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Evaluating the Impact of an Educational Program on the Healthcare Providers Knowledge on Depression and Screening Among Adolescents and Young Adults

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Abstract

Background: Approximately 264 million people globally live with a mental health disorder, with about 40 million among them being Americans. Within the adolescent population, mental health conditions account for 16% of the world burden of injury and disease. Depression is a leading cause of disability and illness among adolescents and young adults globally. Yet few get treated for it because of mental illness stigma, illiteracy, marginalization, and lack of screening. ***Purpose:*** A Quality improvement (QI) project was designed to create awareness and to educate healthcare providers on the need to use the PHQ-9 when assessing adolescents and young adults (age 18-25 years) for depression in hopes of improving screening, diagnosis, timely intervention, and lowering mortality among this population. ***Methods:*** Six healthcare providers were provided with education on depression, its health impact, and the need to use standardized screening tools during assessment for early detection, diagnosis, and treatment. Data were collected using a pre-test which was administered to providers prior to the two education sessions, and a post-test which followed the sessions within a period of two to three weeks to evaluate the impact of the education provided. ***Results:*** All six participants completed the educational program. Data were analyzed by comparing the pre and post-test survey results using a descriptive statistical analysis. The scores improved after the post intervention survey. ***Conclusion:*** The participants had improved knowledge about depression and the importance of using standardized screening tool (PHQ-9) when assessing adolescents and young adults for depression, for early detection, diagnosis, and timely intervention, to decrease mortality among this population.

Keywords: Depression, screening, mental health education, stigma awareness, healthcare providers, knowledge, adolescents, young adults, and education

Evaluating the Impact of an Educational Program on the Healthcare Providers Knowledge on Depression and Screening Among Adolescents and Young Adults

Introduction

There are 264 million people globally living with mental health disorders such as depression, with about 40 million among them who are Americans (Folk, & Folk, 2018). Depression disorder is among the foremost prevalent mental health conditions within the United States; however, few people get treated for it (World Health Organization [WHO], 2017). Depression is a pervasive psychiatric disorder with a devastating effect on adolescents and young adults normally occurring during important developmental period in their lives (Townsend et al., 2019). Depression affects major developmental stages which form important foundations for future adult functioning, including education, employment, and formation of relationships (Townsend et al., 2019). This psychiatric disorder is related to poor outcomes of underlying psychiatric and medical illnesses and increased risk of suicide attempts (Townsend et al., 2019).

Individuals with mental disorders such as depression are high users of the health-care system, thereby contributing to adverse effects on the overall healthcare budget (Trautmann et al., 2016). The indirect costs incurred because of these disorders include underemployment, loss of labor, morbidity, and mortality, while the direct costs include the medical expenditures of managing the condition (Trautmann et al., 2016). Although there are treatments to assist individuals with mental health disorders, a number of patients unfortunately do not seek out help nor want to participate in treatment options. A number of factors that affect and impact the participation in care seeking and weakens the service system are mental illness stigma and price of treatment (Bandelow & Michaelis, 2015; Corrigan, et al., 2014; Trautmann et al., 2016). The effect of stigma on individuals with mental illness is incredibly complex, with the impact

affecting the individual, mental health providers, support systems, and community resources. Knowledge and understanding in mental illness stigma among service providers is vital to reducing the negative impact on care seeking and treatment engagement. Educational programs for healthcare providers are also beneficial for promoting help seeking behaviors and care engagement (Corrigan et al., 2014).

It is estimated that when compared to the general population, not many people with mental illness seek help (Bandelow & Michaelis, 2015). Additionally, societal, and cultural injustices refer to the disadvantages that vulnerable groups experience because of unjust social structures, systems, poor literacy in mental health, and stigmatization (Benbow et al., 2014). Individuals with mental conditions are among the foremost marginalized, stigmatized, and devalued, in society. These individuals are often exposed to numerous societal abuses including unemployment, barriers to healthcare, discriminations, and difficulty accessing and maintaining proper housing (Benbow et al., 2014). In most cases, these individuals are blamed by the community for their current situations without paying attention to the social-political factors that influence their experiences, as well as provider and system level barriers, and poor literacy in mental health among service providers and society as a result of stigma (Corrigan, et. al., 2014).

Background

Societal and self-perceived stigma have significant effects on the health of people combating mental health conditions like depression. Stigma leads to negative attitudes, lack of employment opportunities, discrimination, substandard housing, and increased barriers to accessing and using healthcare systems (Corrigan et. al., 2014). Stigma not only makes it difficult for care taking, but it also causes a threat to health and welfare through the detrimental

biological impacts of stress and loss of important social and occupational prospects (Townsend et al., 2019).

Societal injustices among individuals with mental illnesses usually have adverse effects on their lives, negatively affecting quality of life (Corrigan et al., 2014). As an example, individuals with mental disorders may face challenges due to consistent stereotypes including being incompetent or inadequate which may affect self-esteem and help seeking behavior. However, the capability of getting help and being knowledgeable about their mental health disorder within the community improves social relationships by providing individuals with a way of self-worth and achievement in life (Corrigan et al., 2014).

Mental wellness is important, especially, among young adults. In this population, mental health conditions account for 16% of the worldwide burden of injury and disease (Lau et al., 2016). The prevalence of the disorder makes depression a leading cause of disability and illness among young adults world-wide. Although there are health promotion and depression prevention interventions, stigma in mental health disorders, like depression and illiteracy, affects many young adults from seeking healthcare assistance and adhering to treatment (Lau et al., 2016). Mental illness stigma and stereotype are related to a reduction in sense of self-worth because some depressed adolescents and young adults have the perception that they are socially unacceptable (Darraj et al., 2017). Stigma among adolescents and young adults occurs once they adopt stereotypes that affect their attitudes, behaviors, and self-esteem. Adolescents and young adults with limited depression literacy and mental health stigma lose hope of regaining their holistic wellness, and as a result, might avoid seeking help and delay or terminate treatment which will help manage their disorder (Dolphin & Hennessy, 2016).

Increased prevalence rates of depression, particularly among young adults and adolescents, is influenced by inadequate knowledge by some healthcare providers and stigmatization of the patients (Knaak et al., 2017). Most healthcare providers and the general public often have a negative attitude towards patients with depression. The negative attitudes held by some providers and the public are often based on the unpredictability of the individuals, their manipulative nature, and the tendency to avoid social contact (Knaak et al., 2017). Also, misconceptions regarding the causation of depression significantly influence the providers' negative perception regarding patients with depression (Haddad et al., 2016).

Haddad et al. (2016) and Knaak et al. (2017) believe that negative perception about patients with depression is mostly influenced by the lack of comprehensive understanding of the disorder. Mental health illiteracy by healthcare providers and general misconception of mental health disorders deters many individuals from seeking appropriate medical help and on time, subsequently contributing to an increased burden for the individuals who are affected (Haddad et al., 2016; Knaak et al., 2017). Despite the fear of seeking medical assistance from healthcare providers who have negative views about depression and mental health conditions in general, some patients still opt for professional care. However, these patients are likely to receive low-quality care due to some providers inadequate knowledge about mental health conditions, ultimately contributing to low quality of life among the affected individual (Haddad et al., 2016).

Sawadogo et al. (2019), established that mental health knowledge plays a very important role in changing healthcare providers' attitudes towards individual with mental illnesses. The researchers established that through exposure to psychiatry, the providers are likely to acquire the knowledge and skills needed in providing quality services to individuals with mental illness, eventually leading to better health outcomes (Sawadogo et al., 2019). Sawadogo et al. (2019)

also observed that healthcare provider's knowledge could be improved by increasing the time dedicated to practical and theoretical learning based on mental health during their program and practice. Also, supporting continued education in mental health among practicing providers is crucial in ensuring the provision of quality services (Sawadogo et al., 2019).

The findings by Haddad et al. (2016) and Sawadogo et al. (2019) were supported by the results established by Riffel and Chen (2020), who found that healthcare providers are likely to improve their knowledge regarding various psychiatric conditions through mental health education and awareness. The researchers demonstrated that education in mental health and mental health stigma plays a major role in improving care delivered by healthcare providers, eventually resulting in enhanced patient outcomes as a result of the satisfaction with the care delivered (Riffel et al. 2020).

Knowledge about depression and stigma is an important element in avoiding the harmful sequelae related with this mental health disorders that usually occurs initially in adolescence or young adults. One approach to decrease the public health effect of this disorder is for providers to offer timely education for detection by using standardized screening tools, diagnosis, and early treatment (Townsend et al., 2019) through an increased awareness of the problem. Improving providers knowledge about mental illness stigma and proper screening will require education, creating awareness, and training to assist and reduce the negative impact on care seeking and treatment participation (Corrigan et. al., 2014).

Problem Statement

The risk of adolescents and young adults (aged 18 to 25) not seeking healthcare assistance and adhering to treatment of depression is indicated by a decreased awareness and

lack of consistent provider screening for depression among this population. Adolescents and young adults with depression who are not screened and treated promptly are at risk of impaired quality of life or suicide.

Review of the Literature

A search for literature was conducted to facilitate the identification of peer-reviewed research studies on the identified issues. The keywords used included depression, stigma, mental health, knowledge, adolescents, young adults, education, and outpatient settings. On EbscoHost an initial search using search phrases like healthcare providers "OR" nurses "AND" depression "AND" knowledge facilitated in retrieving 1,797 studies. A second search using healthcare providers "OR" nurses "AND" mental health stigma helped in retrieving 1,659 studies. A third search using healthcare providers "OR" nurses "AND" depression "AND" adolescent helped in retrieving 868 studies. A fourth search using nurses "AND" depression "AND" knowledge helped in retrieving 149 studies. On PubMed an initial search using phrases like Nurses AND Depression AND Adolescent facilitating in retrieving 53 studies. Another search using the search phrases Nurses AND Depression AND education helped in retrieving 67 studies. On the Cumulative Index to Nursing and Allied Health Literature (CINAHL) an initial search using the phrases healthcare providers "OR" nurses "AND" depression "AND" knowledge helped in retrieving 139 studies. A second search using the phrases healthcare providers "OR" nurses "AND" mental health stigma facilitated in retrieving 86 studies. A third search using the phrases healthcare providers "OR" nurses "AND" depression "AND" adolescent facilitated in retrieving 62 studies. A fourth search using the phrase nurses "AND" depression "AND" knowledge helped in retrieving 26 studies. A search on Google Scholar facilitated in retrieving 59 studies. A search including other databases such as Science Citation Index, PsycInfo and Complementary Index

were used. A search using keywords and index terms across all databases were used. Other studies or articles were retrieved from references of related or similar studies. To facilitate in including only relevant and appropriate studies, inclusion and exclusion criteria were applied to the retrieved studies. The articles included in the synthesis had to be available in full text, written in the English language, primary, or systematic review studies, published between 2014 and 2020, and peer reviewed. Articles were excluded if they were not available in full text, written in any other language other than English, and the purpose diverted from the formulated topic. Applying the inclusion-exclusion criteria facilitated in retrieving studies that were synthesized in the literature review. The total number of articles and studies selected was twenty-seven.

Synthesis

Mental Health Stigma against Individuals Suffering from Depression

Stigma against individuals with mental health conditions is common in most societies (Yokoya et al., 2018). According to Riffel and Chen (2020), mental health stigmatization is among the most challenging barriers to treatment. Riffel and Chen (2020) demonstrated that stigmatization impedes access to quality care and treatment among patients with psychiatric conditions. Specifically, stigma negatively affects the help-seeking behaviors of patients with depression (Knaak et al., 2017). Most of the patients with psychiatric conditions often report experiencing public stigmatization when seeking medical assistance in healthcare settings. Patients mainly report feeling dehumanized, undervalued, and dismissed by healthcare providers whom they interact with and sometimes being excluded from treatment-related decisions (Knaak et al., 2017). Also, long waiting durations when seeking medical assistance and receiving inadequate information regarding the patient's mental conditions are also common challenges experienced by individuals with psychiatric disorders. Stigmatization of patients suffering from

depression is considered as one of the main contributing factors to increased suicidal rates and non-adherence to prescribed medications (Knaak et al., 2017).

Screening for Depression among Adolescents and Young Adults

Evidence supports the use of standardized screening tools in outpatient facilities to identify depression among adolescents and young adults, which promotes early management, and improved morbidity (Bhatta et al. 2018; Costello et al., 2019; Ortuno-Sierra et al., 2017).

Bhatta et al. (2018) assessed the effectiveness of using the Patient Health Questionnaires (PHQ-9) in identifying adolescents and young adults who are at risk for major depressive disorder (MDD). After evaluating the collected data, the researchers found the PHQ-9 screening protocol helps in identifying MDD among adolescents, which results in clinical referral, timely treatment, and decreased mortality among this population (Bhatta et al., 2018). In another study by Costello et al. (2019), they assessed the impact of screening protocols and found that incorporating the PHQ-9 helps in the early identification of depression among adolescents and young adults. The researchers concluded by supporting the importance of using standardized tools in screening for depression among adolescents and young adults. In a similar study conducted by Ortuno-Sierra et al. (2017) to assess efficacy of the Reynolds Depression Scale-Short form (RADS-SF) in assessing symptoms of depression among adolescents and young adults, they found the standardized tool is effective in assessing depression among adolescents and young adults (Ortuno-Sierra et al., 2017).

Healthcare Providers' Knowledge of Screening and identifying depression

Some healthcare providers in outpatient settings need to have adequate knowledge to screen and identify depression, which leads to the reduction of unrecognized and untreated psychiatric illnesses (Beers et al., 2017; Harder et al., 2019; Rinke et al., 2019).

Beers et al. (2017) evaluated the effect of education on practitioners and their ability to identify mental health disorders in children. The participants in the study completed surveys to assess their preparedness and ability to identify mental health issues. Similarly, data on the screening rates were collected. Beers et al. (2017) found that educating the healthcare providers helped in increasing screening from 1% to 74%. Similar to Beers et al. (2017), Harder et al. (2019) assessed the effectiveness of a quality improvement intervention that focused on improving the healthcare providers' knowledge in screening for depression and formulate initial plans of care. Sampled medical records were reviewed at random, and it was identified that screening and initial planning of care improved as a result of the intervention. Additionally, adolescents who visited the practices and participated in the study were 37.5 times more likely to be screened using a validated tool than those in the control group (Harder et al., 2019).

In a similar study, Rinke et al. (2019) assessed whether educating healthcare providers improves the number of missed diagnoses among adolescents and young adults. The interventions applied included educational programs, coaching, and adoption of diagnostic performance improvement tools like the PHQ-9. The researchers found that depression diagnosis increased from 6.6% to 10.5%. Rinke et al. (2019) concluded that improving healthcare providers' knowledge helps in screening depression diagnosis among adolescents and young adults.

Healthcare Providers' Adherence to Standardized Depression Screening Tools

Inadequate knowledge, support, and coaching among some healthcare providers impedes adherence to the standardized depression screening protocols among some providers (Rinke et al., 2019; Stanley et al., 2016). Not adhering to screening results in the occurrence of unrecognized and untreated major depression, which increases the adolescents' and young adults, risk of suicide. Rinke, German et al. (2019) conducted a study to evaluate the impact of screening on healthcare providers' ability to identify depression. In the study, 10 practices implemented mental health screening. Mental health screening was later implemented in nine other practices, but with less support and coaching. The researchers found that effective depression identification occurred in practices with integrated healthcare providers and screening. Rinke, German et al. (2019) supported the need to educate and support healthcare providers as a strategy for promoting screening and creating awareness, which promotes the identification of depression among adolescents and young adults.

In a similar study by Stanley et al. (2016), they suggested that inadequate training impedes the routine screening for depression among adolescents and young adults. In this study, the researchers assessed the impact of 60 to 90 minutes of educational intervention on the healthcare providers' knowledge and compliance with the recommended screening guidelines. Stanley et al. (2016) found that educational intervention improved the providers' compliance and self-perceived knowledge to screen for depression among adolescents and young adults.

The Effect of Education on the Healthcare Providers Knowledge

It is very important for healthcare providers to be knowledgeable when assessing adolescents and young adults for depression. Healthcare providers should have the knowledge

and required skills to provide care to patients with mental health disorders (Haddad et al., 2018). Healthcare providers working with adolescents and young adults should have adequate training, knowledge, and support necessary to promote psychological well-being. Healthcare providers should be equipped with knowledge and skills to manage depression among adolescents and young adults (Colburn et al., 2020).

The Effect of Training Program on Healthcare Providers' Knowledge

According to Haddad et al. (2018), young adults' mental health problems commonly continue into adulthood. Training programs for healthcare providers are essential in addressing mental health problems among young adults. Mental health programs are effective in dealing with mental health problems through empathy, interpersonal skills, and problem-solving. Haddad et al. (2018) conducted research to investigate the effectiveness of a personalized short program on healthcare providers' attitudes, knowledge, and recognition skills for depression. The participants involved were 146 providers, who were randomly allocated to the training program (Haddad et al., 2018). The findings indicated that the training program led to an improvement in the providers' knowledge about depression. Based on the findings, the program was associated with significant depression understanding and recognition. The training program led to increased confidence of healthcare providers in working with young adults with mental health problems (Haddad et al., 2018).

Starkey et al. (2016), investigated the effect of a practice improvement intervention on managing and screening persons with depression in primary care. The researchers collected data using a survey method to obtain what the healthcare providers were doing in practice. The intervention involved using practice improvement coaching conference calls, online toolkit, and evidence-based educational modules that promoted group learning. The result showed that the

intervention was associated with creating awareness, increased knowledge, and confidence in managing patients with depression (Starkey et al., 2016). The findings of the study suggest that practice improvement interventions can improve depression screening and management competency among providers.

According to Fallucco et al. (2019), brief education programs for healthcare providers lead to an improvement in the rate of depression screening of adolescents and young adults in primary care settings. A study was conducted to investigate the long-term effect of providers training on diagnosis and screening of adolescents and young adults with depression in primary care. There were 25 healthcare providers involved in the training. The results indicated that the intervention led to a significant increase in depression screening rate from 51% to 80% (Fallucco et al., 2019). The training of healthcare providers leads to an increase in the percentage of young adults and adolescents diagnosed with depression. The researchers concluded that healthcare providers involved in training are more likely to diagnose, and screen for young adults and adolescent with depression.

Impact of Depression Program on Healthcare Providers Knowledge

Healthcare providers play an important role in diagnosing and treating of young adults and adolescent with depression (Colburn et al., 2020). Healthcare providers should have experience in managing young adults and adolescents with depression. Understanding the guidelines on diagnosis and treatment of patients allows healthcare providers to define and resolve problems using their knowledge and experience. Educational interventions through quality improvement programs contribute to the improvement of knowledge in adolescent and young adult’s depression screening. Healthcare providers should be trained with knowledge and skills to manage adolescent and young adult’s depression in the outpatient setting. Colburn et al.

(2020) conducted a study to evaluate the effect of an adolescent and young adults' depression program on providers' knowledge to manage depression. The study involved the implementation of a case-based adolescent depression program in adolescent medicine rotation. The study indicated that the implementation of the program leads to improved self-assessed knowledge. Based on the study findings, the use of training leads to improved self-assessed confidence and knowledge in the diagnoses and treatment of young adults and adolescents with depression (Colburn et al., 2020).

Theoretical Framework or Evidence Based Practice Model

The theory that guided this project will be the Prochaska and Diclemente's Trans-Theoretical Model of behavior change (Prochaska et al., 1983). Prochaska and DiClemente's Transtheoretical Model (TTM) of change explains behavior change as a series of the stages of change through which people progress toward a preferred kind of behavior. The TTM consists of two major concepts which are the stages of change and the processes of change (see Appendix A). This theory was used because of its likelihood of customizing interventions to people experiencing different stages of change (Friman et al., 2017; Prochaska et al., 1983). In the TTM, behavior change is theorized as a procedure that unfolds over time and includes progression via a series of five key stages which is the precontemplation, contemplation, preparation, action, and maintenance (Friman et al., 2017; Krebs et al., 2018).

At the **precontemplation** stage, there is no intent by the individual to change his/her behavior in the immediate future. Most people at this stage are unaware of the existing problem. In this project, this related to the healthcare providers who may not be aware of mental health stigmatization and how it affects access to quality care and treatment of patients with mental health disorders. At the **contemplation** stage, the individual is aware that there is a problem, and

he/she is seriously thinking about defeating it but have not made any commitment yet to act. Most individuals struggle at this stage with serious consideration of the problem which characterizes contemplation. At this stage, the healthcare provider is aware of the issue of stigmatization and the need for proper screening of patients, but he/she is thinking about how to manage it but has not yet made any commitment to act upon it. At the **preparation** stage, intention and behavioral criteria are combined. This is the stage in which an individual is planning for change. The individual at this stage is intending to act in the following month and is often taking minor behavioral changes. The healthcare provider at this stage after realizing the issue of stigmatization and the need for proper screening of patients starts to think about taking action and changing his/her behavior in the near future. At the **action** stage, the individual changes his/her behavior, experiences, and/or environment to defeat the problems by adopting to new habits. The action stage involves the most evident behavioral changes, and it needs significant commitment of time and energy. The healthcare provider at this stage starts to take major actions by making changes to his/her behavior and making visible and considerable commitment to overcome the problem of stigmatization and the need for proper screening of patients. At the **maintenance** stage, the person works to avoid deterioration and consolidate the improvements made during the action stage. This stage is an ongoing practice of new behavior to stabilize behavior change and avoiding relapse. At the **relapse** stage, the person may go back to his/her old behavior. (Friman et al., 2017; Krebs et al., 2018). The TTM of change was used to educate and create awareness about depression, stigma, and the need for proper and consistent standardized screening of patients, and the need for behavioral and attitudinal change on the part of the participants to achieve the overarching goals of the project.

Methods

Goals, Objectives, and Expected Outcomes

The overall aim of this DNP project was to implement and evaluate an education session for healthcare providers on the importance and the need to use standardized screening tool such as the PHQ-9 when assessing adolescents and young adults for depression. Evaluation of the education session was conducted by administering a pre and post intervention survey to healthcare providers to assess knowledge gained. The goal was to increase the providers knowledge about using standardized screening tool when assessing adolescents and young adults for depression. This required change in attitude of the healthcare providers.

By using a standardized screening tool, health care providers were able to perform adequate screening and properly diagnose adolescents and young adults with depression; this led to early identification, more effective treatment, and improved patient outcomes. Using educational programs and interventions to create awareness helped to promote the early identification and detection of depressed adolescents and young adults who, as a result of mental health stigma and knowledge deficiency, may not want to seek help and treatment.

Table 1

Goals	Objectives	Outcomes
The DNP student educated the healthcare providers and increased their awareness about the effects of depression on	Four (4) thirty-minute educational presentations were administered from 12 pm – 12:30 pm on Wednesdays and Thursdays during February	At least 40% of providers attended one of the educational presentations regarding the need to use standardized screening tools

adolescents and young adults.	2021 to providers on depression and the PHQ-9 Tool.	for depression in adolescents and young adults.
The DNP student contributed to an increased in providers knowledge by raising awareness about the importance of using standardized screening tool when assessing adolescents and young adults for depression.	Four (4) thirty-minute educational sessions were provided each Wednesdays/Thursdays from 12 pm-12:30 pm in February 2021 to providers about the importance of using standardized screening tools when assessing adolescents and young adults for depression.	At least 40% of providers attended one of the education presentations about using standardized screening tool to increase their knowledge about assessment of depression in adolescents and young adults.
The DNP student contributed to an increased in healthcare providers awareness about the use of standardized screening tools to assess adolescents and young adults to facilitate early diagnosis and treatment of depression.	Four (4) thirty-minute educational presentations were conducted Wednesdays/ Thursdays from 12 pm-12:30 pm during February 2021 to providers about the importance of using the PHQ-9 screening tool for timely identification of depression.	At least 40% of providers and staff acknowledged that the use of standardized screening tool may facilitate early detection, diagnosis and the treatment of adolescents and young adults for depression.

The DNP student assessed the impact of the educational session on providers knowledge and attitude about using standardized screening tool when assessing adolescents and young adults for depression.	Providers reported increased knowledge about the use of standardized screening tools for the assessment of depression in adolescents and young adults.	At least 30% of the providers completed the pre and post-tests/questionnaire surveys reported increased knowledge about using standardized screening tool by the end of the education session.

Project Site and Population

This quality improvement project was implemented in an outpatient psychiatric center located in Worcester, Massachusetts. According to the U.S. Census Bureau (2019), the estimated population of Worcester in the year 2019 was 185,421, of which 93,860 (50.5%) were female and 91,741, (49.5%) were male. With regards to the age category, 19% were under 18 years old, 68% were between 18 to 64 years, and 13% aged 65 years and older, with a median age of 34.5%. The per capita income was $28,871 and the median household income is $57,092 (U.S. Census Bureau, 2019).

The setting of this quality improvement project was ideal because of the availability of utilities and resources including different kinds of staff members which include one psychiatrist (MD) who serves as the supervising physician of the practice, three nurse practitioners (PMHNP's), three interns (NP's), one psychotherapist, one office manager and two receptionists.

The center opens from 8:00 AM to 6:00 PM on Mondays through Fridays, and 9:00 AM to 3:00 PM on Saturdays while it is closed on Sundays. It has 24 hours service support system. It is one of the leading mental health service providers in the Worcester county, and provides treatment to individuals of all ages. The patient population consists of people from different backgrounds, cultures, and beliefs. The services provided by this facility include psychotropic management and evaluation, and psychotherapy. They also coordinate patient referrals to specialists for services including crisis intervention, educational group, specialized groups, and other services. This DNP student collected data through a pre-test administered to providers prior to the education sessions and a post-test after the education sessions within a period of two to four weeks.

Project Design

This QI project focused on improving healthcare providers knowledge and awareness on depression, the devastating effects on adolescents and young adults, and the importance of using standardized screening tool like the PHQ-9 when assessing this population for depression. The PHQ-9 is a nine-item patient health multipurpose instrument for screening, diagnosing, monitoring, and measuring the severity of depression (Patel et al., 2019), (see Appendix B).

Before the implementation of the project, this DNP student had verbal and telephone communications with the participants about the nature of the project. There were six participants (N=6) involved in all of the education sessions. All participants were healthcare providers: three were nurse practitioners (PMHNP's) and three were interns (NP's) at the center. There were two males and four females with ages ranging from 35 years to 55 years. All participants were provided with a self-reported 5-point Likert-type scale questionnaire developed by the DNP student prior to the presentation.

Two survey questionnaires were created for the educational interventions, the pre-test was made up of 10 questions which was given to the participants to collect baseline data on their knowledge about the effects of depression and using a standardized screening tool (PHQ-9) when assessing adolescents and young adults for depression. A post-test was conducted two to four weeks after the education sessions. The post-test included the same 10 questions as the pre-test and was designed to reassess or evaluate the impact of the educational session. In addition to the post-test questions, there were three additional questions which asked participants if the education sessions on depression and the use of standardized screening tool (PHQ-9) were helpful, and if they intended to use the standardized screening tool. Both surveys were made of questions based on a 5-point Likert-type scale with the number 5 representing (strongly agree), number 4 (agree), number 3 (neutral), number 2 (disagree) and number 1 (strongly disagree). A score of 5 on each item represented a higher knowledge score and a score of 1 a lower knowledge (see appendix C). Only participants who filled the pre-test were asked to fill the post-test.

Implementation Plan

The implementation plan included a pre-intervention, intervention, and the post-intervention. Providers' participation involved their attendance and cooperation during the educational sessions. The educational sessions were conducted over a period of two to four weeks. The initial plan was to do the sessions with all participants in an in-person group, but because of the Covid-19 pandemic, and the busy schedule of the participants, it was not possible to get everyone together at once. There were two participants present at the first session, and another two at the second session, and one each at the third and fourth sessions, respectively.

This DNP student collected data through a pre-test administered to providers prior to the education sessions and a post-test that was provided two to four weeks following the sessions. The pre-test and post-test were designed based on the self-report Likert survey questionnaire which was given to the participants to collect baseline data on their knowledge about using a standardized screening tool (PHQ-9) when assessing adolescents and young adults for depression. Following the pre-test, the participants were educated about the significant effects of depression on adolescents and young adults, and the importance of using a standardized screening tool when assessing this population for depression. The post-test was conducted two to four weeks after the educational session. It was designed to evaluate the impact of the educational session on providers' knowledge and attitude regarding the negative effects of depression and the critical need to use standardized screening tool like the PHQ-9 when assessing adolescents and young adults for mental illness.

Pre-intervention

The pre-intervention involved the collection of data of the healthcare providers knowledge and awareness about depression and the importance of using standardized screening tool (PHQ-9) through a pretest survey questionnaire. This was done at the beginning of each session to gather baseline data (See Appendix C).

Intervention

After the pre-test, the participants were educated about the significant effects of depression on adolescents and young adults and the importance of using a standardized screening tool (PHQ-9) when assessing this population for depression. Participants were also educated on the benefits of using the PHQ-9 for early detection and diagnosis of depression. Each

intervention session was about 20 to 30 minutes for four weeks through a power point presentation. During the presentation, the Prochaska, and Diclemente's Trans-Theoretical Model (TTM) of behavior change (Prochaska et al., 1983) was used to emphasize the stages of change. It was used to educate providers about changing their behavior when assessing adolescents and young adults for depression to use a standardized screening tool.

Post-intervention

The post-test was conducted two to four weeks after the educational session to collect data. It was the final questionnaire designed to evaluate the impact of the educational session on providers' knowledge and attitude regarding the negative effects of depression and the critical need to use standardized screening tool like the PHQ-9 when assessing adolescents and young adults for mental illness. It also assessed providers' willingness to make a difference through the use of the PHQ-9 during mental health evaluation of adolescents and young adults.

Data Analysis

The pre-test and post-test survey data were analyzed by comparing the pre- and post-mean scores of the participants knowledge and awareness about the significant effects of depression on adolescents and young adults, and the importance of using a standardized screening tool when assessing this population for depression. The mean score for each of the questions were calculated for both the pre and the post-test and the results were compared using descriptive statistics.

The SPSS statistical software (IBM, 2015) was used to analyze the data of the participants who completed the survey questionnaire. Descriptive statistics were used in data interpretation due to a small sample size of six (N=6). A Wilcoxon signed-rank test was used to

test this DNP student's assumption that the educational sessions would have positive impact on providers' knowledge and trigger their willingness to use standardized screening tools in the assessment of depression in adolescents and young adults.

Cost-Benefit Analysis/Budget

The cost for this QI project included educational materials. This included printing and distribution of posters, and questionnaires, for participant education. The management of the center took care of most of the expenses. There was no operational cost in terms of office utility, rent and maintenance or capital investments for this project since the computer-based documentation system and other equipment already exists (See Appendix D).

Ethical Considerations/Protection of Human Subjects

The University of Massachusetts, Amherst (UMASS) Internal Review Board (IRB) approval was obtained prior to initiating the DNP project. All participants were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) which, among others guarantees, protects the privacy of patients' health information (Health and Human Services Department (2013). Additionally, the DNP student and the staff carefully conducted this project by following the standards of practice in the primary care office. All participants were given adequate informed consent and their privacy and confidentiality were protected. Both electronic records and paper documents and data were stored in secured and locked room and were only accessed by the DNP student and the preceptor. Participants were identified by numbers and not names on their pre/post questionnaires for safety.

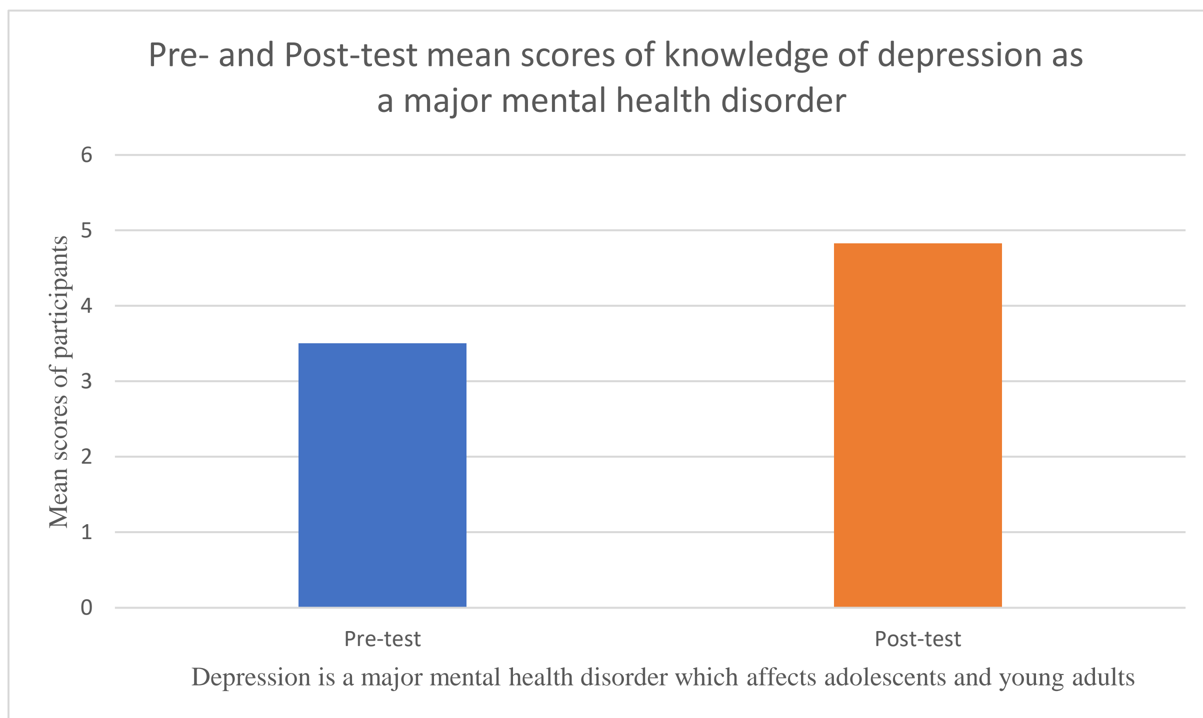
Results

This quality improvement project was implemented in an outpatient psychiatric center located in Worcester, Massachusetts. There were six participants (N=6) who were involved in the education sessions. The participants were all healthcare providers including three nurse practitioners (PMHNP's), and three interns (NP's). This DNP student collected data through a pre-test administered to providers prior to the education sessions and a post-test after the education sessions within a period of two to four weeks. The results of the participants responses of the pre and post interventions surveys are grouped into three themes to provide clarity and meaning. The themes were 1) Knowledge of depression as a major mental health disorder, 2) Knowledge of the usefulness and the importance of screening tool (PHQ-9), 3) Competence in using standardized screening tool. The results are presented in these three themes below.

Knowledge of depression as a major mental health disorder

Theme one comprised of question one which asked participants if "depression is a major mental health disorder which affects adolescents and young adults". The essence of this question was to assess participants knowledge about depression as a major mental health disorder. As shown in figure 1, the mean scores of participants increased from 3.5 (pre-test) to 4.83 (post-test). The difference in mean scores indicates that overall participants knowledge of depression as a major mental health disorder improved after the educational intervention.

Figure 1. Pre and Posttest mean scores of participants (n=6).

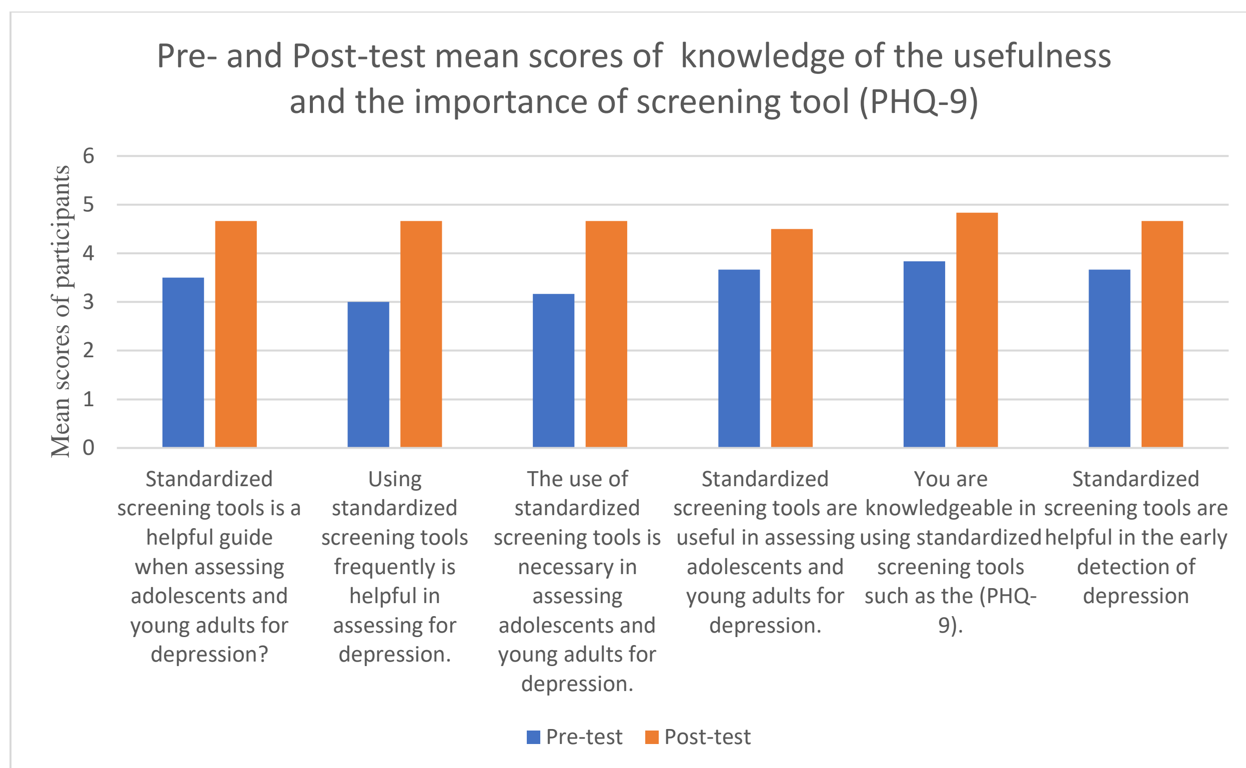


Knowledge of the usefulness and the importance of screening tool (PHQ-9)

Theme two comprised of questions two through seven of the assessment questionnaire used (Appendix C). Figure 2 shows the mean scores for pre versus post intervention of knowledge of the usefulness and the importance of screening tool (PHQ-9) which included knowledge of standardized screening tool as a helpful guide (3.50 vs 4.67), using standardized screening tool is helpful (3.00 vs 4.67), the use of standardized screening tool is necessary (3.17 vs 4.67), standardized screening tool is useful (3.67 vs 4.50), you are knowledgeable in using standardized screening tool (PHQ-9) (3.83 vs 4.83), and standardized screening tool is helpful in the early detection of depression (3.67 vs 4.67). In general, the participants knowledge of the usefulness and the importance of screening tool (PHQ-9) for all items in this category indicates that the pre intervention mean scores were lower than the post intervention mean scores. This indicates that after the educational intervention, the participants gained more knowledge about

the usefulness and the importance of screening tool when assessing adolescents and young adults for depression. Overall, the total mean scores of participants' knowledge of the usefulness and the importance of screening tool increased from 20.83(pre-test) to 28.00 (post-test). There was a large increase in knowledge scores for this category.

Figure 2. Pre and Posttest mean scores of participants (n=6).

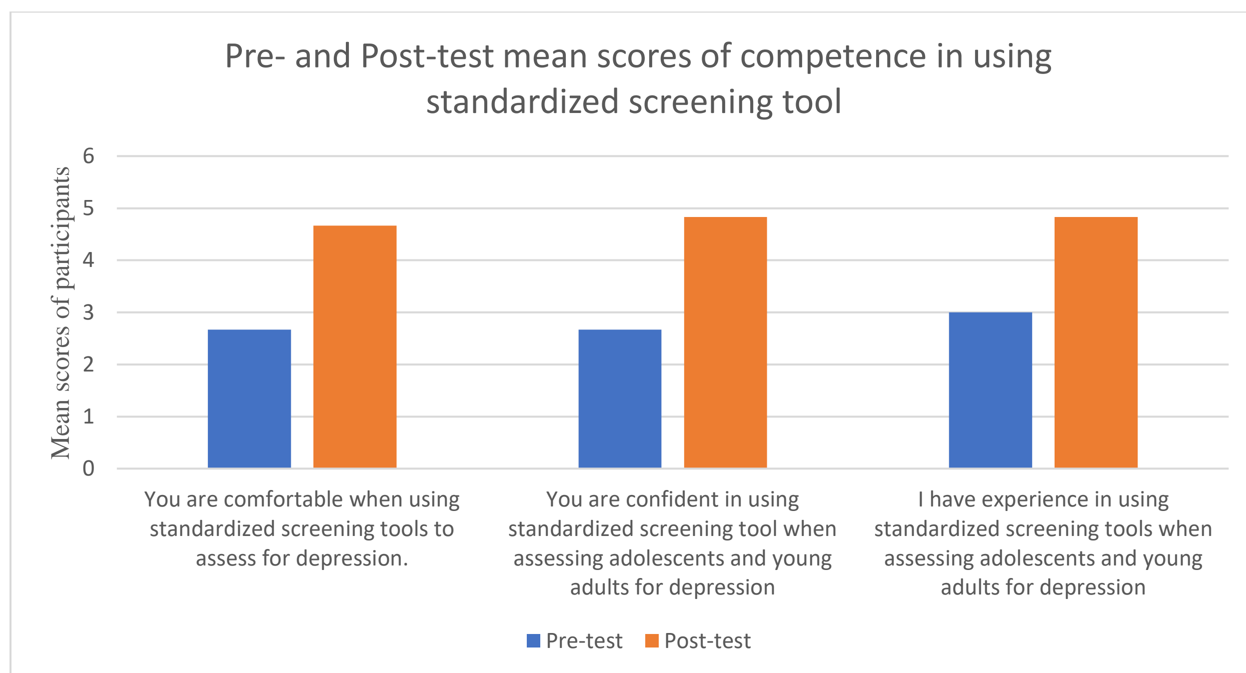


Competence in using standardized screening tool

Theme three comprised of questions eight through ten (Appendix C). Figure 3 shows the mean scores for pre and post intervention of competence in using standardized screening tool, assessing if participants were comfortable when using the PHQ-9 screening tool (2.67 vs 4.67), and experience in using the standardized screening tool (3.00 vs 4.83). All of the categories indicated that the pre intervention mean scores were lower than the post intervention mean

scores. This means that after the educational intervention the participants gained knowledge about their competence level in using standardized screening tool. The total mean score of competence in using standardized screening tool increased from 8.33 (pre-test) to 14.33 (post-test) which shows an improvement in knowledge score for this category.

Figure 3. Pre and Posttest mean scores of participants (n=6).



In general, all participants (N=6) indicated they strongly agreed that the education sessions were helpful. Participants planned to use standardized screening tools from now on and agreed that using specifically the PHQ-9 could improve the effectiveness of assessment during depression screening in adolescents and young adults.

Discussion

In general, most of the participants baseline knowledge and awareness about the effects and the importance of using standardized screening tool such as the PHQ-9 when assessing

adolescents and young adults for depression was limited. Although most of the participants agreed before the intervention that it was important to use standardized screening tool when assessing adolescents and young adults for depression, the knowledge and awareness of its usefulness and using it consistently was lacking.

The results of the pre and post interventions indicated that the mean scores for the post intervention were higher than the pre intervention as shown in the results section. This indicates that the participants gained knowledge and became more aware about depression, the significance, and the usefulness of using standardized screening tool when assessing adolescents and young adults for depression. The participants strongly agreed that being more knowledgeable about standardized screening tool such as the PHQ-9 and using it more frequently would be helpful in the early detection, diagnosis, and treatment of adolescents and young adults with depression. The participants in general also strongly agreed that using standardized screening tool improve the effectiveness of assessment during depression screening in adolescents and young adults, and they will use it more frequently going forward.

The results of the post intervention are in consistent with the various evidence-based interventions in the form of educational programs on depression, stigma, and the need for proper screening of patients by healthcare providers as indicated in the review of literature. The results are consistent with the assertion by Bhatta et al. (2018) and Costello et al. (2019) who supported the effectiveness of standardized screening tools such as the PHQ-9 in helping to identify patients with depression. The implementation of standardized depression screening tools is essential among healthcare providers (Bhatta et al., 2018; Costello et al., 2019; & Ortuno-Sierra et al., 2017). But the lack of integration and adequate knowledge among healthcare providers affects adherence to screening protocols in an outpatient setting, resulting in unrecognized and

untreated major depression, which affects adolescents and young adult's mental health (Rinke, et al., 2019).

The need to use educational programs to help improve healthcare providers knowledge and awareness in using standardized screening tools for the early detection and treatment of adolescents and young adults is important as educating and training healthcare providers can promote compliance with screening (Rinke, et al., 2019; Stanley et al., 2016) and is supported by research (Beers et al., 2017; Harder et al., 2019; Rinke et al., 2019). Thus, an educational program is essential in improving the healthcare providers' knowledge to screen and identify depression among adolescents and young adults in an outpatient setting.

Participants in general agreed that using a standardized screening tool and adhering to it is helpful in assessing for depression. On the contrary, not adhering to screening on the part of some providers may result in the occurrence of unrecognized and untreated major depression, which increases the adolescents' and young adults, risk of suicide (Rinke et al., 2019; Stanley et al., 2016).

The purpose of this Quality Improvement project was to create awareness and increase healthcare providers knowledge on the effects of stigma among depressed adolescents and young adults and the importance of using screening tool for early detection, diagnosis, and timely intervention.

Conclusion

Depression is a leading cause of disability and illness among adolescents and young adults globally. Yet few people get treated for it because of mental illness stigma, illiteracy, marginalization, and lack of proper and consistent screening. The aim of this quality

improvement (QI) project was designed to create awareness and to educate healthcare providers on the need to use a standardized screening tool when assessing adolescents and young adults for depression, for early detection, diagnosis, timely intervention, and decreased mortality among this population. In doing this, an educational session was implemented to educate participants about depression and the significance of using a standardized screening tool. The results show that the mean scores for the post intervention were higher than the pre intervention. This indicates that the participants gained more knowledge and became more aware about depression and the significance and the usefulness of using a standardized screening tool when assessing adolescents and young adults for depression. The participants strongly agreed that being more knowledgeable about standardized screening tool and using it more frequently would be helpful in the early detection, diagnosis, and treatment of adolescents and young adults with depression. In general, the participants also strongly agreed that using standardized screening tool improve the effectiveness of assessment during depression screening in adolescents and young adults, and they will use it more frequently going forward.

Future steps and further actions that need to be taken are to improve healthcare providers' knowledge to recognize depression to start early treatment. This can be done by the implementation of standardized depression screening tool among the providers and providing frequent training to promote compliance with using standardized screening tools and to enforce adherence.

References

Bandelow, B., & Michaelis, S. (2015). Epidemiology of anxiety disorders in the 21st century. *Dialogues in Clinical Neuroscience, 17*(3), 327.

Beers, L. S., Godoy, L., John, T., Long, M., Biel, M. G., Bruno, A., Mlynarski, L., Moon, R., & Weissman, M. (2017). Mental health screening quality improvement learning collaborative in pediatric primary care. *Pediatrics, 140*(6), 1–10. https://doi.org/10.1542/peds.2016-2966

Benbow, S., Rudnick, A., Forchuk, C., & Edwards, B. (2014). Using a capabilities approach to understand poverty and social exclusion of psychiatric survivors. *Disability & Society, 29*(7), 1046-1060.

Bhatta, S., Champion, J. D., Young, C., & Loika, E. (2018). Outcomes of depression screening among adolescents accessing school-based pediatric primary care clinic Services. *Journal of Pediatric Nursing,* 38, 8–14. https://doi.org/10.1016/j.pedn.2017.10.001

Chisholm, K., Patterson, P., Torgerson, C., Turner, E., Jenkinson, D., & Birchwood, M. (2016). Impact of contact on adolescents' mental health literacy and stigma: the School Space cluster randomized controlled trial. *BMJ Open, 6*(2), e009435. https://search-ebscohost-com.silk.library.umass.edu/login.aspx?direct=true&db=lah&AN=20163118775&site=eds-live&scope=site.

Colburn, M. D., Harris, E., Lehmann, C., Widdice, L. E., & Klein, M. D. (2020). Adolescent depression curriculum impact on pediatric residents' knowledge and confidence to diagnose and manage depression. *The Journal of Adolescent Health: Official Publication*

of the Society for Adolescent Medicine, 66(2), 240–246. https://doi.org/10.1016/j.jadohealth.2019.08.022

Corrigan, P. W., Druss, B. G., & Perlick, D. A. (2014). The impact of mental illness stigma on seeking and participating in mental health care. *Psychological Science in the Public Interest, 15*(2), 37-70.

Costello, L. H., Suh, C., Burnett, B., Kelsay, K., Bunik, M., & Talmi, A. (2019). Addressing adolescent depression in primary care: Building capacity through psychologist and pediatrician partnership. *Journal of Clinical Psychology in Medical Settings*, 10.1007/s10880-019-09680-w. Advance online publication. https://doi.org/10.1007/s10880-019 09680-w

Darraj, H. A., Mahfouz, M. S., Al Sanosi, R. M., Badedi, M., & Sabai, A. (2017). The self stigma of depression scale: Translation and validation of the Arabic version. *Journal of Neurosciences in Rural Practice, 8*(1), 96.

Depression Stigma Scale. https://rsph.anu.edu.au/research/tools-resources/depression-stigma scale-dss.

Dolphin, L., & Hennessy, E. (2016). Depression stigma among adolescents in Ireland. *Stigma and Health, 1*(3), 185.

Fallucco, E. M., James, L., Smotherman, C., & Greco, P. (2019). Impact of experiential training with standardized patients on screening and diagnosis of adolescent depression in primary care. *Journal of Adolescent Health, 65*(1), 57–62.

Folk, J., & Folk, M. (2018). Anxiety disorder statistics. https://www.anxietycentre.com/anxiety statistics.shtml

Friman, M., Huck, J., & Olsson, L. E. (2017). Transtheoretical model of change during travel behavior interventions: An integrative review. *International Journal of Environmental Research and Public Health, 14*(6), 581.

Griffiths, K. M., Christensen, H., & Jorm, A. F. (2008). Predictors of depression stigma. *BMC Psychiatry, 8*(1), 25.

Haddad, M., Pinfold, V., Ford, T., Walsh, B., & Tylee, A. (2018). The effect of a training program on school nurses' knowledge, attitudes, and depression recognition skills: The QUEST cluster randomized controlled trial. *International Journal of Nursing Studies, 83*, 1–10. https://doi-org.silk.library.umass.edu/10.1016/j.ijnurstu.2018.04.004

Haddad, M., Waqas, A., Qayyum, W., Shams, M., & Malik, S. (2016). The attitudes and beliefs of Pakistani medical practitioners about depression: a cross-sectional study in Lahore using the Revised Depression Attitude Questionnaire (R-DAQ). *BMC Psychiatry, 16*(1), 349. https://doi.org/10.1186/s12888-016-1069-1

Harder, V. S., Barry, S. E., French, S., Consigli, A. B., & Frankowski, B. L. (2019). Improving adolescent depression screening in pediatric primary care. *Academic Pediatrics, 19*(8), 925–933. https://doi.org/10.1016/j.acap.2019.02.014

Health and Human Services Department (2013). Modifications to the HIPAA privacy, security, enforcement, and breach notification rules under the health information technology for economic and clinical health act and the genetic information nondiscrimination act; other modifications to the HIPAA rules. *National Archives*.

https://www.federalregister.gov/documents/2013/01/25/2013-01073/modifications-to-the-hipaa-privacy-security-enforcement-and-breach-notification-rules-under-the.

IBM (2015). IBM SPSS software: Bridge the gap between data science and data understanding. https://www.ibm.com/analytics/spss-statistics-software?p1=Search&p4=p50436268000&p5=b&cm_mmc=Search_Google-_-1S_1S-_-WW_NA-_-%2Bstat%20%2Bsoftware_b&cm_mmca7=71700000061293435&cm_mmca8=kwd-333876945562&cm_mmca9=Cj0KCQjwgo_5BRDuARIsADDEntStwwMbPqDYyW7epZZBbgKoprSMhMsuQSpvxqSuZTvMTkvBLx1ciTYaAuPXEALw_wcB&cm_mmca10=407079365243&cm_mmca11=b&gclsrc=aw.ds&&gclid=Cj0KCQjwgo_5BRDuARIsADDEntStwwMbPqDYyW7epZZBbgKoprSMhMsuQSpvxqSuZTvMTkvBLx1ciTYaAuPXEALw_wcB

Knaak, S., Mantler, E., & Szeto, A. (2017). Mental illness-related stigma in healthcare: Barriers to access and care and evidence-based solutions. *Healthcare Management Forum, 30*(2), 111–116. https://doi.org/10.1177/0840470416679413

Krebs, P., Norcross, J. C., Nicholson, J. M., & Prochaska, J. O. (2018). Stages of change and psychotherapy outcomes: A review and meta-analysis. *Journal of Clinical Psychology, 74*(11), 1964-1979.

Lau, A. S., Guo, S., Tsai, W., Nguyen, D. J., Nguyen, H. T., Ngo, V., & Weiss, B. (2016). Adolescents' stigma attitudes toward internalizing and externalizing disorders: Cultural influences and implications for distress manifestations. *Clinical Psychological Science, 4*(4), 704–717. https://doi.org/10.1177/2167702616646314

Ortuño-Sierra, J., Aritio-Solana, R., Inchausti, F., Chocarro de Luis, E., Lucas Molina, B., Pérez de Albéniz, A., & Fonseca-Pedrero, E. (2017). Screening for depressive symptoms in adolescents at school: New validity evidences on the short form of the Reynolds Depression Scale. *PloS one, 12*(2), e0170950. https://doi-org.silk.library.umass.edu/10.1371/journal.pone.0170950.

Patel, J. S., Oh, Y., Rand, K. L., Wu, W., Cyders, M. A., Kroenke, K., & Stewart, J. C. (2019). Measurement invariance of the patient health questionnaire-9 (PHQ-9) depression screener in U.S. adults across sex, race/ethnicity, and education level: NHANES 2005-2016. *Depression and Anxiety, 36*(9), 813–823. https://doi.org/10.1002/da.22940

Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: toward an integrative model of change. *Journal of Consulting and Clinical Psychology, 51*(3), 390.

Riffel, T., & Chen, S. P. (2019). Exploring the knowledge, attitudes, and behavioral responses of healthcare students towards mental illnesses-a qualitative study. *International Journal of Environmental Research and Public health, 17*(1), 25. https://doi.org/10.3390/ijerph17010025

Rinke, M. L., Bundy, D. G., Stein, R., O'Donnell, H. C., Heo, M., Sangvai, S., Lilienfeld, H., & Singh, H. (2019). Increasing recognition and diagnosis of adolescent depression: Project RedDE: A Cluster randomized trial. *Pediatric Quality & Safety, 4*(5), e217. https://doi.org/10.1097/pq9.0000000000000217

Rinke, M. L., German, M., Azera, B., Heo, M., Brown, N. M., Gross, R. S., Bundy, D. G., Racine, A. D., Duonnolo, C., & Briggs, R. D. (2019). Effect of mental health screening

and integrated mental health on adolescent depression-coded visits. *Clinical Pediatrics, 58*(4), 437–445. https://doi.org/10.1177/0009922818821889

Sawadogo, K., Lameyre, V., Gerard, D., Bruand, P. E., & Preux, P. M. (2019). Knowledge, attitudes and practices in mental health of health professionals at the end of their curriculum in Burkina Faso: A pilot study. *Nursing Open, 7*(2), 589–595. https://doi.org./10.1002/nop2.427

Stanley, A., Chelvakumar, G., Cody, P., Sadhir, M., Nugent, M., Hoffmann, R., & Simpson, P. (2016). Resident training curriculum in adolescent depression and suicide screening. *MedEdPORTAL*, 12.

Starkey, M., Wiest, D., & Qaseem, A. (2016). Improving depression care through an online learning collaborative. *American Journal of Medical Quality: the Official Journal of the American College of Medical Quality, 31*(2), 111–117. https://doi.org/10.1177/1062860614555883

Townsend, L., Musci, R., Stuart, E., Heley, K., Beaudry, M. B., Schweizer, B., Ruble, A., Swartz, K., & Wilcox, H. (2019). Gender differences in depression literacy and stigma after a randomized controlled evaluation of a universal depression education program. *Journal of Adolescent Health, 64*(4), 472–477. https://doi.org/10.1016/j.jadohealth.2018.10.298

Trautmann, S., Rehm, J., & Wittchen, H. U. (2016). The economic costs of mental disorders: Do our societies react appropriately to the burden of mental disorders? EMBO reports.

U.S. Census Bureau (2019). American community survey 1-year estimates. *Census Reporter Profile page for Worcester, MA*. http://censusreporter.org/profiles/16000US2582000-worcester-ma/

World Health Organization. (2017). Depression and other common mental disorders: Global health estimates. apps.who.int/iris/bitstream/10665/254610/1/WHO-MSD-MER-2017.2-eng.pdf

Yokoya, S., Maeno, T., Sakamoto, N., Goto, R., & Maeno, T. (2018). A Brief survey of public knowledge and stigma towards depression. *Journal of Clinical Medicine Research, 10*(3), 202–209. https://doi.org/10.14740/jocmr3282w.

Appendices

Appendix A (The Stages of Change Model)

Figure 1. **The Stages of Change Model**

Appendix B (Patient Health Questionnaire-9)

Table 2: Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression.

Over the last 2 weeks, how often have you been bothered________ by any of the following problems? *(Use "✓" to indicate your answer)*	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting	0	1	2	3

yourself in some way

=**Total Score:**

PHQ-9 score obtained by adding score for each question (total points)

Interpretation:

- Total scores of 5, 10, 15, and 20 represent cut points for mild, moderate, moderately severe and severe depression, respectively.
- Note: Question 9 is a single screening question on suicide risk. A patient who answers yes to question 9 needs further assessment for suicide risk by an individual who is competent to assess this risk.

Interpretation

Provisional Diagnosis and Proposed Treatment Actions		
PHQ-9 Score	**Depression Severity**	**Proposed Treatment Actions**
0 – 4	None-minimal	None
5 – 9	Mild	Watchful waiting; repeat PHQ-9 at follow-up
10 – 14	Moderate	Treatment plan, considering counseling, follow-up and/or pharmacotherapy
15 – 19	Moderately Severe	Active treatment with pharmacotherapy and/or psychotherapy
20 – 27	Severe	Immediate initiation of pharmacotherapy and, if severe impairment or poor response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management

Appendix C (Measurement Instrument/Tool)

Pre-Test survey questionnaire

Table 1

Pre-Test

Questions	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
1. Depression is a major mental health disorder which affects adolescents and young adults.					
2. Standardized screening tool is a helpful guide when assessing adolescents and young adults for depression?					
3. Using standardized screening tool frequently is helpful in assessing for depression.					
4. The use of standardized screening tool is necessary in assessing adolescents and young adults for depression.					
5. Standardized screening tool is useful in assessing adolescents and young adults for depression.					

6. You are knowledgeable in using standardized screening tool such as the (PHQ-9).
7. Standardized screening tools are helpful in the early detection of depression.
8. You are comfortable when using standardized screening tools to assess for depression.
9. You are confident in using standardized screening tool when assessing adolescents and young adults for depression.
10. I have experience in using standardized screening tools when assessing adolescents and young adults for depression.

Post-Test Survey Questionnaire

Table 2

		Post-Test			
Questions	**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
1. Depression is a major mental health disorder which affects adolescents and young adults.					
2. Standardized screening tool is a helpful guide when assessing adolescents and young adults for depression?					
3. Using standardized screening tool frequently is helpful in assessing for depression.					
4. The use of standardized screening tool is necessary in assessing adolescents and young adults for depression.					
5. Standardized screening tool are useful in assessing adolescents and young adults for depression.					
6. You are knowledgeable in using standardized screening tools					

such as the (PHQ-9).
7. Standardized screening tool is helpful in the early detection of depression.
8. You are comfortable when using standardized screening tool to assess for depression.
9. You are confident in using standardized screening tool when assessing adolescents and young adults for depression.
10. I have experience in using standardized screening tool when assessing adolescents and young adults for depression.
11. The education session about using standardized screening tool when assessing adolescents and young adults for depression was helpful.
12. You will use a standardized screening tool when assessing adolescents and

young adults for depression from now on?
13. The use of standardized screening tools could improve assessment effectiveness during depression screening in adolescents and young adults?

Appendix D (Cost Benefit Analysis/Budget)

Table 3: Cost-Benefit Analysis/Budget.

Itemized cost

Item	Estimated cost ($)
Paper for handout, questionnaires, and other educational materials.	50.00
Pens and pencils	10.00
1 Toner cartridge for printing	30.00
Staff training and lunch	50.00
Operational cost in terms of personnel and office utility.	30.00
Total Costs	170.00 (provided in kind by site)