Management of Adolescent Depression in the Primary Care Setting: An Educational Program for Providers

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Management of Adolescent Depression in the Primary Care Setting

An Educational Program for Providers

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Date of Submission: 04/30/16
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Abstract

*Background:* The prevalence of adolescent depression is estimated at 15-20% in the general population and often undertreated. The primary care provider is in a prime position to identify and treat depression in this age group. However, many providers feel uncomfortable with treating and managing depression in adolescents, due to a lack of education or experience.

*Purpose:* The focus of this quality improvement project was to educate primary care providers on the current recommendations for the management of adolescent depression and provide an education sheet for both the medical and non-medical treatment of adolescent depression. An educational intervention was presented to providers at a physician-owned private practice family clinic in Massachusetts. Pre-test and post-test scores were compared to determine the change in knowledge and confidence levels.

*Results:* Eight providers attended the education presentation and completed the pre-test and seven of these providers also completed the post-test. The results indicated an improvement in provider’s level of confidence of understanding ways to manage adolescent depression (p=.030) and in being familiar with evidenced based management options (p=.045). There was no change in the provider’s confidence in ability to manage adolescent depression or discuss a variety of treatment options or in the provider’s understanding of the CBT model following the education intervention.

*Discussion:* Due to limited education regarding mental health issues in primary care programs, offering supplemental education may help to meet this need as specialized providers are limited. The findings suggest that a longer term education intervention may be useful in increasing knowledge and confidence level of providers related to the management of adolescent depression in the primary care setting.

*Keywords:* Adolescent depression, primary care, depression treatment, depression management
Introduction and Background

Adolescent depression is a significant health problem among adolescents and has become a major public health concern today. Adolescent depression can interfere with role functioning and is associated with impaired social/academic functioning and recurrence in adulthood (Kramer et al., 2013; Prager, 2009). Suicide is one of the leading causes of death among adolescents and is often correlated with depression (Asarnow et al., 2005; Richardson & Katzenellenbogen, 2005; Young, Miller, & Khan, 2010). Depression is increasingly affecting the adolescent population with lifetime prevalence rates estimated at 15-20% (Asarnow et al., 2005; Cheung, Kozloff, & Sacks, 2013; Richardson & Katzenellenbogen, 2005). Adult depression often begins in the adolescent years, which strengthens the importance of recognizing, treating and managing symptoms of depression in the adolescent population (Asarnow et al., 2005). Studies suggest that in the absence of a diagnosed depressive disorder, depressive symptoms in the adolescent years increase the chance of development of major depression later in life. Maslow, Dunlap and Chung (2015) report an estimate of 75% of depressed adolescents do not receiving treatment.

The primary care setting is a major point of health care contact for many adolescents making it an ideal setting for detecting and treating depression with the goal of improving overall health. Unfortunately, the identification of depression in the adolescent is often overlooked and untreated in the primary care setting (Fallucco, Seago, Cuffe, Kaemer, & Wysocki, 2015; Kramer & Garralda, 1998). According to Kelleher, Campo, and Gardner (2006), adolescents with mental health disorders tend to use the primary care setting at higher rates than those without these disorders; therefore, the primary care provider is in a position to initiate, manage and coordinate care of adolescents with depression. The focus of improvement on the quality of
this care has been highlighted by historical failure to accurately diagnose and treat adolescents, in addition to limited supply of child mental health specialists.

Asarnow et al. (2005) identifies a number of factors that potentially play a role in depression going undetected. These factors include: competing demands in a busy practice, distinguishing the difference between normal adolescent behavior and clinically depressive symptoms in a short visit, and the difficulty an adolescent has in expressing themselves. These factors, coupled with the fact that most primary care visits focus on a medical condition rather than psychiatric complaints may lead to depression being overlooked in this population (Asarnow et al., 2005). Cheung et al. (2013) and Prado, Pantin and Estrada (2015) identify barriers to the management of adolescent depression including limitations in time, reimbursement, training and access to mental health services. Richardson et al. (2007) conducted a focus group with 35 providers and found three common themes that influenced provider’s decisions regarding treatment for depression including lack of availability of mental health resources in the community, feeling responsible for helping based on long standing relationships with patients and families, and patient and family beliefs and preferences regarding treatment. Many primary care visits are short and if multiple issues are brought up they all may not be adequately addressed in one visit. This increases the potential for depression to go unrecognized and untreated.

In the past, psychiatrist or providers who had specialized training in psychiatry/mental health primarily managed psychiatric illness. More recently primary care providers are being relied upon to not only diagnose and manage medical illness, but also to assess and manage psychiatric conditions. Unfortunately, the option to see a mental health professional is not always feasible. There is a deficit in the availability of therapists, psychologists and psychiatrists in
many areas; therefore, the primary care provider is often taking on the role of treating depression and other mental health issues (Fleury, Imboua, Aube, Farland, & Lambert, 2012; Kelleher et al., 2006).

The expectation of the primary care provider to provide comprehensive mental and physical health service presents challenges. One challenge is that the education of the primary care provider may not have included enough content in the care of psychiatric conditions and many providers feel unprepared to provide high quality care for mental health disorders (Fleury et al., 2012; Gray & Dihigo, 2015). A study of pediatricians and family providers found that 58% reported prescribing selective serotonin reuptake inhibitors (SSRI), and only 8% reported adequate training for this (Rushton, Clark & Freed, 2000). According to Whitebird et al. (2013) depression is the most common mental health condition to be treated in the primary care setting (across all ages). In a busy primary care practice there may not be enough time to adequately assess mental health and psychosocial concerns (Gray & Dihigo, 2015).

The importance of increasing the recognition and treatment of adolescent depression is highlighted in the national initiative Healthy People 2020 (Healthy People 2020, 2014). Maslow, Dunlap and Chung (2015) identify the importance of primary care providers to not only to continue prescribing SSRI medication but also to improve their knowledge and comfort in using antidepressants to treat adolescent depression. Families often report a trusted relationship with the primary care provider and prefer to speak with the provider regarding mental health issues during regular healthcare visits rather than go to an outside mental health provider (Kelleher et al., 2006). Evidenced based practice guidelines have identified various interventions, which can lead to management of symptoms and clinical improvement in depressed adolescents.
Problem Statement

Depression is often unidentified in the adolescent population despite it being common in the pediatric primary care setting. Reeves and Riddle (2014) identify depression as ranking higher than common medical problems such as asthma or anemia. Untreated depression can lead to adverse outcomes in the adult years including lower educational attainment and poorer physical health (Maslow, Dunlap, & Chung, 2015). Adolescents with depression are affected in their socializations, family relations and school performance (Zuckerbrot & Jensen, 2006). The effects of depression increase the risk for increased hospitalizations, recurrent depression, psychosocial impairment, alcohol abuse and antisocial behavior among adolescents (Zuckerbrot & Jensen, 2006). With suicide being among the leading causes of death among this age group, proactive assessment and treatment by the primary care provider is highlighted.

Seventy-three percent of adolescents have at least one contract with a primary care provider every year, thus making the primary care setting a prime setting for identification and management of depressed adolescents (Asarnow et al., 2005). Identifying adolescent depression on a more regular basis may prompt the provider to initiate treatment and make appropriate referrals for mental health services. This will result in improvement in overall adolescent health and alleviate the burden of depression symptoms. A review of literature was conducted to determine what evidence and guidelines are available to guide the primary care provider in appropriately managing adolescent depression.

Review of the Literature

A search of the literature was performed regarding depression in the adolescent population in the following databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, PsychInfo, and The National Guidelines Clearing House. Additionally,
Internet searches were performed for information related to the management of adolescent depression in the primary care setting. Keywords for the search included: adolescent depression, non-pharmacologic, treatment, management, complementary, alternative, and integrative. An additional search using specific therapy modalities including light therapy, art therapy, dance/movement therapy and music therapy was completed to attempt to increase the number of research studies with these identified treatment options.

Inclusion criteria were publication years from 2005-2015, written in the English language and based on participants between the ages of 13-18. Articles, such as studies of inpatient adolescents, postpartum depression of adolescent mothers, and depression in combination with other medical issues such as cancer, chronic pain and obesity were excluded. The National Guidelines Clearing House was searched for guidelines pertaining to adolescents and depression. The articles used for this review included meta-analyses, systematic reviews, randomized controlled trials, and clinically appraised primary research. A total of 29 articles and one guideline were reviewed.

Results

**Incidence.** There are varying reports on the prevalence rates of adolescent depression. Costello, Erkanli and Angold (2006) found that 5.6% of adolescents in the community were depressed, with rates higher among girls than boys. There were similar findings among 18,000 respondents to a National Population Health Survey where 4.8% of boys and 8.7% of girls ages 12-19 years indicated at least one episode of major depression (Cairney, 1998). Taylor (2011) reported estimates of as many as 8% of the adolescent population in the US being diagnosed with a major depressive episode.
Adolescence is a particularly vulnerable time for the development of depression due to development that occurs at this stage of life. Adolescence is a time for social, emotional and cognitive development. Depression can impede this development and lead to social isolation, limited coping abilities and academic failure. Other risks factors for the development of depression include prior depressive episodes, a first-degree relative with depression, school failure, interpersonal and familial stressors, negativistic coping skills, chronic illness and learning disabilities (Maslow, Dunlap, & Chung, 2015).

**Impact.** Depression has been associated with behavioral problems, poor school performance, early pregnancy, impaired social, work and family functioning and substance use (Cheung et al., 2013; Maslow, Dunlap, & Chung, 2015; Thombs, Roseman, & Kloda, 2012). Depression has also been shown to co-exist with other mental health issues such as anxiety, substance abuse and eating disorders as well as physical illnesses such as diabetes (Gray & Dihigo, 2015; Taylor, 2011). DiCola, Gaydos, Druss and Cummings (2013) identified one fifth of adolescents in the US with a major depressive episode also had a substance use disorder. Taylor (2011) found an association of depressive symptoms and drug use among a group of African American adolescents; symptoms included feeling sad, feeling like a failure, having experienced a loss of energy, feeling hopeless, having a loss of pleasurable activities and having family problems.

One of the most adverse outcomes of adolescent depression is suicide. Adolescents with depression show higher rates of suicidal ideation (Gray & Dihigo, 2015). Suicide is the third leading cause of death among US adolescents (Centers for Disease Control and Prevention, 2010).
Screening. Screening is a preventative strategy designed to assess for disease or illness among patients who otherwise have no signs or symptoms (Thombs, Roseman, & Kloda, 2012). The United States Preventative Services Task Force (2009) recommended all adolescents be screened for depression when depression management services can be offered directly or through referral. Earlier screening has been found to lead to earlier detection of illness/disease and initiation of appropriate treatment. According to Thombs, Roseman and Kloda (2012) a depression screening questionnaire is used to identify patients who may have depression but have not sought out treatment, contrary to a medical screening which provides early identification of pre-symptomatic cases. Depression screenings, such as Beck’s depression inventory (Beck et al., 1961), use symptoms checklists to detect patients who have symptoms of depression. When a patient is identified with symptoms of depression, further assessment and/or treatment should be offered.

Screening for depression is an initial step in the identification and diagnosis for depression. Currently there are several screening tools that can be used in the primary care setting. These tools are often quick to complete and identify depression symptoms. These symptoms can be classified into mild, moderate or severe. Current tools used for screening for depression include the Beck Depression Inventory-II, Patient Health Questionnaire- Adolescent version, and the Children’s Depression Inventory (Harmin, Antenucci, & Magorno, 2012; Young, Miller, & Khan, 2010). Screening tools such as the Pediatric Symptoms Checklist and the American Medical Association Guidelines for Adolescent Preventative Services questionnaire screen for general mental health disorders and are not specific to depression, though they may be helpful in indicating when further assessment is needed.
In a study looking at referral and follow up of adolescents who screened positive on mental health screenings in the primary care setting, Hacker et al. (2014) found that 112 (96%) of the 117 adolescents who screened positive received a mental health evaluation during the primary care visit. Additionally, during the visit, 46 (42%) were given a mental health diagnosis. Thombs, Roseman and Kloba (2012) conducted a systematic review to evaluate the accuracy of depression screening tools, depression treatment efficacy, whether depressive screening improves depression outcomes and the potential harms related to depression interventions and screening. The researchers concluded the current guidelines for adolescent depression management do not agree in regards to universal screening and that patients may benefit more if resources were put into improving programs to manage and treat depression rather than identifying otherwise unidentified depressed adolescents.

Due to the lack of child and adolescent psychiatric specialists, the primary care provider must be comfortable in diagnosing and initiating treatment for adolescent depression (Richardson & Katzenellenbogen, 2005). In a focus group study, Richardson, Lewis, Casey-Goldstein, McCauley and Katon (2007) found the primary care provider’s decision of when and how to treat adolescent depression was strongly related to their perception of their role in treatment, the availability of other treatment resources and family/patient preference.

**Clinical Presentation.** Accurate identification and diagnosis of depression is the first step in treating depression, making it imperative that the provider be aware of the clinical presentation of depression in adolescents. Depression manifests differently in adolescents, in that dominating symptoms may include: irritability, acting out, boredom and troubled relationships at home and school rather than the typical sad mood seen with adults (Richardson & Katzenellenbogen, 2005). An initial sign of depression in adolescents may be complaints of
somatic symptoms such as head ache or stomach ache (Lenz, Coderre, & Watanabe, 2009; Prager, 2009). Adolescent depression is also characterized by having a loss of interest in previously enjoyed activities, increased crying, social isolation, fatigue, low self-esteem, phobias, poor school performance and suicidal ideations. Some adolescents with depression may develop self-injurious behaviors or suicidal ideation, plan or intent.

The severity of depressive symptoms can range from mild to severe. Mild depression may have few symptoms, which do not significantly impact functioning. Severe depression would include a constellation of symptoms including a decline in school performance, social isolation and physical symptoms that lead to significant distress and functional impairment (Maslow, Dunlap, & Chung, 2015). As symptoms of depression move along the continuum from mild to severe other presenting symptoms may include hallucinations, paranoia, sexual risk behaviors, and non-suicidal self-injury (Maslow, Dunlap, & Chung, 2015).

**Diagnosis.** Diagnosis of depression can be challenging, as most children will experience sadness during times of stress. Additionally, normal adolescent behavior can include intense moodiness, impulsivity and erratic behavior (Prager, 2009). Following a history and physical exam, if depression is suspected alternate causative factors must be ruled out prior to making diagnosis. These include medication (glucocorticoids, immunosuppressive, isotretinoin, antiviral agents) induced depression, medical conditions such as hypothyroidism, Wilson disease, systemic lupus erythematosus and chronic infections and other psychiatric disorders which can all mimic the symptoms of depression. It is important to note that depression can co-exist with a medical illness that may have presenting symptoms that mimic depressive symptoms. Other psychiatric illness such as dysthymia, grief, adjustment disorder with depressed mood and bipolar disorder should be considered in the differential diagnosis.
Diagnosis is often made following a clinical interview and gathering of collateral information from parents and teachers. Prager (2009) points out the difficulty in the history and mental status exam as it can be time consuming and adolescents may not be willing to volunteer information regarding their moods and feelings. The American Psychological Association has written in the most recent Diagnostic and Statistical Manual (DSM-V) the diagnostic criteria for depression in adolescents. The criteria for depression in adolescents is the same as for depression in adults. Any provider who treats children or adolescents should be aware of the DSM-V criteria for the diagnosis of depression (Richardson & Katzenellenbogen, 2005). The DSM-V indicates in order for a diagnosis of Major Depressive Disorder the symptoms must be experienced nearly every day for at least two weeks, must results in impaired social, occupational or educational functioning, and not be due to effects of a substance or medical condition (American Psychiatric Association, 2013). Table 1 identifies the DSM-V criteria for Major Depressive Disorder. At least five out of the nine symptoms are needed for a diagnosis, and at least one from column one must be present.

<table>
<thead>
<tr>
<th>Table 1</th>
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<table>
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<tr>
<th><strong>DSM-V Criteria for Major Depressive Disorder</strong></th>
<th><strong>Column Two</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Column One</strong></td>
<td><strong>Column Two</strong></td>
</tr>
<tr>
<td>Depressed mood or irritability most of the day,</td>
<td>Significant weight change (5%) or change in appetite</td>
</tr>
<tr>
<td>nearly every day</td>
<td></td>
</tr>
<tr>
<td>Decreased interest or pleasure in most activities</td>
<td>Change in sleep pattern: insomnia or hypersomnia</td>
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<td></td>
<td>Change in activity pattern: psychomotor retardation</td>
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<tr>
<td></td>
<td>or agitation</td>
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<td></td>
<td>Fatigue or loss of energy</td>
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<td></td>
<td>Feelings of excessive or inappropriate guilt or</td>
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<tr>
<td></td>
<td>worthlessness</td>
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<tr>
<td></td>
<td>Diminished ability to think or concentrate, or being</td>
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<tr>
<td></td>
<td>more indecisive</td>
</tr>
<tr>
<td></td>
<td>Thoughts of death or suicide</td>
</tr>
</tbody>
</table>

*Note.* At least one from column one. A total of 5 needed for diagnosis. According to American Psychiatric Association, 2013.
Interventions. Following diagnosis of depression, appropriate treatment and/or referral must follow. The two main treatment options for adolescent depression include medication and psychotherapy or a combination of both (Young, Miller & Khan, 2010). Despite which type of treatment is initiated, it is always important to continue to re-assess and re-evaluate the adolescent’s response throughout the treatment process in addition to knowing when further interventions are needed (i.e. referral or hospitalization). Two evidenced base resources are available to assist the primary care provider in the management of depression in adolescents. These include the Guidelines for Adolescent Depression – Primary Care (GLAD-PC) and the 2007 Texas Children’s Medication Algorithm Project consensus update. The GLAD-PC toolkit is available free of charge and can be accessed on the Internet. The first step in managing depression is to assess for safety and determine the severity of the depression. Screening tools can often assist with this determination and allow the provider to categorize depression as mild, moderate or severe. Mild to moderate depression can often be managed with education, support and counseling; while severe depression may require medication or referral to psychiatric service providers.

Pharmacologic. Although psychotherapy and psychoeducation are suggested first line treatment options for the management of adolescent depression, the use of medication may be required. Pharmacotherapy may be necessary when the depression is severe or when symptoms are disabling (Harmin et al., 2012). When active support and monitoring is not effective, further treatment with antidepressants and/or psychotherapy is needed (Cheung et al., 2013; Young et al., 2010).

Primary care providers have been found to have low rates of antidepressant prescribing in practice despite high rates of diagnosing depression (Radovic et al., 2014). A cross sectional
survey of 58 primary care providers was conducted to determine the initial treatment decisions for two vignettes which described adolescent depression. This study found that few primary care providers recommended an antidepressant. The providers who did recommend antidepressant use had greater experience with managing depression with medication and other treatment. The researchers concluded that providers would benefit from support through experiential training and collaboration with mental health providers.

Many antidepressants are available on the market, however not all are approved for children and adolescents. Current recommendations for medication therapy for adolescents include the selective serotonin reuptake inhibitors (SSRIs) class (Richardson & Katzenellenbogen, 2005; Young, Miller, & Khan, 2010). Selective serotonin reuptake inhibitors are the first line pharmacologic treatment for adolescent depression. The FDA has approved fluoxetine (Prozac) for ages 8 and older and escitalopram (Lexapro) for ages 12 and older (Cheung et al., 2013; Harmin et al., 2012). According to Richardson & Katzenellenbogen (2005) five trials showed the efficacy of an SSRI over a placebo with two trials finding fluoxetine (Prozac) more effective than a placebo (Emsile et al., 2002 & Emsile et al., 1997).

The Treatment of Adolescents with Depression Study (TADS) found 69% of depressed adolescents responded to fluoxetine (Prozac) and 85% responded to a combination for fluoxetine and psychotherapy. A randomized, double-blind, placebo controlled trial found sertraline (Zoloft) more effective than a placebo (Wagner et al., 2003). Another trial found paroxetine (Paxil) was more effective than a placebo (Kelleher et al., 2001); and a trial of citalopram (Celexa) significantly decreased depressive symptoms compared to a placebo (Wagner et al., 2004). Currently, neither sertraline (Zoloft), paroxetine (Paxil) nor citalopram (Celexa) are FDA approved for children or adolescents for the treatment of depression (Harmin et al., 2012).
Tricyclic antidepressants are not effective with adolescent depression (Jacobson, Churchill, Donovan, Gerrald, & Fay, 2001; Richardson & Katzenellenbogen, 2005).

The provider should evaluate worsening symptoms or suicidal thoughts closely with the use of antidepressants. Harmin et al. (2012) reviewed results from 23 studies evaluated by the FDA and found that 4% of adolescents treated with antidepressants compared to 2% of those treated with placebo had adverse effects of agitation and suicidal ideation. The “black box” warning is noted on antidepressant medications used for adolescent depression. Richardson et al. (2007) found that despite expressed concern regarding antidepressant warnings, providers continued to treat and none had developed strategies for closer monitoring. It is suggested that close monitoring for side effects and response occur with use – i.e. weekly appointments for the first month and biweekly the second month, followed by once every twelve weeks thereafter (Cheung et al., 2013; Cheung et al., 2006; Harmin et al., 2012; Young, Miller, & Khan, 2010).

**Non-Pharmacologic.** Education is a key part of treating adolescent depression and should begin at the time of diagnosis. Richardson & Katzenellenbogen (2005) identify provider counseling of the patient and parents regarding concerns about stigma can help to prevent patients from not following through with the treatment plan. Through education the provider is able to assist the patients and parents to understand that depression affects more than just the brain; it also affects the adolescent’s body, behavior and thoughts. Prager (2009) suggests supportive counseling, problem solving discussions and education of family members may be sufficient for adolescents with mild depressive symptoms.

The provider can encourage interventions that have been shown to help depressive symptoms and explain depression as a disease, treatment options, and prognosis (Cheung et al., 2013; Harmin et al., 2012). Richardson & Katzenellenbogen (2005) identify some of these
interventions as encouraging engagement in activities that the adolescent may have withdrawn from doing and not using substances such as drugs, alcohol and prescription medications such as narcotics and benzodiazepines which have been shown to increase depressive symptoms. The primary care provider or other staff in the office can provide education through books, brochures, and websites as well as individual counseling (Cheung et al., 2013).

Lifestyle education is an important piece of all medical care including depression and mental health care. Additionally, education related to stress management and alternative treatment options such as art therapy, has been found helpful. The provider should continue to educate patients on the importance of sleep, diet/nutrition and exercise.

Sleep. According to Roberts, Roberts and Duong (2009), disturbed sleep is associated with deficits in functioning across psychological, interpersonal and somatic well-being. Adolescents with poor sleep have reported more depression, anxiety, anger, inattention, conduct problems, as well as drug and alcohol use. Additionally, with poor sleep, adolescents have reported greater somatic complaints such as fatigue, less energy, headaches, stomachaches and backaches. Short, Gradisar, Lack and Wright (2013) studied the effects of sleep and sleep quality on mood in 385 adolescents and found that those with poor quality of sleep had more depressed moods, which were also associated with worse grades and depression. Poor sleep can lead to impaired focus and labile mood, both of which are symptoms of depression. In their study, 385 adolescents were surveyed to determine the effects of sleep duration, sleep quality, and circadian chronotype on alertness, depression and academic performance (Short et al., 2013). Simple strategies, such as breathing and relaxation techniques, to help promote better sleep can be implemented to ultimately improve the adolescent’s mood.
**Exercise.** Cheung et al. (2013) identifies exercise as an evidenced based treatment strategy for depression. Peck, Smitherman and Baskin (2015), reporting a study by Danielsson and colleagues, found exercise was beneficial when combined with medication. In a study examining the role of physical activity on depressed moods, Sigfusdottir, Asgeirsdottir, Sigurdsson and Gudjonsson (2011), found that physical activity decreased the mental distress among adolescents including those living in dysfunctional family settings. In a prospective cohort study, 2093 adolescents were followed and logistic regression analyses were used to identify the association between physical activity and depressive symptoms (Rothon et al., 2010). The researchers found that for each additional hour per week of physical activity decreased odds of depressive symptoms by 8% (Rothon et al., 2010). Dopp, Mooney, Armitage, and King (2012), studied the intervention of a 12-week physical activity program including 15 supervised exercise sessions and 21 independent sessions with 13 adolescents. Using the Children’s Depression Rating Scale-Revised and Quick Inventory of Depressive Symptomatology, Self-Report, the researchers found a significant decrease in depressive symptoms (Dopp et al., 2012).

**Diet.** Promoting health and wellbeing during the adolescent years is essential given this is a time of critical physical and psychological growth. Adequate nutritional intake is required for successful physical and mental development. Given the public health concerns of mental health and nutrition, researchers have been looking at the relationship between nutritional intake and the psychosocial development of adolescents. In a systematic review of 12 epidemiological studies aimed to synthesize literature to determine whether an association exists between diet and mental health, researchers found a significant, cross sectional relationship between unhealthy dietary patterns and poorer mental health in children and adolescents (O’Neil et al., 2014).
Researchers from Deakin University and the University of Melbourne in Australia found that over time better diet quality is associated with better mental health in adolescents. Encouraging diets that are nutritious may not only reduce depressive symptoms, but also prevent adolescent depression (Jacka et al., 2011). This longitudinal, prospective study included 2,054 adolescents who completed an 84-question survey on behaviors including nutrition, mental health, well-being, physical activity, and perceptions of home and school environments (Jacka et al., 2011).

In 2010, the same authors examined 7,114 adolescents and the relationship of diet quality and depression and found an association between diet quality and depression using data obtained from the Australian Healthy Neighborhoods Study (Jacka et al., 2011). Similar findings were presented in a study aimed to examine the relationship of diet quality and depression among 3,000 adolescents from varied ethnic and cultural backgrounds (Jacka et al., 2013). In this prospective cohort study, diet quality was assessed through diet questionnaires and mental health was assessed through the Strengths and Difficulties Questionnaire (SDQ) and the Short Mood and Feelings Questionnaire (SMFQ). The researchers completed a cross sectional analyses and found an association between an unhealthy diet and mental health problems.

Kulkarni, Swinburn and Utter (2015) published a cross-sectional, population-based study of 4,249 ethnically diverse adolescents with data gathered from self-reported dietary questioners and determined a healthy diet was significantly associated with better emotional health. In a longitudinal study of 2,054 adolescents in Australia, researchers found that those who indicated a healthy diet (consisting of fruits and vegetables) had better mental health (Jacka et al., 2011). The study found that those who improved their diet showed an improvement in mental health, where in those whose diet deteriorated a worsening of mental health was seen. Oellingrath, Svendsen and Hestetun (2014) found similar results in a cross sectional study of 1,095 children.
ages 12-13 years. Independent of physical activity, sedentary activity and background variables, the researchers found a diverse diet rich in unrefined plant food, fish and regular meals was associated with better mental health, while energy dense, nutrient poor diets and irregular meals were associated with poorer mental health.

**Stress management.** A variety of stress management techniques can be taught to adolescents, which can be used to help relieve symptoms of depression. One type of meditation that can be used to teach relaxation techniques to help reduce stress levels is mindfulness. Using this concept, Ames, Richardson, Payne, Smith and Leigh (2014), conducted an 8-week group using Mindfulness-based cognitive therapy with a total of seven participants. Using qualitative and quantitative measures to evaluate the program, the researchers found a decrease in the intensity of depressive symptoms, a decrease in the impact of depressive symptoms and a modest decrease in worry and rumination (Ames et al., 2014). Using mindfulness for stress reduction can help one to focus on positives by decreasing negative thinking and allows one to practice gratitude.

**Light therapy.** Although light therapy is a standard therapy for seasonal affective disorder and depression in adults, there has been little research about its effects on adolescent depression. Bogen et al. (2013) conducted a randomized control trial of bright light therapy for adolescent depression with the hypothesis that two weeks of light therapy would reduce depressive symptoms in adolescents. Niederhofer and von Klitzing (2011) studied bright light therapy as an add-on therapy for adolescent depression. The researchers performed a randomized trial that included 28 patients and found a significant improvement in depressive symptoms using the Beck Depression Inventory scale for measurement. They determined antidepressant response
with bright light therapy compared to a placebo was superior based on comparison of an analysis of salivary melatonin level measurements in the two groups.

Expressive arts. Dance, movement, art, and music are examples of expressive arts, which can be used to provide therapeutic effects in the treatment of depression. Expressive art groups can help an adolescent to chart their therapeutic journey, allowing them to visualize where they have been and imagine where they are going to. They may work through some of the difficulties in their life while making a collage, drawing on paper or shaping clay for example. Through expressive arts, adolescents can learn problem-solving skills, increase self-esteem, build social skills and learn behavior management (Riley, 2001).

Art therapy has been identified as a non-threatening form of treatment that allows the adolescent to have a voice through art. Jeong et al. (2005) suggest dance movement therapy may improve psychological distress in depressed adolescents based on a twelve-week dance therapy intervention study. They found psychological distress and global scores decreased while plasma serotonin concentrations increased in the dance movement intervention group.

Herbal therapies. Although studies regarding the use of herbal and natural supplements related to the treatment of depression and anxiety for adults are available, no recent studies of that with adolescents were located. Greater research and focus is needed in this area studying the effects of herbal and natural remedies on symptoms of depression in the adolescent population.

Psychotherapy. Psychotherapy has been described as a first line treatment option for the first episode of mild to moderate adolescent depression and should be included as an initial treatment component (Harmin et al., 2012). Psychotherapy has also been shown to be useful when there are identifiable psychosocial stressors such as parental divorce, death of friend or family member, or the ending of a romantic relationship. Cheung et al. (2013) report that studies
have shown up to 20% of adolescents with depression show improvement in symptoms in randomized controlled trials with non-directive supportive therapy, routine specialist care and regular symptoms monitoring. In a meta-analysis review of ten randomized controlled trials, Bortolotti, Menchetti, Bellini, Montaguti and Berardi (2008) report clinical improvements were significantly seen with psychological forms of interventions with an improvement in depressive symptomology seen. The researchers concluded that psychological interventions in the primary care setting were linked to clinical improvements of depressive symptoms and therefore may prove to be useful in the general practice setting.

Cognitive Behavioral Therapy (CBT) and Interpersonal psychotherapy (IPT) are both effective for the treatment of adolescent depression (Harmin et al., 2012) and have been shown effective in community settings, schools and primary care in addition to tertiary care centers (Chrung et al., 2013). Regardless of the type of therapy chosen, the trial period should be at least six-to-twelve weeks in duration (Harmin et al., 2012).

*Cognitive Behavioral Therapy.* The basis of the CBT model is that a person cannot control how they feel, but they can control how they think about certain events. These thoughts can influence the way they feel. This type of treatment targets behaviors and thoughts to improve the patient’s mood. CBT identifies behavioral and cognitive patterns associated with depression with a focus on changing patient’s perceptions of themselves through thoughts and feelings (Chueng, Kozloff, & Sacks, 2013). In a study by Brent et al. (2009) depressive symptoms were reduced by 64.7% after 12-16 weeks of individual CBT.

Cognitive Behavioral Therapy (CBT) is one of the most commonly used types of therapy techniques. The focus of CBT is to change negative self-defeating thoughts while increasing positive behaviors and activities and improving interpersonal effectiveness (Cheung et al., 2013;
Richardson & Katzenellenbogen, 2005). These techniques have also been found useful in the prevention of depression in high-risk youths (Richardson & Katzenellenbogen, 2005). A CBT treatment approach often follows a specific curriculum and several different courses have been based on the CBT philosophy. Examples of activities included in a CBT course include: relaxation, scheduling pleasant activities, addressing irrational beliefs, developing social skills, improving communication and problem solving (Richardson & Katzenellenbogen, 2005).

Young, Miller and Khan (2010) identify a study by Lewiston et al. which divided patients into a CBT based intervention group, using the Coping with Depression for Adolescents program, and a wait list group. The intervention group was found to do better than the wait list group. Young et al. (2010) reports similar findings among other studies using CBT based interventions with continued effectiveness of the intervention group being noted. In a randomized controlled clinical trial, Richardson et al. (2014) studied 101 adolescents who screened positive on the PHQ-9 to determine whether a collaborative care intervention improves depressed outcomes compared to usual care. The researchers found that there was a greater improvement in depressive symptoms at 12 months in the collaborative care group than the usual care group.

In a cognitive-behavioral skills building intervention, the COPE (Creating Opportunities for Personal Empowerment) program was delivered to 15 depressed adolescents (Lusk & Melnyk, 2015). The COPE program is a brief cognitive behavioral therapy based intervention that can be implemented into 30-minute individual outpatient appointments. The researchers found adolescents reported a significant decrease in depression, anxiety, anger, and destructive behavior in addition to an increase in personal beliefs regarding managing negative emotions when compared to a group who received “usual care.” The COPE program includes the twelve
components of CBT therapy: achieving measurable goals/competency, communication training, cognitive restructuring, problem solving, behaviors activation, adolescent psychoeducation, self-monitoring, relationship skills/social interaction, relaxation, emotional regulation, parent psychoeducation and improving the parent child relationship as identified by McCarty and Weisz (2007). Through 30-minute outpatient visits the primary care provider can provide timely, evidenced based therapy for adolescents through the utilization of the COPE program (Lusk & Melnyk, 2013). The TADS study surveyed 439 adolescents and concluded medication along with CBT was more effective compared to medication alone (Curry, Rohde, Simons et al., 2006). Findings from the Treatment of Adolescent Depression Study (TADS) found that a combination of fluoxetine and CBT was the most effective in both response and remission of adolescent depression (March et al., 2008). Cheung et al. (2013) report similar findings in the support of CBT therapy and fluoxetine use in combination for best results from their research.

*Mindfulness Based Therapy.* Mindfulness based therapies have been shown to reduce physical illness, decrease negative thoughts, improve self-control, improve concentration and decrease other symptoms of depression and anxiety (Sundquist et al., 2015). Mindfulness includes specific breathing techniques and teaches one how to increase their awareness. Mindfulness techniques can be done on one’s own once learned. In an 8-week study, a mindfulness-based cognitive therapy program was adapted and evaluated both qualitatively and quantitatively by a group of adolescents (Ames, Rischardson, Payne, Smith, & Leigh, 2014). The researchers found high satisfaction and a decrease in depressive symptoms among the adolescents who participated. It is suggested that mindfulness-based cognitive therapy had an improvement in mindfulness skills, quality of life and ruminations (Ames et al., 2014).
Hamill-Skock, Hicks, and Prieto-Hicks (2012) reviewed literature for CBT related programs for the treatment of adolescent depression. Three different CBT approaches were found in this study including: Adolescent Coping with Depression course (CWD-A), the cognitive therapy manual from the Pittsburg CBT trial, and the CBT manual of Treatment for Adolescents with Depression Study (TADS) (Hamill-Skock et al., 2012). According to David-Ferdon and Kaslow (2008) all but one study which examined the CWD-A, found the program to be effective.

**Interpersonal Therapy.** An additional type of therapy that has been found helpful among adolescents with depression is interpersonal psychotherapy (IPT). In this type of therapy, adolescents are taught to cope with interpersonal difficulties that are often manifesting from the depressive symptoms (Richardson & Katzenellenbogen, 2005). Harmin et al. (2012) and Cheung et al. (2013) identify IPT as a technique to address grief, interpersonal dispute, role transition, interpersonal deficits and family/relationship problems. Jacobson et al. (2001) indicate that IPT has shown promising effects in their systematic review and that providers can use interventions based on cognitive and interpersonal principles in the treatment of adolescent depression. In an effectiveness study reviewed by Young et al. (2010), IPT intervention groups were found to have a significant decrease in depressive symptoms than a control group.

**Internet or Telephone based Therapy.** Kelleher, Campo, and Gardner (2006) identify the use of alternative interventions that are Internet or telephone based because of the lack of mental health specialist and those who are appropriately trained. According to Kelleher et al. (2006), a study has shown positive outcomes for Internet based psychotherapy for adolescents with mild to moderate depression. Eisen et al. (2013) supports the use of Internet based interventions. The researchers explored the use of the Competent Adulthood Transition with Cognitive Behavioral...
Humanistic and Interpersonal Training (CATCH-IT) program, which is an Internet based computer program, consisting of 14 modules to teach adolescents how to reduce behaviors that increase vulnerability to depression (Eisen et al., 2013). A total of 83 adolescents, ages 14 to 21 were part of this study. Though results varied by clinic site, it was concluded the use of internet-based programs can be feasible and cost effective in the primary care setting for the prevention of mental health issues among adolescents. This study was limited by the small sample size, selection and response bias and did not assess for the presence or absence of the medical home model at the surveyed sites (Elsen et al., 2013). It concluded that the use of Internet based intervention programs can be cost effective and feasible in providing prevention for mental disorders in adolescents.

Prado, Pantin and Estrada (2015) also indicate the use of internet based interventions and e-health as offering the flexibility to eliminate barriers and allow for evidence based therapy to be offered to patients who would otherwise not receive them. Van Voorhees et al. (2008) studied two internet-based behavioral interventions in a randomized control trial including 84 adolescents. Comparing the pre-study values with post study values both groups (brief advice and internet program and motivational interviewing and internet based program) showed a decline in depressed mood, increases in social support by peers and reduction in depression related impairment in school (Van Voorhees et al., 2008).

The ideal treatment of adolescent depression would be to have mental health services integrated into the primary care practice. In a randomized control trial, a collaborative care model was compared with usual care (Richardson et al., 2014). At twelve months, the adolescents who received collaborative care including an initial in-person engagement session
and regular follow up by a master’s-level clinician, showed a greater improvement in depressive symptoms than those who received usual care.

Finally, safety planning must be considered when treating adolescents with depression. Suicide risk must always be assessed and further evaluation through emergency crisis workers, referral to the emergency department or inpatient care must be made if there is risk for suicide or self-harming behaviors. Emergency plans for suicide risk/behaviors should be made immediately following diagnosis or when safety issues arise (Cheung et al., 2013).

**Referral.** Many adolescents may have severe depression with other complicating factors, in these cases the primary care provider should be prepared to offer the patient and family options for further treatment. In a retrospective chart review, comparisons between youths who scored negatively or positively on symptom checklists found that youths who screened positive were significantly more likely to be referred for mental health treatment and received specialty mental health services (Hacker et al., 2014). Referrals may be necessary when the adolescent is not responding to treatment offered in the primary care office (Jacobson et al., 2001). Harmin et al. (2012) suggest mild depression can be managed through education, mood monitoring, supportive psychotherapeutic interactions, cognitive-behavioral strategies, coping skills training and medications (SSRIs). Referrals should be made if there is little to no improvement made, problems with adherence occur, or the presence of co-morbidities (Harmin et al., 2012). Cheung et al. (2013) suggest the primary care provider be familiar with community resources available for further management and treatment of adolescent depression.

**Guideline Recommendations.** The US Preventative Services Task Force (USPSTF) recommends that all adolescents be screened for depression when systems are in place to provide accurate diagnosis, therapeutic support and follow up (USPSTF, 2006). Due to the lack of
controlled treatment trials, Cheung et al. (2007) suggest the use of evidence based and expert consensus based treatment guidelines in the management of adolescent depression. The Guidelines for Adolescent Depression in Primary Care (GLAD-PC):II - Treatment and Ongoing Management was developed in five phases: current scientific evidence, a series of focus groups, a formal survey, an expert consensus workshop and revision and iteration among members of the steering committee (Cheung et al., 2007). Each recommendation is graded based on the Oxford Centre for Evidence-Based Medicine (A-D) system. Recommendations from the GLAD-PC guidelines include:

- **Recommendation One** – After initial diagnosis of mild depression, clinicians should consider a period of active support and monitoring before starting other evidence based treatment (Grade B; very strong).
- **Recommendation Two** – if an adolescent with moderate to severe depression or complicating factors is identified consultation with a mental health specialist should be considered (Grade C; strong).
- **Recommendation Three** – Only scientifically tested and proven treatments should be offered by the primary care provider (psychotherapies such as CBT or IPT and/or antidepressants such as SSRIs). (Grade A; very strong).
- **Recommendation Four** – providers should monitor for the emergence of adverse events during antidepressant treatment. (Grade B; very strong).

**Synthesis**

Given the data related to the effects of depression on the adolescent, it is not surprising the research for treatment includes both psychosocial and pharmacological options (Hamill-Skock, Hicks, & Prieto-Hicks, 2012). A major gap in the literature is that of awareness and
management or treatment of adolescent depression in the primary care setting. Many providers feel uncomfortable managing mental health conditions due to either lack of education in this area or unfamiliarity of current recommendations or guidelines. Additionally, more resources are needed within the primary care setting to adequately address adolescent depression and other mental health issues. Current recommendations for treatment and management of adolescent depression include medication, CBT/IPT psychotherapy, and psychosocial education including promotion of healthy lifestyles.

Professionals with specific training should always administer therapy; often times this is not the case for the primary care provider. Primary care providers often lack the specialized training to offer the multi-weekly long sessions required of IPT or CBT, however, the primary care provider can use principles from these modalities to teach adolescents to cope and deal with depression and depressive symptoms. Therefore, this educational program will explain the various options for treatment in addition to education on simple CBT based techniques that can be used in the office. The recommendations of guidelines and research studies should never outweigh the professional judgment of the provider.

Non-pharmacological options can include psychosocial, educational and supportive strategies to help manage the symptoms of depression. Stein, Zitner, and Jensen (2006) reported psychosocial and behavioral interventions and studies for treatment of depression in adults have shown there to be of benefit in the primary care setting. Initiation of supportive interventions in the primary care setting has been shown to improve symptoms of depression in the adolescent (Stein et al., 2006). In contrast, Sikorski et al. (2012) reported provider training by itself did not appear to improve depression care, though results appeared more promising when this training was combined with guideline implementation.
Unfortunately, many providers are constrained by resources including time, training and reimbursement to provide CBT therapy. Primary care providers, however, are in the position to manage medication prescription and use CBT-based interventions, such as problem solving and cognitive restructuring, in the primary care setting to help adolescents control depressive symptoms. There is a need for quick, easily administered interventions and education in the primary care office for adolescents with depression.

**Theoretical Framework**

A process theory is described as the “behind the scenes” work that is derived from three components: the organizational plan, the service utilization plan and the specifications of their output. Lewin’s Theory of Change (1945) involves three different steps: unfreezing, change and refreezing. Unfreezing is the process of finding a way to get people to let go of the old patterns. By increasing the driving force that pushes behavior away from the status quo or decreasing restraining forces that negatively affect movement, unfreezing will allow people to overcome resistance (Current Nursing, 2012). The second phase is change. In this stage there is a process of change in thoughts, feelings, and/or behaviors that are more productive. The final stage is that of refreezing or establishing the new way of doing as the standard operating procedure.

This theory forces a person to replace prior learning with new ideas and is based on three concepts including driving forces, restraining forces and equilibrium (Kritsonis, 2004; Lewin, 1945; Schein, 1995). When implementing a planned change, it is imperative that the driving and restraining forces be analyzed as these forces will identify what can push the change in a direction to occur and what can hinder such change. In order for there to be change the driving forces must outweigh the restraining forces otherwise a state of equilibrium will occur where the two forces are equal and therefore no change can occur. For the purpose of this capstone project,
Lewin’s change theory is used as the driving force behind the implementation of an educational program for providers at a primary care clinic for the management of adolescent depression.

Lewin’s theory of change relates to educating the primary care provider, as one who once had less involvement with mental health, to go above and beyond physical and medical health conditions and assess for, diagnose and manage mental illness such as depression. It should come as no surprise that the rate of diagnosis of mental health illness is rising among all people worldwide including adolescents. Unfortunately, the availability of mental health services is lacking in many areas in the United States (Honberg, Kimball, Diehl, Usher, & Fitzpatrick, 2011). As a result, it is becoming increasingly important that adolescents are evaluated for depression in the primary care setting. Many adolescents have at least one contact with a primary care provider annually. This offers a prime setting for screening to take place. Consequently, the primary care provider must be knowledgeable in identifying and treating depression.

The basis of this project is to provide an educational program in the primary care office to increase confidence and skill level in managing adolescent depression. This project will allow the provider to learn screening tools used for identification of risk for depression, current recommendations for treatment/management of depression and will leave the practice with an algorithm to use in daily practice when treating an adolescent with depression. By using Lewin’s theory of change it will be important to understand the “old” ways of provider’s thinking. This project will force them to move from an “I don’t handle that”/ refer to specialty idea to an “I have to deal with this” mindset.

Depression is under-diagnosed among adolescents worldwide, despite being estimated to be the second leading cause of disability by 2020 (Asarnow et al., 2005). This old pattern of provider behavior is counterproductive to accurately diagnosing and therefore treating adolescent
depression to reduce the risks associated with depression such as poor school performance, impaired family relationships, increased hospitalizations, psychosocial impairment, alcohol abuse, antisocial behavior and suicide (Zuckerbrot & Jensen, 2006).

In order to make this project successful it will be important to determine what those driving forces and restraining forces are among the providers in the clinical setting. Some hypothetical ideas for restraining forces may include lack of knowledge, lack of education, lack of confidence and lack of understand on the provider’s part related to adolescent depression as a whole topic. The driving forces should be noted to be the lack of mental health services currently available thus forcing the primary care provider to now take on the evaluation of mental health illness much more regularly. There is little room for discussion in regards to whether or not this will be expected of the primary care provider as it is clear the need for services is rising and the availability of services provided a mental health professional is declining.

As discussed above, the three stages of Lewin’s theory of change include unfreezing, change and refreezing. In regard to this project, the unfreezing stage would include educating the providers to the rates of depression, the lack of mental health services and the need for this illness to be evaluated so that proper treatment can be initiated therefore reducing the chance of the risks as listed previously. With optimal patient health being the main goal for many providers it will be necessary to identify mental health as being part of the whole person thus requiring the attention of the primary care provider. Providers will be surveyed to determine their current thoughts regarding mental illness and their personal holdbacks as far as evaluation/treatment for depression is concerned. It will only be in knowing these patterns that can help determine ways to change those patterns.
The second stage, change, will be accomplished by using research that indicates the importance of this issue (adolescent depression) and education regarding diagnostic criteria and current recommendations for treatment including pharmacologic and non-pharmacologic options. In this stage the provider will be asked to leave behind their previous thoughts regarding mental health in the primary care setting and accept the concept of evaluating adolescents regularly at annual well child visits from ages 13 through 17 and initiating treatment if warranted. Once this is set into motion, refreezing will take place when using the provided education and algorithm designed by the DNP student to initiate treatment for depression among adolescents in the primary care office is accepted as a new habit or standard procedure.

In order to implement an intervention related to the management of depression among adolescents in the primary care office, there must be resources identified for use, barriers to implementation identified and education provided regarding the change from start to finish. The second component is the service utilization plan which identifies how to reach the target audience. For the project the target audience is the depressed adolescent, as the overreaching goal is to improve overall adolescent health. In order to provide improved care, the provider will be educated in ways to manage adolescent depression in the primary care setting. The information regarding the implementation of the project will be delivered to the providers through live meetings with presentation of the above information and a written handout guide. The adolescent will be assessed and treatment initiated during annual well child visits or regular follow up appointments, thus fulfilling this component of identifying the way in which the intervention will reach the audience.

Rates of depression in adolescents are rising worldwide. Screening for depression and identifying those at an increased risk for a diagnosis of depression in the primary care setting is
vital as proper treatment and/or referral for treatment can only be made once an adolescent has been identified. Fear of stigma, lack of resources, and inadequate mental health education limit appropriate treatment for depression. In order to overcome this more education must be offered to the front line providers. Implementation of an educational program in the primary care setting can help increase the confidence of the provider in managing those who are depressed or an at risk for depression. In order to get to this point, the provider must be educated regarding current recommendations for identification and treatment/management options, diagnostic criteria and how to differentiate depression from typical teenage behavior.

**Project Design and Methods**

This quality improvement project included an evidence-based educational intervention program related to the management of adolescent depression in an outpatient primary care office. The topic chosen for the project was the management of adolescent depression in the primary care setting as literature demonstrates an increased need for primary care providers to manage mental health conditions due to the inadequate access to specialists. The goal of this project was to educate providers about current recommendations for managing adolescent depression. A literature review identified the need for primary care provider education related to treatment options for adolescent depression. The education was focused on current recommendations for managing adolescent depression based on research and guidelines.

In addition to the educational presentation, the providers were given five different handouts designed by the DNP student. The handouts included three worksheets that the provider can use with a depressed adolescent. The worksheets were based on CBT techniques including problem solving, cognitive distortions, and cognitive restructuring using the “ABC” model. A fourth handout was a summary sheet for providers which included the different steps of treating
depressed adolescents, from introduction and rapport building to therapy techniques and medication recommendations. The fifth and final handout was a tri-fold pamphlet designed by the DNP student that included tips for depression & stress management and coping skills geared toward adolescents.

During the intervention, the DNP student provided ongoing support to practice providers regarding depression management options by being available to answer questions or provide further information regarding different option of depression treatment. The DNP student was available to answer questions, provide clarification and expand on topics the provider(s) would like more information about. During the 4-week intervention period, there were no questions or additional information requested from the participants.

The project was evaluated using a 5-point Likert-scale pre/posttest survey that asked the project participants to rate their level of confidence and knowledge regarding managing adolescent depression and CBT techniques (Appendix A). The providers were asked to use the worksheets, refer back to the summary sheet and offer the pamphlet to adolescents for a 4-week period. The post test was given to providers at the conclusion of that time. The posttest asked the same questions as the pre-test – asking the provider to rate their level of knowledge and confidence in addition to rating the helpfulness of the handouts. The pre-test and post-test results were compared to determine change in knowledge and/or confidence after the educational intervention.

**Setting and resources**

As depression can be present regardless of gender, race or socioeconomic class, this project was designed to build onto the current practice of screening all adolescents for depression to enable the provider to begin initial treatment and management. The setting for this project was
a physician owned private family clinic in a rural Massachusetts town. The practice already screens adolescents at routine appointments using the PHQ-9. The community of interest was restricted to only the patients attending the primary care office. The participants for the project included two physicians, one nurse practitioner (Adult certified), and five nursing staff personnel. During the time of the intervention one medical assistant left the practice, resulting in a total of seven participants.

Using a power-point presentation, a one-hour presentation was conducted during regular business hours. The office manager supported the intervention and arranged all staff scheduled to accommodate their participation in the project presentation. This allowed the DNP student to present the educational intervention to all participants at one time and there was no need for a second presentation. The power-point presentation included an overview of the presentation of adolescent depression, diagnostic criteria, pharmacologic and non-pharmacologic management options (Appendix B).

Facilitators and Barriers

By identifying possible facilitators and barriers to this quality improvement project, the DNP student was able to have a plan to work around such obstacles. Anticipated barriers to the implementation of this project included getting the participation of staff to complete the questionnaires and the education session.

The literature identifies a number of barriers for the management of adolescent depression in the primary care office which include: inadequate training related to mental health disorders and lack of time not only assess for depression but also to provide the necessary interventions to the patients requiring such (Reeves & Riddle, 2014). Other barriers include the stigma of mental health which can lead to parent’s not giving consent for their child to be
screened therefore reducing the chance of identifying depression and allowing for treatment. Additional barriers include reimbursement and access to mental health professional (Cheung et al., 2013). Although many states provide Medicaid funding for tele-psychiatry, this support may not be substantial enough to support the integration of the management of adolescent depression in the primary care setting (Kelleher et al., 2006).

Facilitators to this project included consistent effort, encouragement and support of the DNP student during the project time period. The primary stakeholder was committed to the idea of the project and supported the DNP student throughout the project time period by advocating for the use of the materials left in the office during the time the DNP student was not available. The presentation was completed on a day when all providers and nursing staff were working and able to attend. The office manager scheduled the presentation to be done during lunch and adjusted all staff’s schedules to accommodate this.

Goals and Objectives

Prior to implementation of the educational intervention, goals and objectives were identified. The main goal of this project was to develop an educational intervention for managing adolescent depression in the primary care setting. In order to provide the educational intervention, objectives included designing a power-point presentation and several educational handouts by the DNP student. Additional objectives included providers/nursing staff attending the presentation and completing the pre/post- tests and evaluation surveys. The expected outcome of the project was to improve provider’s knowledge and confidence related to the management of adolescent depression based on self-perceived scores through a pre/post-test survey and determine the usefulness of the handouts provided to the office. It is assumed that increasing provider knowledge and confidence level in managing adolescent depression, that
there will be an improvement in overall adolescent health by allowing mental health service to be offered in the primary care setting.

**Human Subjects Protection**

This research translation quality improvement project was an educational intervention to increase the knowledge of providers and staff regarding management of adolescent depression in the primary care office. The participants are staff members of the clinical site and no identifiable information was collected. No personal patient data was collected. Names of participants were not collected. A code system was used to identify pre-post test results of providers.

This research translation project was exempted from the Institutional Review Board (IRB) requirements (Appendix C). The importance of the care and treatment of patients remaining under total control of the providers in the practice was identified during the presentation. If at any time the provider felt the project was interfering with the safe care of the population, amendments would have been made to the project scheduled presentation dates and design though this was not necessary.

**Statistical Analysis**

The IBM Statistical Package for the Social Science (SPSS) Statistics, version 24, was utilized to analyze quantitative data. A paired t-test was conducted to determine whether there was a significant difference between pre and post test scores that evaluated the self-reported knowledge and confidence levels. A significance level of 0.05 was used in the analysis. Additionally, descriptive data of the participants was collected. The pre-test was an eight item survey. The post-test included seven of the pre-test questions as well as five questions related to usefulness of the handouts.
Results

In order to address the mental healthcare needs of adolescents, an education program was designed with a purpose of increasing provider knowledge and confidence level of managing adolescent depression. It was hoped that through provider education, adolescents would receive the mental health treatment and services they need. The effectiveness of the program was evaluated through a pre-test/post-test survey to measure the knowledge level and confidence level three providers and five nursing staff people have regarding adolescent depression.

Participant Demographics

A total of eight staff members were present for the presentation with a total of seven staff members, six females and one male, completing the intervention and both pre/post-test surveys. In terms of education, two had doctoral level degrees, one had a master’s level degree, two had a bachelor’s degree in nursing, and three had an associate’s or certificate level degree.

Qualitative Data

Concerns. The pre-test survey asked participants about their current concerns with managing or treating adolescent depression. Comments included: “The right meds and what the side effects may be.” “Saying the right thing to both the parent and patient.” “That there is not a greater awareness of the need for mental health treatment.” “When to treat with meds?” and “Not enough psychologists/psychiatrists/counsellors.” Through this data the DNP student was able to tailor the education presentation to meet the needs of the providers. These needs help to identify what topics to focus greater attention to.

Barriers. Participants were asked to comment on perceived barriers to treating adolescent depression in the primary care setting. The literature identifies time and limited education as barriers in the primary care setting (Asarnow et al., 2005; Cheung et al., 2013;
Participants of this intervention project identified the following barriers: “If parents say one thing and patient does not.” “Honesty from patient.” “Need to see adolescents more frequently for f/u but parents/patients don’t want extra copays.” “Not enough time to spend with adolescents due to lack of counselors.” and “Many want to jump straight to meds without counselling or CBT.” Although the providers did not identify inadequate education as a barrier, they did identify limited time with the patient as a barrier. This parallels the literature.

**Helpfulness.** Comments were elicited from participants to evaluate the presentation. Most comments were positive and highlighted the importance of providing education related to managing adolescent depression. The comments demonstrated the helpfulness of the handouts. Comments included: “Great handouts.” “Handouts displayed good techniques to assess and give advice.” “Clear and to the point; informational.” and “Very confident and knowledgeable with this presentation.” One participant made a comment on the post test, “Although I would not be prescribing…the handouts have been helpful in speaking with parents. It gives me more knowledge of options and a direction to send concerned parents.” Evaluation of the helpfulness of the presentation was another way to gauge the effectiveness of the intervention. With such a small sample it was important to elicit these comments as the quantitative data may not be generalizable.

**Influence of Educational Intervention**

To determine whether this project was successful in increasing the provider’s knowledge level and confidence, pre and post-test scores were compared. Pre and post-test surveys used a 5 point Likert scale with the highest score of 5-strongly agree and the lowest score 1-strongly disagree. Descriptive statistics for pre and post-test data are displayed in Table 2.
For the pre-test score for provider confidence in understanding of ways to manage adolescent depression the lowest score was 2 (disagree) and the highest score was 4 (agree), with an average of 3.13 (SD=.835); post-test lowest score was 3 (neutral) and the highest was 4 (agree), with an average of 3.71 (SD=.488). Pre-test scores for provider’s confidence in ability to manage adolescent depression had a low score of 1 (strongly disagree) and a high score of 4 (agree), with an average score of 2.88 (SD=1.126); the lowest post-test score was 3 (neutral) and the highest was 4 (agree), with an average of 3.57 (SD=.535). Provider confidence in discussing a variety of treatment options for adolescent depression with patients/parents in the pre-test had a low score of 1 (strongly disagree) to a high score of 5 (strongly agree), with an average score of 3.00 (SD=1.309); for the post-test the low score of 3 (neutral) and a high score of 5 (strongly agree), with an average of 4 (SD=.577). In terms of being familiar with evidence based management options for adolescent depression the lowest pre-test score was 1 (strongly disagree)
and the highest score was 4 (agree), with an average of 2.75 (SD=1.165). The pre-test score for having a good understanding of the CBT model was 1 (strongly disagree) and the highest score was 4 (agree), with an average of 2.38 (SD=1.302); the post-test lowest score was 3 (neutral) and the highest was 4 (agree), with an average of 3.71 (SD=.488).

Quantitative data was analyzed through the SPSS program version 24. The same pre-test/post-test questions were paired. The results were analyzed using a paired t-test with a significant level of p<0.05 (Table 3).

<table>
<thead>
<tr>
<th>Pair</th>
<th>Question</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>t</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel confident in my understanding of ways to manage adolescent depression (pre-test/post-test)</td>
<td>-.571</td>
<td>.535</td>
<td>-2.828</td>
<td>6</td>
<td>.030</td>
</tr>
<tr>
<td>2</td>
<td>I am confident in my ability to manage adolescent depression (pre-test/post-test)</td>
<td>-.714</td>
<td>.951</td>
<td>-1.987</td>
<td>6</td>
<td>.094</td>
</tr>
<tr>
<td>3</td>
<td>I feel confident to discuss a variety of treatment options with patients/parents (pre-test/post-test)</td>
<td>-.857</td>
<td>1.215</td>
<td>-1.867</td>
<td>6</td>
<td>.111</td>
</tr>
<tr>
<td>4</td>
<td>I am familiar with evidence based management options for adolescent depression (pre-test/post-test)</td>
<td>-.857</td>
<td>.900</td>
<td>-2.521</td>
<td>6</td>
<td>.045</td>
</tr>
<tr>
<td>5</td>
<td>I have a good understanding of the CBT model (pre-test/post-test)</td>
<td>-1.143</td>
<td>1.345</td>
<td>-2.248</td>
<td>6</td>
<td>.066</td>
</tr>
</tbody>
</table>

Note. Significant at the p<0.05 level.

In the paired samples t-test, the results indicated a significant improvement in provider’s level of confidence of understanding ways to manage adolescent depression following the education intervention (p=.030). There was also a significant improvement in being familiar with evidenced based management options for adolescent depression following the educational intervention (p=.045). However, the results indicated there was not a significant change in provider’s confidence in ability to manage adolescent depression, provider’s confidence to discuss a variety of treatment options with patient/parents, or in the provider’s understanding of the CBT model following the education intervention.
Discussion

Improving adolescent mental health is a priority and in order to do so, the primary care provider must be knowledgeable in the various areas of treatment options available. This project focused on current evidenced based options and healthy education approaches for adolescent depression with an emphasis on non-pharmacologic options for adolescent depression such as CBT-based skills. These options can be incorporated into routine medical appointments either directly (through therapy based education) or through recommendations for outside treatment. Typically, a combination of pharmacologic and non-pharmacologic interventions is used in the treatment and management of adolescent depression.

Using Lewin’s Theory of Change, the practice providers were presented with an educational intervention which indicated the need to move from one way of thinking to another. The presentation used examples from research which indicated the increasing need for mental health services. Due to the limited access to specialty mental health services, providers are now being expected to manage mental health issues in the primary care setting. The three stages of the Theory of Change include unfreezing, change, refreezing. The educational presentation was the process of unfreezing. During this time the practice providers were given tools needed to make the change of provider greater mental health care to the patients. During the intervention, the change took place. For the four weeks the providers were asked to use the handouts and knowledge gained from the presentation when working with a depressed adolescent. At the conclusion of the intervention period, the refreezing was able to take place. At this time, the practice endorsed helpfulness of the handouts that were designed by the DNP student. The practice decided to continue using the handouts when managing adolescent depression.
The outcomes for the quality improvement project were all met. The first objective was to create the education presentation. The DNP student did this by designing a power point presentation and several handouts. With the help of the office manager, the objective for providers to attend the education presentation, all providers were able to attend. All the providers also completed the pre-test and post-test which allowed the DNP student to determine if the goal of increasing provider knowledge level and confidence in managing adolescent depression was achieved.

The goal of the educational presentation focused on increasing knowledge and confidence level of providers in managing adolescent depression. Literature documents treatment options for adolescent depression including active support, education, pharmacotherapy and psychotherapy. The DNP-designed education presentation was based on recommendations found through research and evidence based guidelines for adolescent depression. This project was implemented at a physician owned private family care clinic in a rural Massachusetts town.

This project demonstrated an improvement in provider’s confidence of understanding ways to manage adolescent depression and provider knowledge of evidence based treatment options. There was no significant improvement in the provider’s confidence in their ability to manage adolescent depression, provider’s confidence to discuss a variety of treatment options with patient/parents, or in the provider’s understanding of the CBT model following the education intervention. Despite these results, participants gave an overwhelming positive response to the presentation and helpfulness of the handouts. These findings suggest that a more long term educational intervention may be useful in increasing knowledge and confidence level of providers related to the management of adolescent depression in the primary care setting. The
reported barriers to managing adolescent depression for the participants for this project parallel those found in the literature such as time and education.

There is limited education regarding mental health issues in most primary care programs. Offering supplemental education may be one step to meeting the demand for mental health services in the primary care setting as specialized providers are limited. To provide quality health care and adequate mental health services for adolescents, it is imperative that providers be knowledgeable, confident and comfortable in providing not only medical care, but also management for mental health conditions.

While the effectiveness of this project may not be generalizable, it opens the discussion to creating more education for primary care providers in regards to mental health care needs. Results from this quality improvement project were shared with the providers and staff of the clinic.

**Limitations**

The major limitation of this project included the small participant sample. There was 100% participation, but this is a small practice site with few providers and there were more nursing staff participants than physician/nurse practitioner providers. However, the information is still very important for nursing staff to understand and be able to initiate discussion with the provider and family on these issues. The small sample size may limit the statistical significance of this project. Additionally, the time for the intervention (four weeks) was a short amount of time for providers to use the handouts as they may not have had depressed adolescent appointments during that time. More time for the use and practice of the handouts may help to improve self-perceived confidence levels.
Conclusion

The quality improvement project was provided to providers of a family practice clinic with education related to the management of adolescent depression in the primary care setting. Interventions that are useful in the primary care setting when treating adolescent depression are active support and monitoring, education, medication, psychotherapy, psychiatry referral and crisis intervention. Based on the review of available literature, the primary care provider is in a position to initiate treatment for adolescent depression. Although the providers are often not specifically trained in CBT or IPT therapy, they can use CBT-based skills and interventions to manage adolescent depression.

Rates of depression in adolescents are rising and are the number one cause of illness and disability among 10-19 year olds worldwide. Understanding of ways to identify and manage adolescent depression in the primary care setting is vital as proper treatment and referral for treatment can only be made once and adolescent has been identified. At one point in time, specialized mental health professional more routinely managed mental health issues including depression. Mind and body were separated into different fields: medicine and psychiatry. The need for mental health services is dramatically increasing and the availability of specialized services is not adequate enough to meet the needs. The boundaries between primary care and mental health care are beginning to blur as mental health is entering into the primary care arena.

The burden of depression if tremendous, but the specialized resources available for treatment and management are limited, though the primary care provider is in an ideal position to use evidenced based treatment and management modalities to help lessen that burden. The primary care providers are becoming more depended on to identify and treat/manage symptoms of depression in their patients, particularly in the adolescent population. The primary care
provider is addressing issues of depression and other mood disorders during regular visits with the patient. It is vital for the provider to understand and be knowledgeable of various treatment options available as many seasoned providers lacked this specialized training during their education.

An educational offering allowed the opportunity for the providers to learn about a variety of options for managing adolescent depression in the primary care setting. They received several handouts, which can be used to refer to, regarding the various treatment options recommended and available for adolescent depression and a patient handout. Provider education will allow patients to receive greater mental health care in the primary care setting therefore improving the access to healthcare.


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Appendix A

Pretest Survey

Please check provider type:  □ MD / DO  □ APRN / DNP  □ RN  □ LPN  □ MA  □ other

Please check one: □ male  □ female

Please check education level: □ Doctoral degree  □ Master’s degree  □ Bachelor’s degree  □ Associate’s degree  □ Certificate level  □ none of these

Please check race/ethnicity: □ White  □ African American  □ Asian  □ Hispanic  □ other

Please complete the following prior to the presentation:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel confident in my understanding of ways to manage adolescent depression</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I have experience in managing adolescent depression</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I am confident in my ability to manage adolescent depression</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I feel confident to discuss a variety of treatment options for adolescent depression management with patients and parents</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I am familiar with evidenced based management options of adolescent depression</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I have a good understanding of the cognitive behavioral therapy (CBT) model</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

What are your current concerns with managing or treating adolescent depression?

What barriers do you feel there are to treating adolescent depression in the primary care office?
### Post-test (3-4 weeks after presentation)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel confident in my understanding of ways to manage adolescent depression</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
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<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I feel confident to discuss a variety of treatment options for adolescent depression management with patients and parents</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I am familiar with evidenced based management options of adolescent depression</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I have a good understanding of the cognitive behavioral therapy (CBT) model</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The provider summary handout was helpful</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The “SOLVE” handout was helpful</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The “ABCDE” handout was helpful</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The patient pamphlet was helpful</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>The cognitive restructuring handout was helpful</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Please share your comments regarding the use of the handout or information learned from the presentation...
Appendix B

PowerPoint Presentation Outline

Introduction
- Purpose of presentation
- Objective
- Pre-test

Depression
- Diagnostic criteria review
- Treating depression in the primary care setting
- Adolescent depression
  - Incidence
  - Impact
  - Screening

Interventions
- Pharmacologic
- Non-pharmacologic
- Guidelines

Pharmacologic
- SSRIs

Non-Pharm
- Sleep
- Exercise
- Diet
- Stress management
- Light therapy
- Expressive arts
- Herbal therapies

Psychotherapy
- CBT
- IPT
- Internet/phone based therapy

Other
- Referrals
- Safety planning / crisis planning

Conclusion
- Review handout
- Review patient handout
- Requests for use – follow up in 3-4 weeks
- Questions and answers
- Presentation evaluation
MEMORANDUM

To: Kelly Clow
From: Human Research Protection Office
Date: September 21, 2015

Project Title: The Management of Adolescent Depression in Primary Care – An educational program for providers

IRB Number: 15-012

The Human Research Protection Office (HRPO) has evaluated the above named project and has made the following determination:

☐ The activity does not involve research that obtains information about living individuals.
☐ The activity does not involve intervention or interaction with individuals OR does not use identifiable private information.
☒ The activity is not considered research under the human subject regulations. (Research is defined as “a systematic investigation designed to develop or contribute to generalizable knowledge.”)
☐ The activity is determined to meet the definition of human subject research under federal regulations, but may qualify for exemption. If uncertain as to whether the scope of the research falls within an exempt category, please contact the HRPO for guidance. Exempt determinations must be made by the IRB.
☐ The activity is determined to meet the definition of human subject research under federal regulations and is not exempt. The research must be reviewed and approved by the IRB and requires submission of applicable materials.

Information regarding Types of Review for human subject research protocols may be found at http://www.umass.edu/research/irb-guidelines-levels-review

For additional information, please contact the Human Research Protection Office at 545-3428.

Cc: OGCA