necessary to manage those patients who score positively on the PHQ-4. Likewise, there is a paucity of research related to proactive mental health interventions specific to college students. The literature review demonstrated that there was little to no information that

specifically addressed how an interdisciplinary team in a college health primary care clinic could begin to identify and manage students at risk for mental health concerns. Therefore, further study is indicated to understand how to proactively and preventatively manage anxiety and depression among undergraduate college students.

Background

The significant increase in mental health needs on the university campus (ACHA, 2018) is associated with the known threats to student success (Eisenberg et al., 2019; Khubchandani et al., 2016) and negative financial impact on the university (Eisenberg, 2015). It results from a traditionally reactionary approach to the management of mental health diagnoses. For example, historically, project site students with anxiety and depression access the university clinic when in crisis, when they provide a self-report, or when they have reached a significant level of impairment and have been referred from another campus partner. Therefore, a real need exists to shift from a reactionary approach and move toward a proactive approach that focuses on early detection and intervention for mental health disorders (Eisenberg et al., 2019; Khubchandani et al., 2016; Lipson et al., 2019). However, there is a lack of a formal clinical practice guidelines and internal infrastructure at the practice site to proactively identify and manage college students at risk for mental health issues.

Current Findings Regarding Screening Tools

Detecting mental health concerns in primary care settings can be challenging because, despite a distinct link to a psychological diagnosis, patients are more likely to consult a primary care clinic because of physical complaints as opposed to mental health concerns (Chin et al., 2018). Currently, there are a number of primary care clinics that use the well-validated Patient Health Questionnaire (PHQ-9) as part of their intake for every patient, despite history, to detect

depression (Griffith et al., 2015; Manea et al., 2015; Schueller et al., 2015; Umegaki & Todo, 2017). One study by Keum and Miller (2018) is specific to PHQ-9 screening in college students. This practice mirrors U.S. guidelines for mental health screening, provided there are appropriate structures in place to manage and triage those identified upon screening (Manea et al., 2015).

In 2009, the PHQ-4, a further abbreviated tool, was developed using two items from the PHQ-9 and two items from the Generalized Anxiety Disorder Screener (GAD-7) metrics. The PHQ-4 is not diagnostic; however, it has been validated as useful for the screening of anxiety and depression in primary care settings (Cano-Vindel et al., 2018; Kroenke et al., 2009; Mills et al., 2015) and for broad screening in college students (Khubchandani et al., 2016; Worfel et al., 2016). However, limited data exist regarding the frequency of administration. One study suggested offering the PHQ-4 annually (Khubchandani et al., 2016). Overall, early identification of mental health issues through universal screening improves early identification and additional assessment in a timely manner (Rutherford, 2017).

Current Findings Regarding Infrastructure

Despite well-developed screening tools, primary care providers (PCPs) are often inadequately prepared or do not have structures in place to care for the mental health needs of their patients (Manea et al., 2015). The integration of mental health personnel within primary care centers is a well-documented solution to increase timely access to care (i.e., decreased time from referral to appointment), evaluation, and treatment (Ede et al., 2015; Jacobs et al., 2018; Jolly et al., 2016). Trained mental health professionals can further assess; provide diagnostic evaluation; offer brief, targeted interventions; and triage as appropriate. Similarly, in a large-scale study, Turner et al. (2018) found that when behavioral health was highly integrated into primary care clinics in college settings, those with mental health disorders utilized primary care

services less often and did not present with mental health issues that were as complex. While additional research is needed regarding integrated care, Turner et al. (2018) believed robust integrated mental health services played a role in effectively meeting the mental health needs of college students.

One expert opinion offered to utilize registered nurses to the full scope of their training and expertise as a means of filling the gap in the area of integrated behavioral health providers (Rutherford, 2017). Additionally, a stepwise approach has been found to be helpful with same-day assessment and high-volume interventions provided by behavioral health consultants (BHCs), followed by a higher level of care (e.g., prolonged therapy and/or referral to psychiatry) for those with a significant history or higher symptom acuity (Jolly et al., 2016). In this scenario, patient needs are identified and classified by risk, collaboration occurs between both primary care and specialty providers (e.g., behavioral health), and patients are assigned treatment based on level of need and risk (Jolly et al., 2016). Finally, it appears that initial patient and provider satisfaction with integrated behavioral health in primary care settings is significantly high (Ede et al., 2015). These findings reflect a trend toward stewarding resources well in order to most appropriately meet the mental health needs of college students in a primary care setting.

Literature Critique

While the PHQ-4 screening tool has been well-validated for use in adult populations by several key large-scale studies (Cano-Vindel et al., 2018; Khubchandani et al., 2016; Kroenke et al., 2009; Mills et al., 2015; Worfel et al., 2016), there was a paucity of research on using the PHQ-4 screening tool to focus specifically on college students. For example, Khubchandani et al. (2016) and Worfel et al. (2016) were the only researchers found who specifically utilized the PHQ-4 tool with college students. However, the study findings by Worfel et al. (2016) were

limited in generalizability because the study was conducted in two universities in Germany. The remaining studies on hand examined the usefulness of the PHQ-4 tool in primary care settings with a range of ages that may be similar to that of a college health population, while others did not. Similarly, the findings of Cano-Vindel et al. (2018) were limited in generalizability because the study was conducted in clinics in Spain. Likewise, the findings by Mills et al. (2015) were limited in generalizability as the homogenous sample size consisted of Hispanic American adults.

It is clear in all studies validating the PHQ-4 as a reliable screening tool that a screener must be followed by further diagnostic work. Additionally, none of the studies examined how often the PHQ-4 should be administered. While not specifically studying the topic, Khubchandani et al. (2016) provided a loose recommendation for screening among college students to be conducted annually. Nevertheless, the PHQ-4 has been deemed a reliable ultra-brief screening tool that is useful in busy primary care practices, including college health settings.

The quality of evidence related to integrated behavioral health services in college health primary care settings is mixed. For example, Ede et al. (2015) and Jacobs et al. (2018) reported improved time from referral to specialist evaluation in highly integrated clinics. However, both studies were conducted in primary care settings, not a college health setting, and both had very small sample sizes. Additionally, Jolly et al. (2016) and Rutherford (2017) authored a case study and expert opinion, respectively, and while they both concurred that integrated behavioral services were valuable, the level of evidence was lower. However, the study by Turner et al. (2018) is promising support of integrated behavioral health services because of the very large sample size of more than 80,000 college students. While further study is needed to determine

cause and effect, Turner et al. (2018) described some substantial benefits of integrating behavioral health services in primary care in college settings.

The data to support the need for the identification of students at risk for anxiety and depression are strong. Local data collected at the university (ACHA, 2018) contained a large sample size, and the findings were consistent with another strong large-scale study (Eisenberg et al., 2019) conducted during a similar time frame. Both the local and nationwide large-scale studies utilized validated and widely accepted survey instruments to gather data (ACHA, 2018; Eisenberg et al., 2019). Despite the self-reporting potential limitations of both studies, both study findings were consistent with one another on the prevalence of mental health concerns among college students, as well as with the findings of the National Institute of Mental Health (2019).

Practice Comparison

Given the prevalence of anxiety and depression among college students and their negative financial and academic impacts, it is worthwhile for the university to examine proactive approaches to identification, triage, and treatment. Specifically, a review of literature of potential solutions has been imperative as, at the time of writing, no formal, comprehensive mental health program or guideline exists for this process. This literature review showed it is not feasible to implement a screening system without having the necessary infrastructure in place to refer students upon identification, which was cited by Manea et al. (2015) as an imperative step. Therefore, a major consideration is to gain the support of all key stakeholders, including clinicians, clinic support staff, the campus counseling center, the campus psychiatrist, behavioral health interns, and the guiding professor. Considerable time has been taken to review the significance of the problem and potential evidence-based solutions in order to gain the support needed from stakeholders to build the infrastructure needed for this project.

Additional time was needed to load the PHQ-4 screening tool into the project site's electronic health record (EHR), to teach providers how to interpret results, and to teach providers when to refer. Likewise, time was needed to consult with the lead behavioral health psychology professor to determine which standardized diagnostics tests and interview questions were provided to patients referred to BHCs for further assessment. Additional time was needed to provide orientation to all consultants as well as to ensure the procedure was followed for the duration of the program. Lastly, additional clinic partners (e.g., psychiatry, campus counseling center) were contacted regarding a feasible referral process for those students requiring higher levels of services. Much of the groundwork was laid because of strong work relationships and partnerships that exist both within the campus health clinic and externally with campus partners. The motivation to work together on this project was further strengthened by a clear presentation of the data related to the problem significance on the university campus and the relative ease of feasible solutions to proactively meet the mental health needs of students on campus.

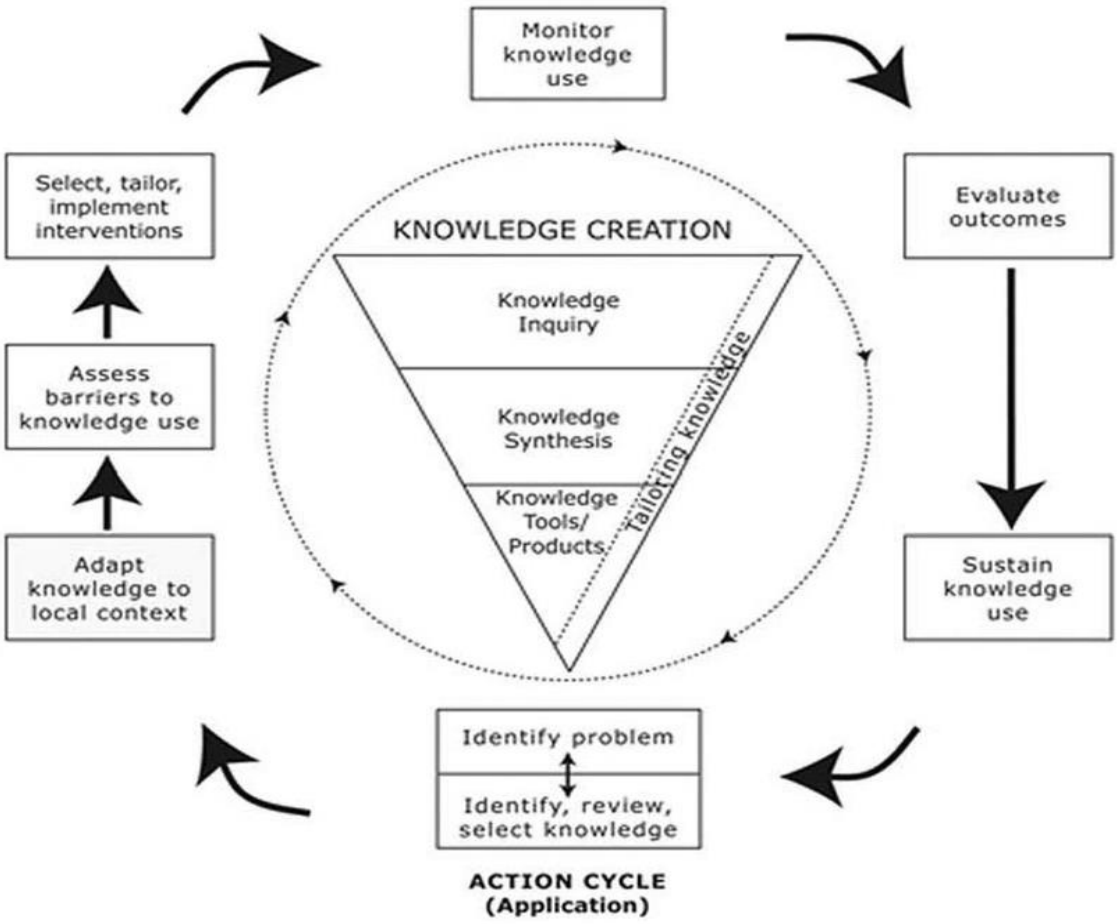
Conceptual Framework

Ian Graham and his colleagues developed the Knowledge to Action Framework (KTAF) in the 2000s to aid in solving the knowledge–research gap, which historically has consisted of an untimely inclusion of robust research and validated interventions into practice, limiting the access to improved patient care outcomes (Curtis et al., 2016; Graham et al., 2006). Graham et al. (2006) created a systems approach to understand what is known from research and formulate a process of knowledge synthesis and implementation by all pertinent stakeholders for the primary purpose of improving patient outcomes and organizational efficiencies. Today, the KTAF (see Figure 1) is utilized to solve a variety of complex public health and quality improvement initiatives by providing a sequence of activities and decisions that convert research

findings into systematic changes to promote an increased likelihood of changed practice (Davies et al., 2017; Field et al., 2014; Graham et al., 2006).

Figure 1

Knowledge to Action Framework



Note. From "Lost in Knowledge Translation: Time for a Map?" by I. D. Graham, J. Logan, M. Harrison, S. E. Straus, J. Tetroe, W. Caswell, and N. Robinson, 2006, *Journal of Continuing Education in the Health Professions, 26,* p. 19 (https://doi.org/10.1002/chp.47). Copyright 2006 by Journal of Continuing Education in the Health Professions. Reprinted with permission.

The versatility of this cross-disciplinary framework extends in application to many types of interventions (e.g., program, practice) and many types of risk factors or conditions being evaluated, and supports the inclusion of all necessary stakeholders (Centers for Disease Control and Prevention, 2014; Field et al., 2014). Specifically, the knowledge creation cycle of the KTAF promotes a process of aggregation (knowledge inquiry) and critical appraisal (knowledge synthesis) of research with specific evidence-based practice (EBP) recommendations, disseminated in a clear way (knowledge tool), such as an educational in-service, for the purpose of influencing stakeholder uptake to solve an identified problem (Graham et al., 2006). From there, the change agent(s) utilize(s) the action cycle to deliberately engineer practice change through the following: tailoring activities to target the needs of potential users, assessing for and controlling for barriers of knowledge use, evaluating specific implemented interventions, evaluating overall program outcomes and sustainability, and measuring knowledge use demonstrated by a change in practice (Graham et al., 2006). Evaluation of results helped to identify whether knowledge exchange between stakeholders resulted in desired practice changes. Gaps, barriers, and low uptake may reveal opportunities for further research and refinement of the original program objectives.

Rationale for Framework Selection

The KTAF developed by Graham et al. (2016) provided the structure for the implementation of the interventions in this study. A systematic review by Field et al. (2014) and a study by Davies et al. (2017) support the use of the KTAF, a sequenced process of converting research knowledge into practice, in order to promote practice changes aimed at solving complex health problems. The purpose of this DNP project was to evaluate the application of several new practice changes into the clinical setting to promote better patient outcomes. Given the lack of

current clinic participation in recommended mental health screenings of adults in primary care settings by the United States Preventative Services Task Force (2019), it is important to understand barriers to this well-supported EBP as well as design a program to increase the likelihood of implementation success. The KTAF provides the necessary framework for a cross-collaborative way to translate this knowledge effectively in a way to support actions that support the adoption of practice change.

Instrument Identification and Literature Review of Evidence-Based Studies

At the time of writing, there was no literature available that validated a specific tool for the evaluation of an interdisciplinary mental health program to identify and triage college students at risk for mental health issues. However, there were three studies that supported the use of a retrospective chart audit (RCA) tool for the purposes of evaluating a change in clinician behavior in response to the implementation of new practice guidelines (Stacey et al., 2016; Winer et al., 2014; Yan et al., 2019). Each of the three studies utilized an RCA to assess whether providers were following a specific protocol implemented by their organizations.

An RCA is useful for measuring quality improvement projects in order to promote improvements in patient outcomes by determining provider compliance (Barick et al., 2018; Yan et al., 2019). In the aforementioned studies, the researchers utilized documentation by the health care provider within a patient's chart to determine whether the providers had adopted newly implemented EBP into clinical practice (Stacey et al., 2016; Winer et al., 2014; Yan et al., 2019). For example, Stacey et al. (2016) used the documentation of task completion by a nurse via an RCA to determine whether nurses were successfully implementing telephone-based care for the management of cancer symptoms. Similarly, Winer et al. (2014) utilized an RCA to determine if nurse practitioners were documenting all items pertinent and necessary on an initial psychiatric

assessment. Lastly, Yan et al. (2019) studied patient charts for both baseline assessment of compliance with an instituted protocol, followed by a postimplementation RCA, to look for increased provider participation, as evidenced by provider chart notation indicating appropriate timeliness of medication prescription reflective of the implemented protocol. All three authors were able to connect specific chart findings to a specific provider behavior to demonstrate a positive or negative adoption of an implemented protocol aimed at quality improvement.

It is important to note that in each of the studies, an original RCA was crafted to measure the outcomes of each unique intervention, as no validated measurement tool existed to match the outcomes being studied (Stacey et al., 2016; Winer et al., 2014; Yan et al., 2019). For the purpose of this DNP project, an exact approach was necessary. Three overlying objectives were evaluated via an RCA to measure the outcome of implementing universal PHQ-4 screening to all undergraduate college students aged 18–24 years once a semester when seeking an appointment for health services at the on-campus university health center. It should be noted that currently there is no routine screening among providers due to a previous lack of infrastructure for referral of those who screen positively. However, those patients who score greater than three on either subscale of the PHQ-4 were referred to a BHC for further evaluation and triage to appropriate mental health care.

The first postimplementation outcome validated via an RCA was to evaluate the consistency and frequency of the use of the tool, per the assessment of the EHR, for every undergraduate student meeting inclusion criteria of 18–24 years of age. The PHQ-4 has been validated as useful for the screening of anxiety and depression in primary care settings (Cano-Vindel et al., 2018; Kroenke et al., 2009; Mills et al., 2015) and for broad screening in college students (Khubchandani et al., 2016; Worfel et al., 2016). Secondly, the successful identification

of at-risk students, as evidenced by the frequency of referral to the BHC for students scoring three or greater on either subscale of the PHQ-4 (Kroenke et al., 2009), was evaluated. Finally, a review of patients' records was assessed for documentation of frequency of referrals from the BHCs for students requiring greater levels of care (i.e., on-campus counseling center, psychiatry).

Rationale for Tool Selection

The most appropriate tool for the data collection of this DNP project was an RCA. An RCA instrument has been described as a very useful method of evaluating behavior change following the implementation of new protocol. Additionally, Stacey et al. (2016) and Yan et al. (2019) both cited the KTAF as their conceptual framework for evaluating implemented changes, and both utilized RCA as a method to evaluate outcomes.

Advantages and Disadvantages of the Instrument

The use of the RCA tool has several important strengths worth highlighting. One of the most critical advantages of an RCA is the ability to generate real-world experience to analyze the transfer of knowledge to practice (Barick et al., 2018). Similarly, an RCA provides timely access to easily accessible, existing, relevant data, often in real time when data are located in an EHR platform (Barick et al., 2018). Conversely, there is one significant limitation in the use of an RCA tool. Unfortunately, there remains a discrepancy in documentation among providers, which may affect the measurement of outcomes (Barick et al., 2018). However, the identification of this potential barrier was an important focus directing the educational training and follow-up strategies at various points of the implementation process.

Relevance of Framework and Tool to Scholarly Project

The transfer of knowledge into practice has been measured successfully with the use of RCAs (Barick et al., 2018; Stacey et al., 2016; Yan et al., 2019). Provider documentation has been utilized in several studies to measure the transfer of knowledge into action, as evidenced by a demonstrated practice change (Stacey et al., 2016; Winer et al., 2014; Yan et al., 2019). In this case, provider acknowledgment of a positive PHQ-4 screen followed by documentation of a referral to the BHC was one measure that establishes the transfer of knowledge into practice. Likewise, the documentation of additional screening and triage for anxiety and depression by the BHC was an additional measure of establishing compliance with the intervention. Measurements of compliance also reflected the buy-in of the interdisciplinary team members.

A solid implementation system for the comprehensive mental health program provides the foundation for identifying students at risk for anxiety and depression. The collective impact and buy-in from all members of the interdisciplinary team are essential to the success of the intervention (Graham et al., 2006). The KTAF supports the likelihood of implementation success by tailoring activities (e.g., interdisciplinary education) and controlling for barriers (e.g., providing thorough protocol instruction, ongoing support throughout the study) to support stakeholder buy-in and compliance. Therefore, the KTAF guided the implementation of proactive mental health screening at the project site. Similarly, RCAs were utilized to observe provider compliance with the practice change.

The effectiveness of the KTAF in several recent studies with similar initiatives of targeted interventions for the improvement of patient outcomes supports its use and validity in this DNP project. A primary goal of this project was to evaluate the implementation of new knowledge of EBP demonstrated by the adoption of practice change by the providers at the

project site. The KTAF provides a template for action steps that may be replicated in this specific scenario that increase the likelihood of uptake by relevant stakeholders and overall adherence to a new protocol (Stacey et al., 2016; Yan et al., 2019). Similarly, the demonstrated effectiveness of RCA tools was helpful in measuring behavioral changes following the implementation of the new comprehensive mental health screening and triage protocol. These measurements assisted the author in determining the effectiveness of this new protocol in addressing a campus need.

Summary

In conclusion, the rise of anxiety and depression among college students and the negative impact on academic persistence requires a proactive approach in the form of early identification and treatment (Eisenberg et al., 2019; Khubchandani et al., 2016; Lipson et al., 2019). There is strong evidence to support the use of the PHQ-4 screening tool as an effective means of identifying young adults at risk for anxiety and depression in a primary care setting (Khubchandani et al., 2016; Worfel et al., 2016). College health clinics often serve as PCPs during the more than 4 years students attend college. Similarly, there is growing evidence that integrated behavioral health services are important in stewarding resources, referring patients to appropriate levels of care, and promoting satisfaction among patients and clinicians alike. Therefore, given the evidence at hand and gaps in mental health care, it was appropriate to evaluate the implementation of comprehensive identification and triage of anxiety and depression among college students utilizing the PHQ-4 screening tool in the context of an integrated behavioral health service with triage to the appropriate level of treatment in a college health primary care setting.

Chapter 3: Research Methods

The purpose of this chapter is to describe the project design, research methods, population, method of data collection, and ethical considerations for a retrospective, quantitative, descriptive pilot study at a university student health center (SHC) in Southern California. An interdisciplinary mental health program was implemented at the SHC during the spring 2020 semester and was concluded on March 17, 2020, due to the coronavirus disease 2019 (COVID-19) pandemic. Following the attainment of the proper institutional review board (IRB) approvals, the outcomes of the mental health program were evaluated. Specifically, in this retrospective, ex post facto study, I evaluated the impact of implementing an interdisciplinary mental health program utilizing the Patient Health Questionnaire-4 (PHQ-4) screening tool (Kroenke et al., 2009) as an aid for early identification of those at risk for anxiety and/or depression. Further, the intent was to connect at-risk patients to follow-up care and triage by an interdisciplinary team housed in the SHC.

All members of the clinic staff needed to be prepared to answer potential questions students may have about the practice change. An educational session was delivered to all members of the interdisciplinary team, as well as the clinic staff, describing the problem of interest (POI) as well as the mental health program. The mental health program received the full support of the university administration at the project site and collaboration with the health care providers in the SHC. Inclusion and exclusion criteria are discussed in this chapter, as well as a description of the data collection tool.

Project Design

The purpose of this study was to evaluate the outcomes of an interdisciplinary mental health program aimed at the proactive identification of college students at risk for anxiety or

depression utilizing the PHQ-4 screening tool for students accessing primary care appointments at the project SHC. Further, I evaluated the outcomes of an interdisciplinary team housed in the SHC in managing students at risk for anxiety and depression. A summary of the observations made during the project was analyzed. Patient participation in the screening was evaluated, including the number of students who screened positively or negatively. Provider compliance with referring patients who screened positively was also measured. Rates of behavioral health consultant (BHC) patient appointment compliance were monitored, as were the number of referrals for higher levels of care. Descriptions are provided regarding students who screen positively on the PHQ-4, their follow-up screening scores, and diagnoses established by the BHCs.

Methodology Appropriateness

The descriptive nature of this Doctor of Nursing Practice (DNP) project is appropriate because the primary purpose of a pilot study is to understand the outcomes of newly implemented evidence-based practice (EBP). While previously discussed studies do address the usefulness of a PHQ-4 screening tool for broad screening of adults (Cano-Vindel et al., 2018; Khubchandani et al., 2016; Kroenke et al., 2009; Mills et al., 2015; Worfel et al., 2016) or support the use of integrated mental health services (Ede et al., 2015, Jacobs et al., 2018; Jolly et al., 2016), none of the studies to date have examined a comprehensive approach that includes screening, triage, and treatment for college students in a primary care setting. This DNP project is meant to serve as a starting point, describing the outcomes of the program, and may serve as a building block for additional research. A retrospective approach is utilized because the mental health program was implemented when resources were available at the project site. No data were

collected for this project until full IRB approval was obtained through Abilene Christian University (ACU).

Feasibility

As this DNP study addressed the impact of an interdisciplinary mental health program that was in progress at the time of writing, this retrospective evaluation was quite feasible. The most difficult component of the project was building the infrastructure to support the students identified as being at risk for anxiety and depression. Excellent working relationships between the interdisciplinary partners have provided instrumental support in providing resources of time and space to both implement and evaluate the mental health program. All of the study outcomes can be measured through a retrospective chart audit (RCA). Data were readily accessible and were collected once full IRB approval was obtained from ACU.

IRB Approval and Process

IRB approval at the project site, conducted by the university's Protection of Human Rights in Research Committee (PHRRC), was sought and granted with full approval on August 19, 2019 (see Appendix A) to implement an interdisciplinary mental health program that was related to employment duties at the project site. The PHRRC determined there was minimal risk to participants and that the study subjects' safety was adequately protected. This no-control trial study included no special populations, known vulnerable populations, placebo groups, or physically intrusive interventions.

It was imperative to obtain IRB approval early on because the implementation of the program at the project site would take place during spring 2020 when the necessary infrastructure resources were available. Similarly, it was necessary to advise students that they were taking part in a pilot program during the implementation phase and to advise them

appropriately of the risks, benefits, and the ability to opt in or out. It was prudent to show due diligence to the project site by engaging in the university IRB application process and obtaining consent at the time of the project implementation allowed for the collection of the participants' responses at a later date.

An IRB application was filed through ACU for approval to conduct a study to evaluate the outcomes of the interdisciplinary mental health program at the project site. IRB approval was provided on June 2, 2020, after the project proposal had been successfully defended to the committee at ACU. No data were collected or reviewed at the project site until full IRB approval was provided by ACU. The focus of this DNP study was to evaluate the effectiveness of a comprehensive mental health program by evaluating data collected via an RCA.

Interdisciplinary Professional Collaboration

The project has received the full support of the university administration at the project site and collaboration with the health care providers in the SHC. Full cooperation was also obtained from the BHCs and the course professor who oversees their practice. The groundwork for the interdisciplinary mental health program was laid during the summer of 2019 when the program was pitched to each of the relevant stakeholders. A meeting with each of the stakeholders was necessary to explain the mental health prevalence at the project site, the significance and potential of the interdisciplinary mental health program, and the assistance needed from each discipline. All stakeholders were provided education regarding the scope of the mental health program, the screening and triage protocol, as well as the specific role each team member has in this project.

Practice Setting

The project setting, where the RCA took place, is a health center on a university campus in Southern California that manages approximately 5,000 patient visits annually. Students access the SHC year-round for primary care services, including both routine and illness care. Staffing consists of one full-time board-certified internal medicine physician, two (one full-time and one part-time) board-certified family practice nurse practitioners, one part-time board-certified psychiatrist, two full-time registered nurses, and three administrative office staff. There is cross-collaboration with clinical students from the on-campus Graduate School of Psychology who intern in the SHC. Historically, a class geared toward BHC integration in primary care has offered clinical practice hours every spring to the graduate students at the project site. These graduate students are overseen by a teacher's assistant—an advanced graduate psychology student who has taken the course previously and who also receives oversight from the course professor. The BHC's purpose is to provide integrated mental health services within the context of primary care. Over the course of 5 years, the BHCs have been underutilized, routinely seeing less than a handful of patients every week. The BHCs are equipped to manage approximately 40 patients per week, and within the context of this DNP project, it was projected that at least 75% of those appointment slots would be utilized.

The course professor of the previously mentioned class was consulted regarding this project and offered her support for the duration of the project. This course professor was a board-certified psychologist with an extensive research background and was specifically sought out for input on additional testing that should be offered for students who screen positively on the PHQ-4. Based on her input, the Center for Epidemiological Studies Depression Scale Revised (CESD-R) was offered to those who required further assessment for depression, the Generalized Anxiety

Disorder Assessment (GAD-7) was offered to those who required further assessment for anxiety, and both were offered for those who screened positively on the PHQ-4 for both anxiety and depression. Structured interview questions were provided by all BHCs to help clarify mental health diagnoses.

Target Population

Students who accessed services at the project site were most often undergraduate students ages 18–24 years. Therefore, undergraduate students whose ages fall outside of 18–24 years and graduate students were excluded from the study sample to facilitate comparisons. Any students who were coming specifically for an appointment with the staff psychiatrist and not for primary care were excluded from the study because their mental health diagnoses had already been established and they did not meet the purpose of the project, which was to proactively identify students at risk who had not already been identified. Every undergraduate student who accessed the SHC for a primary care appointment was offered the PHQ-4 (see Appendix B) screener once a semester. Students were given the option to decline the screener. Both male and female students of all ethnicities who provided consent were included in the RCA; given the demographics of the university, it was expected that there would be more female participants.

Ethical Considerations and Risks

Upon appointment check-in at the project site, every undergraduate student aged 18–24 years was offered the PHQ-4 screening once a semester as part of the student's intake process. Every student was asked to sign a consent form that outlined the purpose of the program, how their information might be used, and how data storage would not include any personally identifiable information regarding their responses. As a means of respecting patient autonomy,

participants were also given the opportunity to decline their consent for participation in the program. No chart data were recovered for any patient without their consent.

An additional ethical consideration beyond confidentiality and informed consent involved the risk that emotional distress might occur in participants with a positive PHQ-4 screen. Undergraduate students in the project setting and sample are often caring for themselves for the first time. For example, when undergraduate students attend college as adults, it is often their first experience of managing health-related concerns outside of the direct supervision of their parents. Sometimes confronting mental health symptoms and diagnoses for the first time may be triggering for some students. The importance of the in-house BHC cannot be understated in helping to mitigate some of these potential responses. Conversely, students may have benefitted from the identification of symptoms of anxiety and depression. Early identification affords the student an opportunity to explore the symptoms before they become any more debilitating, either physically, emotionally, spiritually, or academically.

One important ethical consideration regarding the implementation of the interdisciplinary mental health program at the project site was the location of the PHQ-4 information in the patient's progress notes. The patient's visit reason for their appointment was likely different from the mental health focus related to the PHQ-4 screening tool. For example, if a patient was consulting a provider for a torn ligament and needed to see a specialist, it was imperative that the mental health information not be located on the same note. The PHQ-4 score and related mental health information are not things pertinent to an orthopedic specialist who is only assessing a physical condition and only needs progress note information pertinent to the orthopedic issue. Patients may not appreciate having mental health data on progress notes that are forwarded to other providers and specialists. Likewise, progress notes with both mental health and physical

health information would require additional consent from the patient to share with outside providers. Therefore, the project site utilized a separate progress note for the PHQ-4 results in order to maintain patient confidentiality of mental health care.

Benefits

The primary benefit of this DNP project is to begin to evaluate the impact of a proactive approach to mental health care instead of a reactive approach that generally provides intervention when students are in crisis and have experienced negative financial, school-related, and personal impacts. Integrating mental health services at the same location where students are coming for primary care helps to remove the barriers (e.g., location, cost, multiple appointments before seeing a therapist) associated with seeking care at the on-campus counseling center. The infrastructure of in-house therapists provides a mechanism of triage that may better assist with connecting patients to the most appropriate level of treatment in a timely manner. As previously discussed, not all patients require long-term therapy, and some may be readily treated with a few sessions at the project site. Conversely, some students, after working with the in-house BHCs, may be referred for higher levels of care. Regardless, students can be evaluated by a mental health professional generally within the same week as being identified as at risk and engage proactively in services designed to help address anxiety and depression diagnoses.

Instrument and Measures

The PHQ-4 (Kroenke et al., 2009) is a four-item composite measure of depression and anxiety. It begins with the stem question, “How often have you been bothered by the following problems?” Responses are scored as 0 = *not at all*, 1 = *several days*, 2 = *more than half the days*, or 3 = *nearly every day*. The total score on this composite measure ranges from 0 to 12. Sample

items include “feeling anxious, nervous, or on edge” and “feeling down, depressed, or hopeless.” The PHQ-4 demonstrated good reliability (α = .82) and construct validity (Löwe et al., 2010).

Students identified by the PHQ-4 as being at risk for depression were referred to a BHC for additional assessment. As these students checked in for further evaluation, they were asked to complete a more comprehensive depression screener. The CESD-R is an updated version of the CES-D (Radloff, 1977). The CESD-R consists of 20 items that closely reflect the Diagnostic and Statistical Manual of Mental Disorders criteria for depression (Eaton et al., 2004). Participants are provided with instructions stating, “Below is a list of the ways you might have felt or behaved. Please select options that reflect how often you have felt this way in the past week or so.” Five response options are provided: “not at all or less than 1 day,” “1–2 days,” “3–4 days,” “5–7 days,” and “nearly every day for 2 weeks.” Cronbach’s alpha was reported to be excellent at .93 with good convergent and divergent validity (Van Dam & Earlywine, 2011).

Students identified by the PHQ-4 as being at risk for anxiety were referred to a BHC for further evaluation. These students were asked to complete a more comprehensive screener for anxiety at the time of their follow-up evaluation. The GAD-7 (Spitzer et al., 2006) was developed to provide a brief self-report measure to identify generalized anxiety in primary care. Participants are asked, “Over the last 2 weeks, how often have you been bothered by any of the following problems?” Possible responses range from “not at all” to “nearly every day.” Sample items include “Trouble relaxing?” and “Worrying too much about different things?” The internal consistency of the GAD-7 was reported to be excellent (α =.92) with good criterion and construct validity.

Intervention

An ex post facto evaluation of the interdisciplinary mental health program was conducted to evaluate several features of the interdisciplinary mental health program, utilizing an RCA. The PHQ-4 screening tool was selected because of the established strong validity and reliability in detecting anxiety and depression in adults (Cano-Vindel et al., 2018; Khubchandani et al., 2016; Kroenke et al., 2009; Mills et al., 2015; Worfel et al., 2016). A valid and reliable mental health screening tool was necessary for providing the best opportunity for the identification of anxiety and depression. The brief nature of the screening tool (i.e., four questions related to mental health over the past 2 weeks) is important for encouraging compliance and is projected to do well within the project setting. Participation would likely decline if the initial screening tool was longer and perceived as laborious.

Every student who made a primary care appointment at the SHC was offered the PHQ-4 screening tool electronically, via a secured patient portal on an iPad, when they checked in for their appointment. The PHQ-4 was treated like any other assessment piece (i.e., vital signs) and was considered part of a student's routine care and documentation at the SHC. When the RN called the patient back to obtain vital signs and the chief complaint, the nurse reviewed the patient's PHQ-4 score. If the score was three or greater on either of the two questions related to anxiety and/or the two questions related to depression, the registered nurse (RN) input a referral to the BHC into the electronic medical record and alerted the primary care provider (PCP) of the positive screening score. The RN noted the referral on the patient's walkout statement, so the front desk staff was alerted to schedule a follow-up appointment with the BHC. Appropriate and consistent referrals to a BHC for all students who screen positively on the PHQ-4 are an expected outcome in this DNP project.

The SHC PCP was required to review the student's initial PHQ-4 score and address the score before the conclusion of the appointment. Providers were responsible for asking all patients who screen positively about any suicidal ideation or attempts. A brief statement in the progress note regarding suicide assessment was expected to be documented in the chart of any patient who screened positively. Providers were responsible for discussing the referral to the BHC with patients and provided any education regarding the rationale and potential benefits. The front office staff assisted students in making appointments with the BHCs. When feasible, students were offered an appointment the same day in the hope of increasing referral compliance. All students returning for evaluation with the BHC were provided with the GAD-7 and/or CESD-R to reevaluate anxiety and/or depression, respectively.

The use of an interdisciplinary infrastructure to manage patients with positive PHQ-4 scores is affirmed by several studies (Ede et al., 2015, Jacobs et al., 2018; Jolly et al., 2016). It is also an important ethical consideration because there must be a system in place to provide further evaluation and care when screenings are provided to patients and the needs exceed the capacity or expertise of the health care providers. The infrastructure built at the project site was intended to promote the strategic stewardship of available resources. For example, as students who screen positively are evaluated and triaged by the BHC, it is quite possible the symptoms of anxiety and/or depression were managed in a few abbreviated counseling sessions with the BHC. Conversely, some students may actually need further evaluation and specialized treatment by the psychiatrist or the on-campus counseling center. In years past, all students reporting symptoms of anxiety or depression were sent directly to the campus counseling center, which caused a long waitlist and was a perceived barrier given the distance of this service on campus. Further, there are students who do not require a full 12–16 weeks of therapy. A projected outcome of having an

interdisciplinary team of health care professionals within the project site may increase referral compliance as well as the utilization of the most appropriate treatment resources.

Data Collection and Management

During the data collection process, no patient identification numbers or names were incorporated into the project, in compliance with the Health Insurance Portability and Accountability Act (HIPAA), PHRRC, and IRB mandates. Instead, a research assistant served as a proxy during data collection to assist with the deidentification of the data. The research assistant provided a unique and random number for the information pulled from every consenting patient's chart. No personal patient identifiers, such as patient names, student university identification numbers, telephone numbers, or birth dates, were removed from the chart. All of the responses were recorded on a spreadsheet developed by the on-campus statisticians. I was blinded to the unique and individual patient responses for the purpose of the study, and all collected data were analyzed in an aggregate fashion.

Timeline

The interdisciplinary mental health program, which includes screening, triage, and in-house treatment, was implemented during the spring 2020 semester. This mental health program was part of routine primary care services for students accessing the SHC for primary care appointments. Data were collected via RCAs after ACU IRB approval through the end of June 2020. Once all of the data were mined from the participants' charts, data analysis occurred through spring 2021. Again, due to the COVID-19 epidemic, the project site campus closed down, as did the mental health program.

Analysis

The data were analyzed to understand the impact of having implemented an interdisciplinary team utilizing the PHQ-4 screening tool to detect, triage, and treat students at risk for anxiety and depression within a primary care college clinic. Primary outcome measures included appropriate referral to a BHC, student completion of referral visit, diagnosis provided by the BHC, and additional triage if indicated. A description summarized the outcomes of implementing an early identification of anxiety and depression utilizing the PHQ-4, an interdisciplinary mental health team, and a triage system within a college health setting.

Descriptive statistics were chosen as the primary form of data analysis. For example, I analyzed the frequency of students positively identified by the PHQ-4, the frequency of students provided a proper follow-up referral to a BHC, the frequency of students who completed the follow-up appointment, and the frequency of students who were triaged further. The data were tabulated and described through univariate analysis and demographic percentages. Specific variables were analyzed using bivariate analyses to understand the effectiveness of the PHQ-4 tool in identifying students at risk, as well as the effectiveness of the interdisciplinary team in providing any necessary follow-up care. The percentage of appropriate provider referrals, though expected to be near 100%, maybe influenced by the complexity of the original appointment and the amount of time the provider had to address the PHQ-4 score. Continued education and feedback were extended to the providers during the course of this DNP project.

Summary

The methodology of this DNP project was specifically delineated to assist with the evaluation of the interdisciplinary mental health program. Detailed protocols, attention to ethical considerations, and precise design informed the successful evaluation of the interdisciplinary

mental health program. Further, the methodology has provided the framework for the data collection and analysis processes that helped in the dissemination of the project outcomes.

Chapter 4: Findings

This Doctor of Nursing Practice (DNP) project was implemented to evaluate an integrated, multidisciplinary, early identification triage of undergraduate college students ages 18–24 years at risk for anxiety and/or depression. These participants were identified by using the Patient Health Questionnaire-4 (PHQ-4) screening tool to assess risk for anxiety and/or depression. In this project, I specifically evaluated the frequency of appropriate referral to the behavioral health consultant (BHC), patient follow-up, the number of targeted brief assessments and interventions by a BHC, as well as the frequency of students needing to be triaged to higher levels of care. An analysis of the data collected from a retrospective chart audit (RCA) is presented in this chapter.

Three hundred thirty-nine students at a private, liberal arts university in the southwestern United States were offered the PHQ-4 and completed it during their check-in for a primary care appointment at the project site health center. A total of 287 students provided consent for participation in this DNP study and met the study inclusion criteria of an undergraduate student aged 18–24 years. The PHQ-4 was completed digitally upon check-in, and the individual result of the patient's PHQ-4 assessment was stored in the patient's electronic health record (EHR). The results of the brief mental health screener were reviewed by the health care provider at the time of the patient's appointment. Patients identified as at risk for anxiety and/or depression on the PHQ-4 were referred by the primary care provider (PCP) to a BHC for further evaluation, triage, and treatment.

Discussion of Demographics

A convenience sample of undergraduate students seeking primary care appointments at the project site university health center was provided the PHQ-4 screening questionnaire (see

Appendix B) once during the spring 2020 semester. The PHQ-4 is a standardized, well-validated mental health screening tool created by Kroenke et al. (2009) and was embedded in the project site EHR. This project was implemented on February 3, 2020, and was prematurely concluded on March 17, 2020, because the project site closed the campus due to the coronavirus disease 2019 (COVID-19) pandemic. The original intent was to run the DNP study through the duration of the spring 2020 semester.

During the 6-week project period, undergraduate students accessed the PHQ-4 and an informed consent form utilizing a secure patient portal attached to the EHR. Participants were assured of the confidentiality of their responses, that no personal identifying information would be collected, and of their ability to withdraw at any time. Demographic information for this study, analyzed in aggregate form, included gender, age, year in college (e.g., freshman), and the score (i.e., positive or negative) from the PHQ-4 screening.

Data analysis began with a research assistant mining the data from the project site EHR and utilizing an RCA, deidentifying the data (i.e., removing the university identification number and name), and inputting them into an Excel spreadsheet. RCA data were exported for analysis using Statistical Package for the Social Sciences (SPSS) Version 26. Descriptive analyses of the demographic data (see Table 3) revealed that 194 study participants were female (67.6%) and 93 were male (32.4%). The demographic data were representative of and consistent with the project site's undergraduate gender makeup (J. Pixler, personal communication, May 17, 2021). The mean age of participants was 20.73 years, with a range of 18–24 years. Most of the participants in the study were senior-level students (47.4%, $n = 136$), followed by junior-level students (26.5%, $n = 76$). The high participation by seniors was unusual, as the senior class during the fall 2019 semester made up only 29% of the campus population (J. Pixler, personal communication,

May 17, 2021). Higher participation among these two groups may be related to upperclassmen being more familiar with project site services and thereby having higher utilization. Class rank-based utilization of the project site health center is an area to explore in future research to understand whether awareness surrounding campus services needs to be raised earlier in student matriculation.

Table 3

DNP Project Site Participant Demographic Data

Variable	Description	*n*	%
Gender	Female	194	67.60
	Male	93	32.40
Year in college	Freshman	12	4.20
	Sophomore	63	22.00
	Junior	76	26.50
	Senior	136	47.40
Age	18 years	2	0.70
	19 years	65	22.60
	20 years	60	20.90
	21 years	78	27.20
	22 years	55	19.20
	23 years	18	6.30
	24 years	9	3.10
PHQ-4 score	Negative	226	78.70
	Positive	61	21.30

A majority of participants screened negatively (*n* = 226, 78.7%) on the PHQ-4 screening tool, meaning that the participant was not identified as being at risk for anxiety and/or depression, while 61 participants (21.3%) screened positively. This is less than the national average (39%) of college students with at least one mental health disorder (Eisenberg et al., 2019). However, this was significantly higher at the project site than was found in a recent survey showing that 15.4% of the students reported a current diagnosis of anxiety, while 13.7% reported a current diagnosis of depression (ACHA, 2018).

Demographic data were also analyzed independently of those participants who scored positively on the PHQ-4 (*n* = 61; see Table 4). Forty-two women screened positively on the PHQ-4 (68.9%), while 19 men (31.1%) screened positively. Again, this was reflective of the overall gender demographics at the project site. More commonly, senior-level university students at the project site scored positively on the PHQ-4 (*n* = 32, 52.5%), followed by juniors (*n* = 18, 29.5%). These statistics were consistent with the general participant demographic. The mean age of students who scored positively was 21.1 years of age, which was also similar to the sample makeup of the entire participant population included in this DNP project.

Table 4

DNP Project Site Demographic Data for Participants With Positive PHQ-4 Scores

Variable	Description	*n*	%
Gender	Female	42	68.90
	Male	19	31.10
Year in college	Freshman	1	1.60
	Sophomore	10	16.40
	Junior	18	29.50
	Senior	32	52.50
Age	18 years	0	0.00
	19 years	8	13.10
	20 years	13	21.30
	21 years	16	26.20
	22 years	15	24.60
	23 years	7	11.50
	24 years	2	3.30

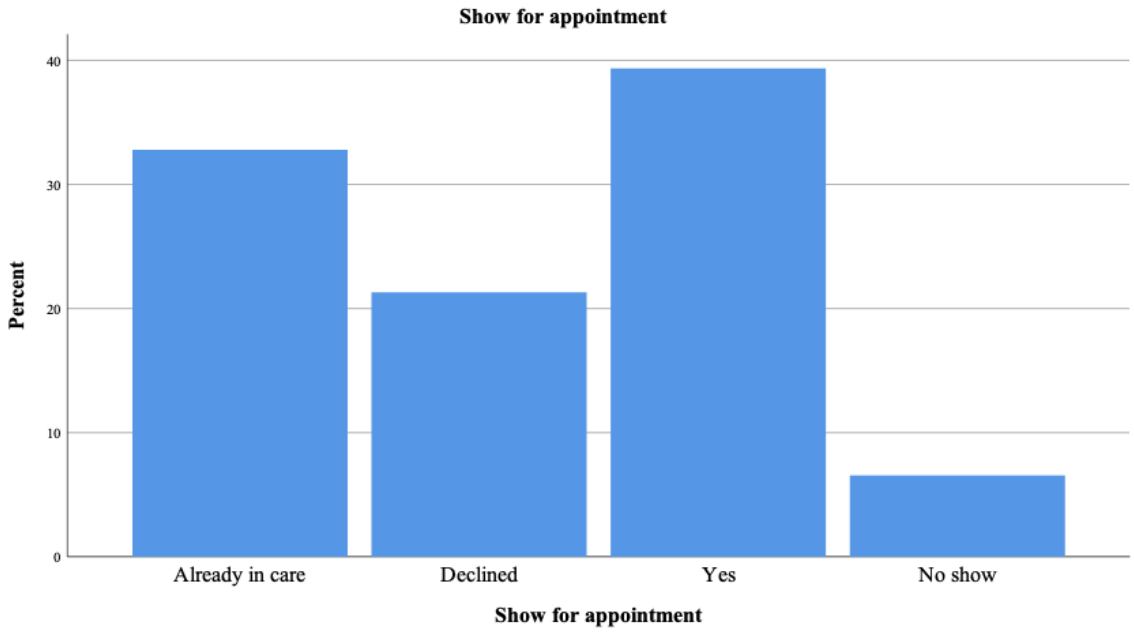
Univariate Analysis of Positive PHQ-4 Respondents

Following the demographic analyses, data were further stratified utilizing a univariate analysis to more closely examine participants who screened positively on the PHQ-4 (n = 61). For example, those with positive PHQ-4 scores were referred by the project site health care provider to a BHC provider 100% (n = 61) of the time. This outcome highlights the efficiency of implementation training that was undergirded by the Knowledge to Action Framework (KTAF). Health care providers accurately identified positive PHQ-4 scores and responded by appropriately referring participants at risk for anxiety and/or depression to the in-house BHC for further evaluation, brief targeted treatment intervention, and triage, as indicated.

Of those 61 participants at risk for anxiety and/or depression referred to a BHC by the project site health care provider, the majority of participants (39.3%, *n* = 24) scheduled and attended at least one follow-up appointment with a BHC (see Figure 2). Twenty participants (32.8%) declined a follow-up appointment with a BHC. The RCA revealed EHR notes, written by the project site PCPs, that indicated these participants were already connected to mental health care (i.e., psychology or psychiatry). Thirteen participants (21.3%) declined a follow-up appointment with a BHC. During the RCA, the PCP's progress notes indicated the following examples of participants' reasoning: "I'm not really that bad" or "This is just an isolated situation, 'a bad week,' I don't need that service." Finally, 4 participants (6.6%) scheduled a follow-up appointment with a BHC but did not show on the day of the appointment.

Figure 2

Appointment Outcomes for Students Referred to BHC for Follow-Up Care

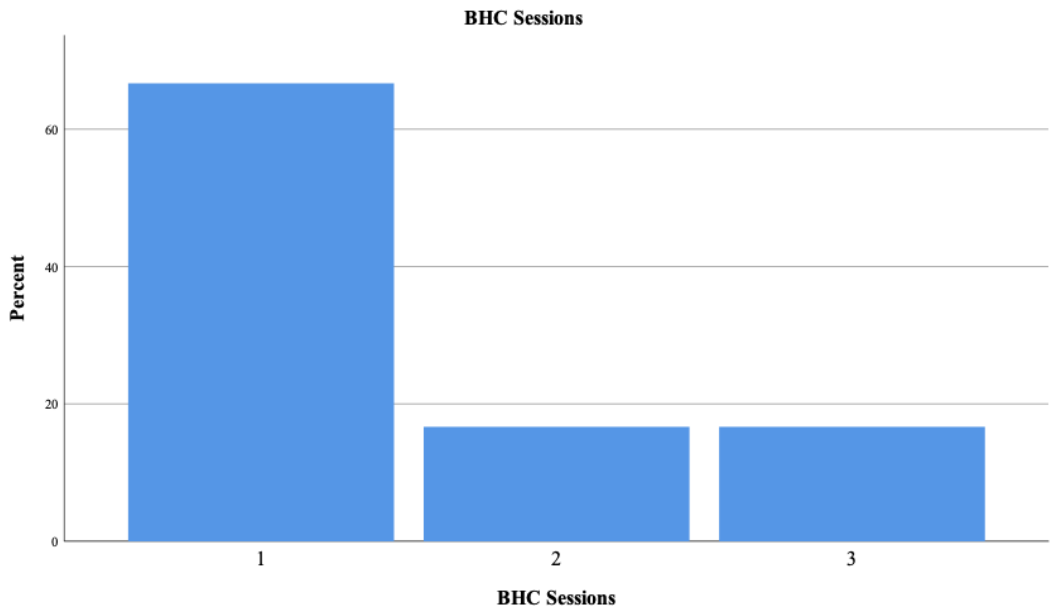


Twenty-four participants met with a BHC for an initial consultation, assessment, triage evaluation, and brief, targeted intervention (e.g., deep breathing exercises for anxiety). Of these participants, 23 (95.8%) were diagnosed with a mental health condition linked to anxiety or depression. It is unclear why 1 participant was not provided a diagnosis by the BHC; in addition, no additional referral was provided to this participant, nor were any additional follow-up appointments scheduled.

The BHC met with the 24 participants for a varied number of sessions. For example, most commonly, 66.6% of participants (n = 16) completed one session with a BHC (see Figure 3). This initial appointment consisted of follow-up testing utilizing the Generalized Anxiety Disorder Assessment (GAD-7) or the Center for Epidemiological Studies Depression Scale Revised (CESD-R) as deemed appropriate by the BHC. Additionally, the initial appointment included triage and brief targeted interventions as deemed appropriate by the BHC. Four participants (16.7%) who met with a BHC completed two sessions, while the remaining 4 (16.7%) completed three sessions. During these additional sessions, participants received an ongoing assessment, brief targeted mental health interventions, and triage to higher levels of care as needed. Of note, only 5 participants (20.8%) were referred to higher levels of care. These referrals were primarily to the project site counseling center or to the in-house psychiatrist, or both. The majority of participants (n = 19, 79.2%) engaged with the in-house services managed solely by the BHC, meaning higher levels of care were not required.

Figure 3

Number of Sessions Provided by BHCs



Summary

The data presented in this chapter summarize the outcomes of implementing an integrated, multidisciplinary early identification and triage of undergraduate college students ages 18–24 years at risk for anxiety and/or depression. This pilot study was also completed to determine whether there is a need for this type of program in a university health clinic setting. With 21.3% of participants screening positively as at risk for anxiety and/or depression, it is evident that there is value to adding a mental health assessment for college students. These students generally made appointments for primary care-related concerns, and underlying mental health risks may not have been identified without the use of the tool.

Identification is futile without a referral and management plan that promotes timely access to appropriate levels of care (Manea et al., 2015). The health care providers involved in this DNP study demonstrated the application of evidence-based practices into their workflow by

referring at-risk students 100% of the time. Further, the interdisciplinary team housed in the DNP project site was able to manage the volume of students needing follow-up assessment. Primarily these students were managed solely by the BHC, freeing up higher levels of resources (i.e., psychology or psychiatry) for higher-level needs.

This DNP project identified an area of need on college campuses and provided the first look at an integrated team-based approach to meeting the mental health needs of undergraduate college students. Its proactive approach was successful in identifying students at risk for anxiety and depression. The integrated team provided the foundation for appropriate referral to mental health providers and offered students prompt access to mental health resources.

Chapter 5: Discussion, Conclusion, and Recommendations

This Doctor of Nursing Practice (DNP) project applied evidence-based solutions to a college health clinic, such as the universal screening for mental health conditions with the Patient Health Questionnaire-4 (PHQ-4) screening tool in primary care settings in alignment with Cano-Videl et al. (2018), Khubchandani et al. (2016), Kroenke et al. (2009), Mills et al. (2015), and Worfel et al. (2016). Additionally, integrated behavioral health services in primary care settings were incorporated in this project to improve timely access to mental health care in alignment with Ede et al. (2015), Jacobs et al. (2018), and Jolly et al. (2016). A pilot study evaluated the implementation of an integrated multidisciplinary early identification and triage of college students at risk for anxiety and depression. The following chapter outlines a discussion of the study findings, conclusions, practice implications, and recommendations for future research.

Anxiety and depression diagnoses often peak during the college-age years (Khubchandani et al., 2016; Worfel et al., 2016), and these mental health conditions are one of the most significant predictors of academic failure (Khubchandani et al., 2016). Further, negative whole-person impacts, such as financial and physical concerns, have been documented as being attributed to anxiety and depression (ACHA, 2018; Eisenberg et al., 2019). Historically, mental health identification is primarily reactionary and can lead to underdetection and exacerbation of mental health symptoms (Chin et al., 2018). Reactionary mental health care places the burden on a college student to understand, identify, and report mental health symptoms to a health care provider. However, college students are a vulnerable population, often at a stage where they are caring for themselves for the first time and may lack the education and skills to understand they are experiencing mental health concerns. These conditions highlight the need for a more proactive approach to identifying mental health concerns among college students and have been

identified as a best practice by Healthy People 2020 (ODPHP, n.d.). However, a proactive clinical practice guideline was not available that outlines a system to proactively identify and manage mental health concerns utilizing an interdisciplinary team among college students.

The use of the PHQ-4 screening tool was implemented as a means of improving proactive assessment for anxiety and/or depression at the project site. As highlighted by Manea et al. (2015), mental health screening and identification must have a corresponding system of patient triage and management to effectively help individuals struggling with mental health concerns. Limited mental health resources on college campuses have also been well-documented both nationally in the United States (Lipson et al., 2019) and locally at the project site. When mental health resources do not match the level of mental health needs on campus, students can face barriers to timely care. Gaps in access to mental health care can lead to poor academic performance, exacerbation of mental health symptoms, and academic attrition (ACHA, 2018; Eisenberg et al., 2019; Igram & Stephens, 2019; Khubchandani et al., 2016; Turner et al., 2018). Therefore, solutions that better steward and extend campus mental health care resources are needed to meet the growing number of mental health needs of college students.

Discussion

The PHQ-4 is an abbreviated, well-validated mental health tool that identifies adults at risk for anxiety and/or depression (Cano-Videl et al., 2018; Khubchandani et al., 2016; Kroenke et al., 2009; Mills et al., 2015; Worfel et al., 2016). For this DNP study, the tool was used to proactively identify college students at risk for anxiety and/or depression with the intent of connecting these students to mental health care. A total of 21.3% of study participants (n = 61) screened positively for anxiety and/or depression. Of those participants identified as at risk for anxiety and/or depression, 39.3% were connected with a behavioral health consultant (BHC),

and nearly all 95.8% (*n* = 23) were assigned a mental health diagnosis connected to anxiety and/or depression. Additionally, 32.8% (*n* = 20) with positive PHQ-4 scores were already connected to mental health services (i.e., psychology or psychiatry). The prevalence of diagnosable mental health concerns at the project site is well-documented in the participant sample of this DNP project. Further, because both the local and nationwide campus counseling resources cannot meet the current demand for services (Lipson et al., 2019), an integrated behavioral health team is one solution to help steward limited mental health resources more efficiently.

Primary care campus health clinics are often the first entry point for college students accessing services for mental health concerns (Eisenberg et al., 2019; Lipson et al., 2019). At the same time, primary care providers (PCPs) are often ill-equipped or lack the appropriate systems to provide mental health care (Chin et al., 2018). For example, historically, at the project site, mental health concerns were identified if the patient divulged this particular information or if the patient entered in crisis (e.g., panic attack). The provider would refer to the campus counseling center, where the student would face barriers of lengthy precounseling assessments (e.g., Minnesota Multiphasic Personality Inventory, intake assessment), financial costs, and being placed on a waiting list to be seen. These barriers are significant because 80% of suicides completed by college students were among students not engaged in any counseling (Drum et al., 2009, as cited in Khubchandani et al., 2016). Historical mental health practices and systems were inefficient in routinely identifying and connecting students to care in a timely manner.

Utilizing the PHQ-4 as a routine assessment tool allowed a PCP at the project site to proactively identify students at risk for anxiety and/or depression. Every patient identified as at risk for anxiety and/or depression was referred 100% (*n* = 61) of the time to an in-house BHC.

This evidence was found in the retrospective chart audit (RCA) when a referral was documented in the patient's electronic health record (EHR). RCAs have been used to measure quality improvement projects by assessing provider compliance in the adoption of new evidence-based practices (Barick et al., 2018; Yan et al., 2019). Graham et al. (2006) added that moving research findings into observed clinical practice changes, as described in the Knowledge to Action Framework (KTAF), helps to bridge the gap between research and clinical practice for the purpose of improving patient outcomes.

During the implementation training, PCPs were instructed to discuss a positive PHQ-4 score with the patient, educate them on the services provided by a BHC, offer an appointment for further evaluation by a BHC, assess for suicidal ideation or intent, and answer any questions. This small practice change helped to initiate conversations surrounding mental health care. Historically these conversations would not occur as patients accessed the student health center (SHC) for other primary care concerns (e.g., ankle sprain, upper respiratory complaints, etc.). This opened the door to improved whole-person preventative care and health promotion discussions surrounding mental health. These important conversations are coming at a time when young adults are beginning to understand how to care for themselves and at an age when many mental health conditions begin to emerge (Khubchandani et al., 2016; Worfel et al., 2016). Therefore, this is a critical time for college health professionals to initiate health education and health promotion efforts surrounding mental health conditions.

Due to limited campus counseling services and resources, a stepwise approach was necessary to improve access to the most appropriate level of mental health care. The integration of mental health providers in primary care clinics has been demonstrated to improve timely access to mental health care, evaluation, and treatment (Ede et al., 2015; Jacobs et al., 2018; Jolly

et al., 2016). Further, Turner et al. (2018) found that when mental health providers were highly integrated into college health clinics, patients had improved access to care with an appropriate provider (e.g., PCPs managed mental health diagnoses less), and patients did not present as often with complex, poorly managed mental health diagnoses.

As demonstrated in this DNP study, 24 participants were connected to an in-house BHC within a week of being positively screened for anxiety and/or depression. These participants met with a BHC for between one and three sessions for evaluation and brief targeted interventions. During the initial follow-up appointment with the BHC, the participants were reevaluated utilizing the Generalized Anxiety Disorder Assessment (GAD-7) and/or the Center of Epidemiological Studies Depression Scale Revised (CESD-R) to screen for anxiety and depression, respectively. Ideally, this DNP study would have included calculations of those scores for comparison; however, due to the lack of a control group, these scores did not help to clarify a mental health diagnosis as initially hoped. Nonetheless, nearly all participants (95.8%, *n* = 23) who met with a BHC were provided a mental health diagnosis connected to anxiety and/or depression. However, further study with a control group is needed to evaluate whether the diagnosis was aided by additional follow-up screening and whether a mental health diagnosis correlates with a positive PHQ-4 score.

Only 5 participants (20.8%) who met with a BHC were triaged to higher levels of care (i.e., psychology or psychiatry). This is significant because mental health resources are limited on college campuses (Lipson et al., 2019). The incorporation of BHCs in a primary care college health setting may help to extend the resources necessary to meet the mental health care needs of the growing number of college students with anxiety and/or depression. For example, BHCs can help to more clearly assign treatment based on need or risk (Jolly et al., 2016). Also, this may

indicate that patients can be managed well using a stepwise approach and that lower levels of mental health care may be sufficient for managing the mental health needs of college students. However, further study is needed with a control group to evaluate the effectiveness of BHCs managing college mental health needs.

Some participants (21.3%) who screened positively on the PHQ-4 declined an appointment with a BHC. There were reasons listed in the EHR such as "This is a bad week, a one-time thing." Nonetheless, the project site PCP had the opportunity to provide education to these participants regarding the mental health services that were available and could be accessed in the future should this "one-time" occurrence become bothersome, impact other spheres of life (e.g., educational, social), or extend longer than expected. Value was added to the patient visit because many students were made aware of mental health services and how to access care in a timely manner. Additionally, this may have been the first awareness of a potential risk for anxiety and/or depression, which may help a student to recognize symptoms and seek care more readily in the future.

Study Limitations

This DNP study was limited by its descriptive design and lack of a comparison group. As a first look and pilot study, the intent was only to evaluate outcomes of evidence-based, proactive mental health practices in a college setting. Therefore, this study should be viewed as a foundational first step for proactively addressing mental health needs in a college health population. A comprehensive mental health program can be integrated into a primary care college health setting for the purpose of identifying college students at risk for anxiety and/or depression and connecting them with mental health services appropriate to their level of need. Secondly, a lack of a control group limited the ability to measure the effectiveness of the PHQ-4

instrument, follow-up instruments (i.e., GAD-7 and CESD-R), as well as the BHC interventions. While the interventions have been validated by previous studies, a control group would have strengthened the validity of the interventions for use among college students in a primary care college health setting. Lastly, the use of a convenience sample also limits the generalizability of research findings. Randomized sampling would have helped to reduce biases and should be considered in future research studies.

Conclusion

This new pilot study was implemented to take the first look at early identification and a multidisciplinary approach to mental health care within a college health setting. Value was created when students were identified as being at risk for anxiety and/or depression and connected with mental health services within the clinic. Also, as PCPs identified mental health concerns among their patients, whole-person care was improved as other at-risk patients were confirmed to be connected with mental health care. For example, patients were either connected to mental health services, were confirmed to already be connected to mental health care, or were provided education regarding the availability of mental health services should these services be needed in the future. This may help to reduce the exacerbation of mental health symptoms and the negative impact on student academic success.

Whole-person care is an essential component of quality health care; being able to offer mental health consultation, targeted treatments, and referral is an asset to college campuses because students are captured at the moment. Doors are opened for mental health education, health promotion, and access to readily available mental health care. Early identification and access to mental health care are valuable to colleges and universities because of the prevalence of mental health concerns on college campuses around the United States and the negative impact

on student academic thriving (ACHA, 2018; Eisenberg et al., 2019, Igram & Stephens, 2019; Khubchandani et al., 2016; Turner et al., 2018). Further, a whole-person approach to college health care may help mitigate student attrition, which is crippling for small private universities that are highly dependent on tuition dollars to fund university expenses.

Practice Implications

The team at the project site finds value in proactively identifying students at risk for anxiety and/or depression utilizing the quantifiable, well-validated PHQ-4 tool (Kroenke et al., 2009). Anecdotally, the brief nature of the tool or follow-up education did not greatly interfere with the appointment time needed to evaluate the primary concern of the student. The opportunity for patient education, health promotion, and efficient connection to mental health services is an improvement from the previous system (e.g., burden on the patient to divulge, or the student enters in mental health crisis) at the project site. Therefore, the project site is committed to the ongoing use of proactive screening and integrated mental health services in the clinic, utilizing BHCS for further evaluation, target interventions, and triage. This helps to preserve higher-level resources (e.g., psychologists at the campus counseling center or the SHC psychiatrist) for higher-level mental health needs. Improved stewardship may help to ensure timely access to mental health care services when students are assigned the most appropriate level of care based on their need and risk.

Recommendations

Further research is needed to understand the effectiveness of the mental health identification and triage program outlined in this DNP study. Specifically, a control group should be incorporated to better evaluate whether there is a correlation between a positive PHQ-4 score and mental health diagnoses. Further, a control group is also necessary to understand the

effectiveness of BHCs managing the mental health concerns of college students compared to those without access to care or perhaps those in higher levels of care. In this particular study, there were significantly more juniors and seniors in the sample group. Class rank-based utilization of the project site health center should be explored in future research to understand whether awareness surrounding campus services needs to be raised earlier in student matriculation. Lastly, a longitudinal study (e.g., following students over 4 undergraduate years) would be helpful to evaluate mental health needs, service utilization, and impact on student thriving.

Relationship to DNP Essentials

The American Association of Colleges of Nursing (2006) outlined eight essentials for doctoral education for advanced practice nurses. This DNP project demonstrated competency in meeting each of these eight essential educational components. The following section offers documentation around the fulfillment of each of the eight educational essentials.

Essential I: Scientific Underpinnings for Practice

This DNP project was implemented utilizing a conceptual framework based on the scientific underpinnings of change theory and nursing theory. Graham et al.'s (2006) KTAF provided the foundation for the implementation of including evidence-based practice solutions, such as the PHQ-4, into clinical practice. The KTAF helped to inform the process of converting research knowledge into practice by identifying key stakeholders and systems to address in order to more successfully infuse evidence-based practice changes.

Essential II: Organization and Systems Leadership for Quality Improvement and Systems Thinking

The infusion of mental health services in a primary care setting required an interdisciplinary and systems-based approach. This DNP project specifically required a collaborative process with mental health providers, primary care providers, and key administrators at the DNP project site. A systems approach was necessary to implement and evaluate a comprehensive mental health program from patient check-in to proactive mental health screening through referral and triage to appropriate levels of mental health care. Organizational leadership was required to implement all aspects of the project, such as infusion of the PHQ-4 into the existing EHR at the project site, training of primary care and mental health providers regarding the PHQ-4 scoring and referral process, and working collaboratively with the professor over the BHCs to ensure a streamlined assessment process for triage. Both the DNP project site and Abilene Christian University (ACU) offered unanimous support for this DNP project, which led to IRB approvals from both institutions.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

The purpose of this DNP project was to evaluate the outcomes of implementing a comprehensive, proactive mental health program in a college health primary care setting. Appropriate research methodologies and data analysis tools were utilized to evaluate the outcomes of this project, which highlights clinical scholarship and an ability to evaluate clinical practice changes that are supported by evidence-based research. This DNP project helps to alleviate the gap between research and practice by implementing available evidence-based clinical practice solutions and evaluating the efficacy in a specific setting. Further, this project helps to identify areas for further study.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

The PHQ-4 was embedded into the EHR system at the DNP project site. Similarly, provider referrals were digitally managed and routed to the appropriate provider (i.e., BHC) for efficient access to patient history (i.e., PHQ-4 score). Timely access to patient data provided a base of information for the BHC to work from during an initial patient assessment appointment. Digital EHRs made data collection via an RCA efficient. Technical skill was necessary to implement the DNP project, extract study data, and analyze findings via Statistical Package for the Social Sciences (SPSS).

Essential V: Health Care Policy and Advocacy in Health Care

The implementation of this DNP project required a careful assessment of the current project site policy related to mental health services and primary care. Historically, at the DNP project site, mental health providers work independently from primary care providers. Both primary care and mental health providers had separate physical locations and individual record-keeping systems and collaborated occasionally. Prior to the implementation of this project, the BHCs were underutilized at the project site, and there was no consistent method to identify patients who needed their services. Given the high level of mental health concerns at the project site, patient advocacy was necessary to convince other stakeholders of both the problem and solution to better meet patient mental health needs. Advocacy was also required to pilot a program with intentional collaboration, shared records, and interactions between primary care and mental health providers. Patient advocacy resulted in the expansion of whole-person, proactive, timely mental health care.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

Both national and local project site data support the overwhelming mental health concerns and diagnoses that exist among college students (ACHA, 2018; Eisenberg et al., 2019). The data also demonstrate the poor outcomes that have resulted from traditionally reactionary mental health care (Chin et al., 2018; Eisenberg et al., 2019; Igram & Stephens, 2019; Khubchandani et al., 2016; Turner et al., 2018). The development and implementation of this DNP project required collaboration among an interdisciplinary team at the DNP project site. Specific project initiatives included education across the disciplines regarding the scope and implementation details of the DNP project and advocating for improved, comprehensive, proactive mental health care.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Prior to implementing this DNP project, an understanding of the rising mental health concerns in undergraduate students was necessary. Further, it was essential to understand that mental health care to date has primarily been reactionary at the DNP project site. A rise in mental health concerns without a corresponding level of mental health care services revealed the need to improve proactive screening and a comprehensive triage program at the project site. The development of this DNP project required an assessment of current evidence-based practices that supported a proactive approach that could help to identify undergraduate students at risk for anxiety and/or depression. Those at-risk students were connected to mental health care services. Health promotion education was provided to those at risk for anxiety and/or depression.

Essential VIII: Advanced Nursing Practice

Advanced practice nurses (APNs) are trained to provide whole-person care, assess and detect, and screen and refer. This DNP project was implemented with the APN in mind and the ability to expand the level of comprehensive health care through a simple mental health screening. Improved identification of mental health risk among college students can help to connect students to care sooner.

Summary

This DNP project adds value by highlighting and reinforcing the prevalence of mental health concerns among college students. Further, the implementation of a new evidence-based, proactive approach to quickly identifying students at risk for anxiety and depression was explored. Students who may have not otherwise been identified, given primary care appointment reasons outside of mental health diagnoses, were assessed and offered a connection to mental health services. Most often, students who declined follow-up with a BHC were already connected to higher levels of mental health resources. While further study is needed to compare this proactive, integrated mental health program against a control group, this DNP study has laid the foundation to understand a feasible evidence-based approach to more proactively addressing the rising mental health needs of college students.

As a finite number of mental health resources on U.S. college campuses are outpaced by the growing number of students with anxiety and depression, a proactive and comprehensive approach in the primary care setting may be helpful. An eye toward the careful stewardship of health care resources is necessary to remove access barriers to care. A DNP is well suited to implement clinical practice quality improvements by bridging the gap between research and the implementation of evidence-based practices in the clinical setting. This DNP project highlights

the contributions of a DNP to do such work for the betterment of patient access to quality and timely health care.

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Appendix A: Project Site PHRRC Approval

[redacted]

DECISION FORM

PROTECTION OF HUMAN RIGHTS IN RESEARCH COMMITTEE

INVESTIGATOR(S):	Sarah Templeton	DATE	8/19/19
DEPARTMENT:	Nursing	PROTOCOL #:	SS19-021_SE
COMMITTEE CHAIR:	[redacted]		

1. RISKS:

- (●) The proposed research involves minimum risk and/or the subjects' safety is adequately protected.
- ( ) The proposed research involves an element of risk to a vulnerable population and further measures seem advisable to protect the subjects, such as:
- ( ) The risk seems greater than can be justified by the research in that:

2. INFORMATION FOR THE SUBJECT:

- (●) The information to be given the subjects (or their legal representatives) is complete and accurate enough for them to reach a valid decision concerning participation in the research.
- ( ) The information for the subjects as presented is incomplete or defective in that:

3. CONSENT METHOD:

- (●) The format and manner of obtaining informed consent from the subjects (or their legal representatives) is satisfactory.
- ( ) The method of obtaining informed consent is defective in that:

4. FURTHER COMMENTS:

5. RECOMMENDATION:

- (●) The proposed research is approved as submitted.
- ( ) The proposed research is approved when required revisions have been made.
- ( ) The proposed research be revised in keeping with above comments and resubmitted.
- ( ) The proposed as described is rejected.

This form requires your signature. To submit your signature electronically, read the following text and provide your electronic signature by typing your first and last name below.

I certify the foregoing information is accurate and acknowledge this as my signature.

[redacted]

DATE 8/21/2019

Appendix B: Patient Health Questionnaire-4

PHQ-4 Questionnaire

University Health Services is committed to the care of the whole person and promoting the well-being of every student. This brief questionnaire will help your health care provider to improve your treatment by screening for signs of depressed or anxious mood. Information will be shared with University Health and Wellness professionals. Simply answer the following questions.

Over the last two weeks, how often have you been bothered by the following problems?

Feeling nervous, anxious, or on edge:

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Not being able to stop or control worrying:

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Feeling down, depressed, or hopeless:

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Little interest or pleasure in doing things:

- ☐ Not at all
- ☐ Several days
- ☐ More than half the days
- ☐ Nearly every day

Score:

Scoring:

Not at All = 0
Several Days = 1
More than half the days = 2
Nearly every day = 3

PHQ-4 total score ranges from 0 to 12, with categories of psychological distress being:

- None 0-2
- Mild 3-5
- Moderate 6-8
- Severe 9-12

Anxiety subscale = sum of items 1 and 2 (score range, 0 to 6)
Depression subscale = sum of items 3 and 4 (score range, 0 to 6)
On each subscale, a score of 3 or greater is considered positive for screening purposes.

Appendix C: IRB Approval

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

June 2, 2020

Sarah Templeton
Department of Nursing
Abilene Christian University

Dear Sarah,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled "An Evaluation of an Integrated Multidisciplinary Early Identification and Triage of College Students at Risk for Anxiety and Depression",

(IRB# 20-067)is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine whether or not the exempt status is still applicable.

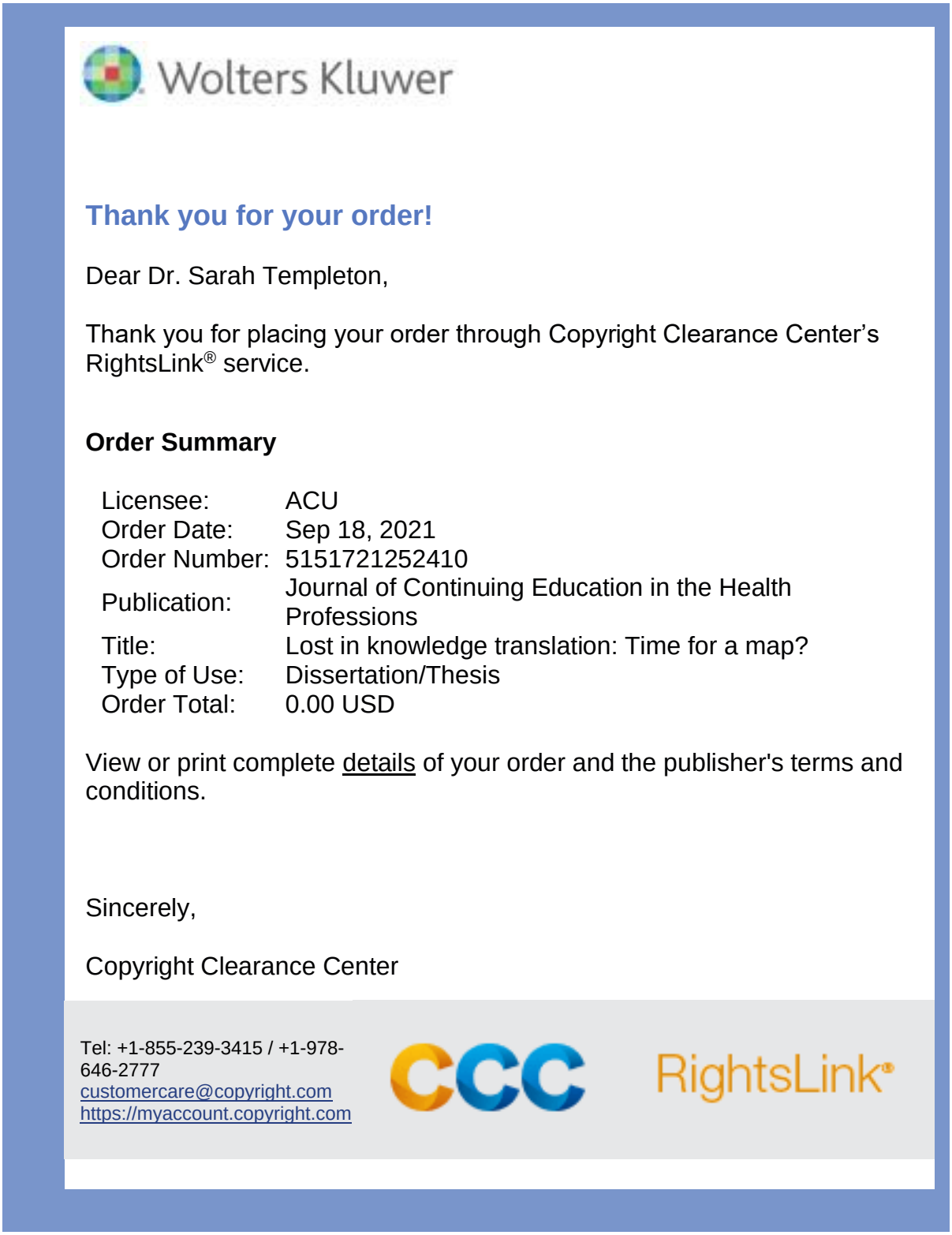
I wish you well with your work.

Sincerely,

Megan Roth

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

Appendix D: Permissions



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