Increasing Utilization of Cognitive Behavioral Therapy to Reduce Morbid Obesity in a Primary Care Setting

Erin J. McCue
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Erin J. McCue

Kirkhof College of Nursing

Grand Valley State University

Advisor: Marie VanderKooi

Advisory Team: Sylvia Simons and Teresa Farah

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Abstract

*Background:* Obesity among adults is characterized by a body mass index (BMI) of 30 or higher. The impairment and disability resulting from obesity indicates a significant health problem that is often seen in primary care settings. Research indicates that cognitive behavioral therapy (CBT) is an underutilized, but extremely beneficial intervention that may support individuals in achieving weight loss. Adults suffering from obesity with or without comorbid conditions such as psychiatric disorders (e.g. anxiety and depression) have benefitted from CBT. *Purpose:* To implement the increased utilization of CBT in the adult population with obesity and depression or anxiety in a primary care setting. *Methods:* Based on an extensive review of literature, a project was designed and conducted to increase knowledge and utilization of CBT by health care providers for the treatment of obesity. Outcome evaluation was based on post-implementation questionnaire and data regarding number of referrals made to the in-office cognitive behavioral therapist. *Results:* Results include an increased understanding, by health care providers of CBT use for treatment of obesity, and an increased number in referrals to the cognitive behavioral therapist. *Conclusion:* Delivering health care providers information about CBT increased their likelihood to recommend and place referrals to the in-office cognitive behavioral therapist for future patients with BMI of 30 or greater.

*Keywords:* adult, obesity, depression, anxiety, cognitive behavioral therapy, weight loss, primary care
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Increasing Utilization of Cognitive Behavioral Therapy to Reduce Morbid Obesity in a Primary Care Setting

Obesity is a wide-spread, costly, and chronic public health issue in the United States (U.S.). The biomedical, psychosocial, and economic consequences of obesity have substantial implications for the health and well-being of the U.S. population. More than one-third (39%) of U.S. adults (18 years of age and older) have obesity (World Health Organization, 2018). Obesity is defined as having a body mass index (BMI) of 30.0 or higher (Centers for Disease Control and Prevention [CDC], 2018). The current expenditure for obesity related costs in health care ranges from $147 billion to $210 billion annually (Segal, Rayburn, & Beck, 2017). Obesity is linked to a variety of chronic conditions including: diabetes, heart disease, certain cancers, and arthritis (Dietz & Kahan, 2016). It is imperative that efforts be made to reduce BMI and obesity rates among adult patients in the U.S.

Obesity is also frequently accompanied by mental health disorder such as depression, and the two can trigger and influence each other (Wardle, Chida, Gibson, Whitaker, & Steptoe, 2011). Due to the psychosocial stress related to depression, there is potential for overwhelming the body, which has been shown to accompany reduction in physical activity during leisure time as well as affect food choice due to lack of motivation for food preparation (Avila et al., 2015). Both obesity and severe mental illness decrease quality of life. With obesity being linked to chronic physical diseases as well as mental illnesses, further insight into weight reduction is essential.

Significance

Weight loss, while strongly encouraged by health care professionals, remains challenging to achieve and maintain for many individuals living with excess weight. There have been many
attempts to combat the issue of obesity (e.g. lifestyle changes alone), however implementation of cognitive behavioral therapy (CBT) in adjunct has been demonstrated as a key weight loss support tool (Castelnuovo et al., 2017) and one that should be utilized more by providers for patients needing assistance in reducing obesity. CBT refers to a class of interventions that share the principle that mental disorders and psychological distress are upheld by cognitive factors. The core foundation of this treatment approach, as established by Beck (1970) and Ellis (1962), holds that maladaptive cognitions contribute to the continuation of emotional distress and behavioral problems. The basic model hypothesizes that therapeutic methods to change these maladaptive cognitions lead to changes in emotional anguish and problematic behaviors. The overall goal of CBT treatment is symptom reduction, improvement in functioning, and remission of the disorder that is being targeted (e.g. depression; Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012).

**Problem Statement**

Obesity is becoming a growing epidemic in the U.S. today. With the high incidence of chronic physical and emotional constraints accompanying obesity, a way to improve BMIs in adult primary care patients is imperative. Data shows that the majority of individuals seeking mental health services turn to primary care as their first or only source of treatment (Weisberg, & Magidson, 2014). With 56% of adults suffering from depression or anxiety also being obese (CDC, 2014), embedding CBT into the treatment is essential to aid in weight loss and reduce chronic diseases associated with obesity. Improving the integration of CBT into primary care settings may therefore be crucial for improving patient outcomes and providing quality care. Further, improving access to resources and trainings for behavioral health providers in primary care is important to promote adoption of evidence-based resources in this setting. Increasing
utilization of the in-office cognitive behavioral therapist in a large West Michigan primary care office is therefore crucial for implementation. This Doctor of Nursing Practice (DNP) project focused on increasing primary health care providers screening of depression, anxiety, and obesity and informed them about CBT use for reducing obesity in the hopes of encouraging these providers to recommend this treatment for patients in the future.

**Assessment of the Organization**

As organizations attempt to evolve and try to succeed, they need to adapt to their environment and to technological developments (Lusthaus, 2002). In order to understand where improvements are needed within an organization, an organizational assessment must be completed. An organizational assessment is a comprehensive analysis of the current state of an organization (Moran, Burson, & Conrad, 2016). This assessment can then be used to identify an area for improvement and to determine the value an organization will place on the proposed change. Having a framework to guide the organizational assessment is important. The Burke-Litwin Causal Model of Organizational Performance and Change (see Appendix A) was utilized as a guide for this organizational assessment, as well as an analysis of the organization’s strengths, weaknesses, opportunities, and threats (SWOT; see Appendix B).

**Burke-Litwin Causal Model**

The Burke-Litwin Organizational Performance and Change model illustrates the twelve factors assessed during the organizational assessment and highlights not only what needs improvement but the relationships between the factors helping to, furthermore, understand how to improve an organization (Stone, Brown, Smith, & Jacobs, 2018). The model was chosen for this project as it can be used to define and identify organizational dimensions which are linked causally in order to encourage and accomplish change (Burke & Litwin, 1992).
A key principle of the Burke-Litwin model is the transformational and transactional dimensions essentially shown in the top half and bottom half in the model. Transformational factors consist of the external environment, leadership, mission and strategy, organizational culture, and individual and organizational performance. These factors are “more closely linked to leadership” while the transactional factors (management practices, structure, systems, climate, motivation, task and skill abilities, and needs and values) are “more closely associated with management” (Burke, 2018, p. 231). Analyzing the transformational and transactional factors in this primary care setting was helpful in recognizing the organizational needs and determining whether or not a quality improvement project was achievable.

According to the mission and values, this primary care office strives to promote a culture of excellence, accountability, compassion, integrity, respect, and teamwork. Staff within this organization strive to utilize the core values listed to reach their organizations goals each day as noted by employee survey results. Reducing obesity rates fits within the goal to provide patient-centered, evidence-based, high-quality care.

**Ethics and Human Subjects Protection**

Ethical consideration was undertaken for this project. Application for this project was submitted to Grand Valley State University Human Research Review Committee’s for Institutional Review Board (IRB), as well as the organization’s IRB. The GVSU IRB determined this project did not meet the criteria of human research and was approved (see Appendix C). The organization’s IRB determined the same, and approved this as a quality improvement project (see Appendix D). No patient identifiable information will be collected. No physical, social, psychological, legal, or economic threats to patients are associated with this project. As such, it is anticipated that the impact of the project will pose minimal or no risk to
participants.

**Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis**

A SWOT analysis can be applied to develop and extend the conclusions drawn from an organizational assessment of the external and internal environments of an organization. It seeks to identify the opportunities and threats in the external environment and the internal strengths and weaknesses of existing resources and activities which might be used to take advantage of opportunities or avert threats (Ifediora, Idoko, & Nzekwe, 2014). Awareness of the organization’s SWOT analysis identifies areas that an organization can build on or mitigate when seeking improvement from its current state (see Appendix B).

**Strengths.** The primary care office had many strengths. With seven physicians and three nurse practitioners working in the office, there were few people to educate when discussing evidence-based care surrounding the proposed practice change. The physicians working in this office had been working there, on average, for 10 years, making the turnover for staffing here low, meaning minimal repeated education will need to take place (Personal Communication, May 25, 2018). The cognitive behavioral therapist worked in this office and was available five days a week. It was easy for providers to place referrals as well as for the DNP student to follow-up on referrals made and the referral process. The office’s medical technicians weighed and measured each patient’s height with each visit, automatically calculating their BMI. Therefore, no additional education was needed to be presented to the medical technicians. Providers were easily made aware of their patients’ BMI and could begin discussion of the utilization of the in-office cognitive behavioral therapist.

**Weaknesses.** A major weakness within this organization was that there was only one cognitive behavioral therapist in the office, a social worker, who had to continue to provide other
services (e.g. psychiatric cases, placement issues, financial considerations). The majority of the patients in this office identified as Caucasian. According to Segal, Rayburn, and Beck (2017), 36.4% of white adults (age 20 and older), in the United States, are obese. With such a high prevalence of obesity among this population, there was a significant increase in the cognitive behavioral therapist’s work load. Another weakness was the number of patients seen daily by providers. With an average of 20 patients daily, the providers were busy, and struggled with increasing the number of referrals they made.

Additionally, a weakness is that obesity and attempts to reduce BMI were not being documented in progress notes. This makes it difficult to determine what had been tried, and successes or failed use of these attempts. With only one cognitive behavioral therapist, there was potential to make follow-up difficult for obese patients, due to increased work load, to ensure a reduction in BMI is occurring. A last weakness that needed to be addressed is that the cognitive behavioral therapist could not only see patients for obesity due to coding and billing purposes. A connection with a psychiatric illness had to be made so that the cognitive behavioral therapist could see the obese patients for behavioral therapy purposes and code/bill appropriately for the visit.

**Opportunities.** The primary care office had the opportunity to decrease obesity rates, improve patient’s health and reduce risk for chronic disease, and cut health care expenditures through reduction of patients BMI. By improving quality and outcomes of care, and decreasing the cost of health care, this large West Michigan organization could advance toward the goal of becoming a leader of health care by 2020. Cawley and Meyerhoefer (2012) found that for each additional rising point in BMI past 30 for men and women, there was a rise in annual medical cost by $2741 with an estimated $209 billion for a national medical care cost of obesity-related
illness. Decreasing this population’s BMI, therefore, would result in less health care spending.

**Threats.** A threat that was encountered during implementation of this project included patients with obesity not feeling comfortable accepting CBT to reduce their BMI. The patients preferred to try other interventions for weight reduction first, or did not feel that they needed to lose weight, and were set in their lifestyle choices. It was important to consider these threats to determine ways to reduce issues while implementing this project.

**Current Practice**

At the beginning, there was not a specific policy or procedure that was utilized for referrals to the in-office cognitive behavioral therapist in regards to obese patients. One of the goals of this scholarly project was to address this issue to increase utilization of cognitive behavioral therapy (CBT). At first, referrals were made by providers verbally communicating to the cognitive behavioral therapist. The cognitive behavioral therapist then saw the patient in the office, during their current appointment, to establish routine appointment times (e.g. over the phone or in-office), and identify concerns. The cognitive behavioral therapist then documented in a progress note what has been completed and the patient’s progressions. Creation of a policy and procedure for identifying obese patients with mental health illnesses and an appropriate referral process to the cognitive behavioral therapist was imperative to aid in increasing referrals and quality care to this population.

The office’s medical technicians weighed and measured each patient’s height with each visit, automatically calculating their BMI. Therefore, no practice changes or additional education should be needed for the medical technicians. Providers were easily made aware of their patients BMI as it appears with the vital signs obtained, and could begin discussion of the utilization of the in-office cognitive behavioral therapist.
In addition to discussions with staff and workflow observations, a random sample audit of 50 charts was also completed, after gaining IRB approval, as part of the organizational assessment. The sample population (n=50) ranged in age from 18 to 99 years with a mean age of 51.3 (standard deviation [SD] 19.8) years. Within this random sample audit, of the 50 charts, 29 (58%) had a BMI of 30 or greater. PHQ-9 and GAD-7 scores were completed on 40 (80%) of these 50 patients. Of the patients who were screened, 29 (72%) had scores that identified them to have mild to severe anxiety or depression. Of the patients identified having both obesity and anxiety/depression (21 of the 29), only 8 (38%) had been referred to be seen by the cognitive behavioral therapist.

These results revealed data that could be addressed to improve areas in this primary care setting. This data includes: a high rate of obesity occurs within this population (58%). Within this population obesity and anxiety/depression highly co-exist (72%), however only 80% of patients were screened using the PHQ-9 (depression) and GAD-7 (anxiety) tests. Of these patients identified with obesity and a mental health condition, only 38% had been referred to be seen by the cognitive behavioral therapist to assist with these concerns. revealed an opportunity to improve referrals made to the in-office cognitive behavioral therapist, and increasing documentation of the depression/anxiety screening tool scores. With high rates of obesity within this population, it is important to focus on increasing referrals to aid with improving BMI’s and consequently reducing chronic disease. The current state of this office exposed a need for practice improvement. The in-office cognitive behavioral therapist is underutilized as evidence by only 38% of the sample population being referred to and seen with documentation of a progress note by the cognitive behavioral therapist.

Utilizing the results, a clinical practice question was developed: Does increasing health
care providers screening and documentation of anxiety, depression, and obesity increase the number of referrals made to the in-office cognitive behavioral therapist to aid in weight loss of adult, obese, primary care patients?

**Stakeholders**

Stakeholders are individuals or groups who have an interest in the project. They may be individuals who can affect the project or who the project may have an effect on (Moran, Burson, & Conrad, 2017). A West Michigan primary care office had key stakeholders that were involved with and affected by practice change. Stakeholders involved in the change of referral processes for utilization of cognitive behavioral therapy (CBT) for adult patients with obesity included: health care providers (nurse practitioner and physicians), the unit’s cognitive behavioral therapist, unit leadership (manager and supervisor), and adult patients (age 18 and older) with obesity (body mass index [BMI] greater than or equal to 30) and a mental health condition (depression and/or anxiety). The providers place referrals, the cognitive behavioral therapist performs the referral, and the patients receive the CBT, therefore they are all key stakeholders.

**Review of the Literature**

The literature that strongly related to the use of CBT for the treatment of obesity in the adult patient was reviewed. To aid with the literature search, the following PICO (population, intervention, comparison and outcome) question was formulated: How efficaciously does the adult patient population with a BMI of 30 or greater, diagnosed with a mental illness (e.g. depression or anxiety), respond to CBT?

**Search Methods**

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline served as the framework for this review (Moher, Liberati, Tetzlaff, Altman, &
PRISMA Group, 2009). Electronic databases (CINAHL, Cochrane Library, and PubMed) were searched utilizing a systematic search approach. The comprehensive electronic search was limited to reviews in the English language during the period of 2012 to 2018. Keywords included overweight, CBT, weight loss, and mental health. The Boolean operator OR was used to include articles that used overweight or obese, and the Boolean operator AND was used to narrow the search to articles that were pertinent to this review. The search was conducted using the keywords “overweight OR obese AND CBT AND weight loss.” Additionally, a search was conducted using “obese AND mental health.”

**Inclusion and Exclusion Criteria**

**Article Types.** Included in this literature review are two meta-analysis’, one systematic review, three randomized control trials, and one clinical practice guideline (CPG).

**Language and Geography.** Reviews in English were included, while those not in English were excluded. No exclusions were made geographically if they were written in the English language.

**Setting.** Settings in which there is a delivery of integrated, accessible continuous health care services by clinicians offering CBT were included. Settings were included if they were accountable for addressing a large majority of personal health care needs and developing a continuous relationship with patients. Studies were excluded if continuous care was not included within the setting.

**Population.** Included were samples of adult men and women (age ≥ 18) who were considered obese (BMI ≥ 30). Inclusion also contained adult patients who were experiencing a comorbid mental health illness (e.g. depression/anxiety) and/or who were obese. Pediatric studies were excluded, and studies that included post-bariatric surgical patients were excluded.
**Intervention.** Studies that involved CBT for implementation of weight loss in obese patients with comorbid anxiety or depression were included. Those studies that did not contain CBT utilization were excluded.

**Comparison.** Studies that were chosen for this review compared results of BMIs before and after implementation of CBT. Articles that did not compare results pre- and post-intervention were excluded.

**Outcome.** Included were outcomes on the efficacy of CBT for the use of weight loss (reduction in BMI) and/or improvement in PHQ-9 or GAD-7 scores (related to depression and anxiety). Studies that did not include at least one of these measures were excluded.

**Search Outcomes**

The search yielded 203 studies (see Appendix E). Six were retrieved from the Cochrane Library, 109 from PubMed, and 88 CINAHL. Moreover, a hand search of the reference lists of the included studies or previous reviews was also carried out which revealed two articles. Nineteen duplicates were found and excluded. After removal of 21 duplicates, 184 articles were screened using inclusion and exclusion criteria according to PRISMA criteria (Moher et al., 2009; Appendix E). One hundred sixty-one articles were found ineligible and exclusion occurred after screening of titles and abstracts. The full text of the remaining 23 articles were examined by the author, and 16 more were omitted based on the inclusion and exclusion criteria listed above. The remaining seven studies were included in this literature review (see Appendix F).

**Results**

Seven articles met the inclusion criteria and were included in this review – one systematic review (Wadden et al., 2014), two meta-analyses (Jacob et al., 2018; Pereira-Miranda et al., 2017), three random control trials (RCT; Pagoto et al., 2013; Pimenta et al., 2012; & Swencionis
et al., 2013), and one guideline (Jensen et al., 2013). Appraisal of the reviews, characteristics, and results of the seven articles are shown in Appendix F. Overall these eligible reviews represent at least 30 separate studies on behavioral therapy interventions among adult patients with a mental health illness and/or obesity. All seven articles were published in peer-reviewed journals. See Appendix F for additional information about the included studies.

**Study Characteristics.** All seven of these articles were conducted in the U.S. (Jacob et al., 2018; Jensen et al., 2013; Pagoto et al., 2013; Pereira-Miranda et al., 2017; Pimenta et al., 2012; Swencionis et al., 2013; & Wadden et al., 2014). All studies focused on adult patients (age 18 and older) who were obese. Two studies that were conducted focused on women only (Pimenta et al., 2012; & Pagoto et al., 2013), the other five studies contained both men and women. Two of these studies retrieved participants from medical centers (Swencionis et al., 2013; & Pimenta et al., 2012), the other five studies discussed primary care patients. Four of these articles discussed both obesity and mental health conditions (anxiety and/or depression) (Jacob et al., 2018; Pagoto et al., 2013; Pereira-Miranda et al., 2017; & Swencionis et al., 2013), the other three focused only on obese participants. All seven of these articles discussed behavioral therapy as an intervention for obesity.

The study sizes were highly variable among the articles. RCT populations ranged from 21 (Pimenta et al., 2012) to 161 (Pagoto et al., 2013) to 588 (Swencionis et al., 2013). Wadden et al. (2014) reviewed a total of 12 RCTs in one systematic review with a total of 3,893 participants. The meta-analysis by Pereira-Miranda et al. (2017) included nine studies with a total of 171,701 participants. Jacob et al. (2018) reviewed 12 RCTs with a total of 6,805 participants.

There were no significant differences reported regarding age, gender, or severity of BMI.
between pre- and post- observational groups in six of the studies (Jacob et al., 2018; Pagoto et al., 2013; Pereira-Miranda et al., 2017; Pimenta et al., 2012; Swencionis et al., 2013; & Wadden et al., 2014). The guideline by Jensen et al. (2013) discussed implementation for any obese primary care patient. One article followed up on patients within a four-month time frame (Pimenta et al., 2012). Five of the articles followed up on participants over one year (Jacob et al., 2018; Pagoto et al., 2013; Pereira-Miranda et al., 2017; Swencionis et al., 2013; & Wadden et al., 2014).

**Intervention and Comparison Characteristics.** The meta-analysis authored by Pereira-Miranda et al. (2017) evaluated the association between obesity and mental illness in adult patients. The primary measure of outcome in this article was a prevalence ratio examining the rate of prevalence of the two disorders. The systematic review by Wadden et al. (2014), evaluated the use of behavioral therapy in obese patients in a primary care setting. The primary goal of this review was to research and summarize the evidence for the efficacy of use of behavioral therapy on obese patients in a primary care setting. The meta-analysis authorized by Jacob et al. (2018) evaluated the effects of cognitive behavioral therapy weight loss in adults with obesity. The primary measure of outcome was to measure weight loss. In addition, studies had to have a measure of depression and/or anxiety.

The RCT by Pimenta et al. (2012) studied the efficacy of eight sessions of CBT on the promotion of weight loss in adult women. The measures of outcome assessed in this study include weight, abdominal perimeter and BMI. This study also took into consideration measures of behavior including binge eating and emotional eating. The results of the measures were compared to a group who did not receive CBT treatment. The RCT by Pagoto et al. (2013) studied the efficacy of a behavioral therapy treatment for depression and obesity in adult women.
The primary measure of outcome in this study was weight loss as well as depression symptoms. These results were compared to a group who did not receive the behavioral therapy treatment.

The third RCT evaluated in this review was by Swencionis et al. (2013). In this study, the authors assessed the efficacy of utilizing a CBT approach to tailor lifestyle changes and improve BMI as well as mental health. The primary measures of outcome included BMI, cardiovascular risk factors, and mental health symptoms. These measurements were compared to a control group in which they did not receive behavioral therapy treatment.

The CPG completed by Jensen et al. (2013) developed a treatment algorithm to guide primary care providers evaluation, prevention, and management of excess body weight in their patients. Included in this guideline is recommendation for a structured behavioral change program to reduce weight and maintain lost weight. This guideline suggests the use of behavioral strategies to facilitate adherence to diet and activity recommendations. The goal of this guideline was to utilize evidence to develop recommendations for aiding primary care clinicians in the management of obesity. To do this, they developed five clinical questions as explained in Appendix F below.

**Outcome Measures**

A variety of outcome measure were evaluated in the articles. These outcomes included association of mental health illnesses and obesity, efficacy of CBT for weight loss and BMI reduction, quality of life, and morbidity and mortality. These outcome measures will be further discussed in this section.

**Association of Mental Health and Obesity.** Four of the seven articles discussed the link of mental health illness with obesity (Jacob et al., 2018; Pagoto et al., 2013; Pereira-Miranda et al., 2017; & Swencionis et al., 2013). Swencionis et al. (2013) determined that “middle-aged
overweight and obese women (BMI > 25) describe lower levels of vitality, as well as worse overall mental health, compared to women in the normal weight range” (p. 439). Jacob et al. (2018) determined in their meta-analysis that there are high rates of psychiatric disorders, especially depressive and anxiety disorders, in individuals with obesity. Pagoto et al. (2013) found that “37% of obese women who seek weight loss treatment have clinical depression, and depression is associated with worse weight loss outcomes” (p. 1430). Pereira-Miranda et al. (2017) identified that “obesity increases the prevalence of depression by 32% (95% CI, 1.24–1.33)” (p. 226). The final results of this meta-analysis indicated that overweight and obesity were associated with depression for all subjects and especially higher among women.

**Efficacy of CBT.** Jacob et al. (2018) found the average weight loss difference, expressed in kilograms, was -1.70 kg, (-2.52 to -0.86, p < .001) in favor of the CBT weight loss condition (average period of 10.7 months, median = 6.5). This meta-analysis “revealed that CBT seems efficacious for weight reduction in obese patients” (p. 425). The article by Pagoto et al. (2013) discovered the mean percent weight loss after 12 months to be -3.1% (mean = -2.6%, s.e. = -0.77, p = 0.48). The conclusion drawn from this article was that adding behavioral therapy to a lifestyle intervention results in greater improvement in both depression and weight loss. Pimenta et al. (2012) determined that the mean weight loss evidenced at follow-up by the participants who had undergone CBT was 2.4 kg or 3.1% of the baseline weight (p = 0.035). Swencionis et al. (2013) found a mean weight loss overall across groups at six months was seven pounds (SD = 11.4, p < 0.01). This study found that reductions in weight following a cognitive–behavioral weight loss intervention were associated with improvements in overall well-being. Wadden et al. (2014) found a 4.3kg weight loss in the group exposed to cognitive behavioral therapy with 44.5% losing at least 5% of their baseline weight (p <0.01). The primary finding of this article
determined that intensive behavioral therapy induced meaningful weight loss. Jensen et al. (2013) authorized a guideline with recommendations based on RCTs and meta-analyses. Within this guideline, the authors discuss strong evidential support for the use of behavioral therapy in the management of obesity in adult primary care patients.

Quality of Life. The study by Swencionis et al. (2013) was the only article to discuss improvement in quality of life regarding behavioral therapy weight reduction. This study looked at measures of quality of life to include “general health, pain, social and physical functioning, impairment or disability, and mental health” (p. 439). These authors found that individuals with larger waist circumferences and higher body mass indices (BMI) report lower quality of life and more impairment in completing tasks of everyday living. A correlation was found between reduction in BMI and improvement of quality of life in this study. The other articles, as part of their limitations, did not indicate improvement in quality of life due to weight loss.

Morbidity and Mortality. The guideline by Jensen et al. (2013) was the only article to discuss reduction of morbidity and mortality from behavioral therapy to decrease obesity in primary care patients. In this guideline, the authors discuss reduction of co-morbid chronic diseases such as hypertension, dyslipidemia, type two diabetes, coronary heart disease, and respiratory problems. This guideline also discussed the reduced risk of cardiovascular disease related mortality with weight loss. Utilizing this guideline, increasing behavioral therapy in obese patients leads to weight loss and reduced risk of morbidity and mortality due to developed chronic diseases. The other studies, as part of their limitations, did not measure morbidity and mortality as a benefit of reducing BMI in obese patients.

Discussion

All seven studies supported the implementation of CBT treatment to improve BMI and
Cognitive behavioral therapy to reduce obesity

aid in weight loss. Improvement in the outcomes occurred in each study. Pereira-Miranda et al. (2017) identified that individuals who are overweight have a negative health perception, leading to increased risk for anxiety and/or depression. With behavioral therapy, participants who remitted from depression achieved statistically and clinically greater weight loss than those who did not (Pagoto et al., 2013). Wadden et al. (2014) discovered that weight loss steadily increased with longer follow-up. Behavioral therapy therefore needs to be continued for longer periods of time to adequately reduce BMI in obese patients. Pimenta et al. (2012) found that CBT led to cognitive restraint which was associated with a “significantly lower energy and fat intake, higher carbohydrate and fiber use, and higher weight reduction at 18-month follow-up” (p. 565). Jacob et al. (2018) found that CBT was superior to other interventions for weight loss, however, there was little evidence of this treatment being included by primary care providers. CBT changes in weight were associated with changes in psychological well-being outcomes (including anxiety and depression; Swencionis et al., 2013).

The literature suggests that there is benefit in having a structured behavioral therapy treatment for patients with obesity (Jacob et al., 2018; Pagoto et al., 2013; Pimenta et al., 2012; Swencionis et al., 2013; Wadden et al., 2014). This requires teamwork and collaboration among primary care providers and cognitive behavioral therapists to ensure the behavior therapy is properly being utilized. A limitation was that these reviews did not provide evidence to support that delivery of structured behavioral weight loss therapy was being implemented in primary care offices. These providers will continue to play a critical role in diagnosing obesity, evaluating its causes, and assessing and treating weight-related comorbid conditions. Therefore, it is important that primary care providers are educated on the benefits of behavioral therapy, incorporate this into their practice, and make appropriate referrals for adequate treatment of their patients.
Another limitation with this literature review involves little to no mention of the effects of decreasing obesity rates on morbidity and mortality rates among these studies. With obesity influencing a variety of organ systems and placing an extra burden on cardiovascular and respiratory functions, it is important to gain insight into how reducing BMI impacts chronic diseases and patient health in the future. Due to the studies in this review being shorter in duration, there was no discussion of the impact of weight loss on reducing morbidity and mortality rates. For future studies, it would be important to determine the effects of CBT treatment for obesity on morbidity and mortality.

A third limitation to these reviews is there was no discussion in the studies on who was performing the CBT on the population. This may cause bias among the studies if the patients were familiar with the provider providing the behavioral therapy. If there was a strong relationship between the study population and the behaviorist, this may skew the results of the studies. It would be important for future application to determine if CBT is more effective with utilization of a provider who has built rapport with the patient already, or if there is no difference in findings with past rapport.

**Model to Example Phenomenon**

Beck (1976) developed a cognitive model to describe how people’s thoughts and perceptions influence their lives. Beck states that distress can often distort perceptions that patients may have, and that can lead to unhealthy emotions and behaviors such as overeating or not exercising, leading to obesity. This cognitive model (see Appendix G) plays a critical role in helping cognitive behavioral therapists develop treatment options. The cognitive model is based on the idea that emotions and behaviors are influenced by perceptions of events. These perceptions reflect the way a person thinks and interprets a situation and has a major effect on
the way a person feels. Cognitive behavioral therapists can aid a patient to recognize these negative thoughts that contribute to obesity, and ultimately apply alternative ways of thinking in their daily lives. With consistent CBT treatment, reinforcement of learning occurs and patients can learn corrections to the misconceived emotional reactions as well as new ways to react to their emotions which will support weight loss.

Project Plan

Purpose and Objectives

The current literature (from the above literature review) supports the use of CBT for the treatment of obesity in adult patients. Improvement in the measured outcomes occurred in each study that was reviewed. This evidence was utilized to implement a project for increasing referrals to the in-office cognitive behavioral therapist for reducing BMI and obesity.

The purpose of this quality intervention project was to increase screening of obesity, depression and anxiety, increase health care providers knowledge on the use of CBT to treat adult obesity, and increase referrals to the in-office cognitive behavioral therapist. This project will seek to answer the clinical question: Does increasing health care providers screening and documentation of anxiety, depression, and obesity increase the number of referrals made to the in-office cognitive behavioral therapist to aid in weight loss of adult, obese, primary care patients?

The objectives of this DNP project were to:

- Determine appropriate use of the cognitive behavioral therapist/social worker
- Determine scope of practice of the behavioral therapist
- Establish current practice/use of the cognitive behavioral therapist
- Expand role of an existing social worker
- Develop a format for the provider education and referral process
- Increase health care providers knowledge and confidence to refer for implementation of CBT
- Increase screening of anxiety, depression, and obesity
- Increase utilization of the in-office cognitive behavioral therapist by increasing referrals

Additionally, empowering the health care providers with this knowledge will help improve these obese patients’ quality of life with CBT for promoting weight loss.

**Type of Project**

This DNP project was a quality improvement (QI) project that focused on increasing utilization of a cognitive behavioral therapist in order to aid with weight loss for obese adults. Organizations with a strong QI orientation continually seek to improve their performance and the outcomes of their patients. An organization that implements a QI intervention experiences a range of benefits including improved patient health (clinical) outcomes, improved efficiency of managerial and clinical processes, per capita cost, and improved communication with resources that are internal and external to an organization (U.S. Department of Health and Human Services, 2011).

**Setting and Resources Needed**

This DNP project took place in a West Michigan primary care office. This office provided primary care to adult (18 years of age and older) patients. This office included seven physicians, three nurse practitioners, and several medical assistants to provide care to their patients. The DNP student secured approval to conduct the project at this office (see Appendix H).

Time was a major resource that was needed to complete this project. It required
staff to spend time completing a survey pre- and post- intervention in regards to their knowledge on CBT and the its use for the treatment of obesity as well as knowledge regarding the connection between obesity and mental health illness (e.g. depression/anxiety). Time was needed to educate providers and stakeholders about the benefits of increasing referral placement to the in-office cognitive behavioral therapist. Educational materials that were needed included a computer and screen to present this evidence. Assistance from staff in information technology has been explored to link the depression, anxiety, and BMI scores of a patient with potential for needing a referral to receive CBT (see Appendix I). This request had been placed in a queue and was waiting to be discussed by an informatics team. The time of a statistician was utilized to assist with data analysis as well.

Participants

The participants of this quality improvement project included staff from the primary care office. This included the six physicians, one nurse practitioner, the medical assistants, cognitive behavioral therapist, and the manager of the office. Patients who were considered obese (BMI >30) and suffering from depression or anxiety (as evidence by PHQ-9 and GAD-7 scores) were participants in this quality improvement project as well.

Implementation Model

Rogers’ Diffusion of Innovations Theory (1995) has been implemented by many researchers to aid in adopting a new clinical behavior by a clinician or health care system to implement clinical transformation (Sanson-Fisher, 2004). Innovations in health care can be defined as ideas, products, and practices perceived as new by an individual (Rogers, 1995). This theory can help with determining the effectiveness of dissemination strategies in encouraging the use of research evidence in health-care decision-making, as well as understanding the process of
decision-making from the perspective of various health organizations (Dobbins, Ciliska, Cockerill, Barnsley & DiCenso, 2002). Rogers’ theory contains five stages (see Appendix J): knowledge, persuasion, decision, implementation, and confirmation. This framework is useful for the selection of evidence-informed innovation especially with the handling of barriers and facilitators that affect the implementation of the innovation. This framework is also useful when deciding which components will require additional effort if distribution is to occur. Designing and implementing this DNP project followed the comprehensive framework designed by Rogers (1995) for the adoption of evidence-based practice change into an organization. The performance indicators used to evaluate the increased utilization of CBT success was addressed at various point throughout the five stages of the innovation framework mentioned above. Evaluation was completed with questionnaires for the health care staff before and after education was completed regarding CBT use for adult obesity.

**Design for Evidence-Based Intervention**

The design for the evidence-based intervention was an observational pre- post-intervention based on the Diffusion of Innovations Model described above. Using the five stages that were highlighted in the Diffusion of Innovations Model, an intervention that could sustain change and be adopted over time was designed. Addressing barriers that may develop upon implementation of increasing referrals to the cognitive behavioral therapist to aid in weight loss were considered through each phase.

**Knowledge.** Knowledge is the first stage of the innovation theory. This phase is based on the identification of pertinent evidence about a new health care intervention and an appraisal of the evidence value (Dobbins et al., 2002). In this DNP project, CBT utilization is the health care intervention. The first stage starts with the identification of a problem and the literature
search for a potential and sustainable solution. A review of the literature on CBT use for obesity demonstrated this was highly recommended for aid in weight loss (Jacob et al., 2018; Jensen et al., 2013; & Wadden et al., 2014).

The DNP student further explained and recommended CBT to the stakeholders based on the literature search that identified high quality evidence supporting the use of CBT for treating obesity. The training was for staff to know how to integrate CBT into their practice and was designed to be delivered in one session (see Appendix K). In view of the literature search, identifying the significant evidence supporting the use of CBT for treating obesity in adults, the second phase of the framework which is “persuasion” was adopted.

**Persuasion.** Considerations of whether to implement the CBT intervention were reviewed in this stage. It is an important stage involving the stakeholders in the primary care office towards the CBT innovation. In this DNP project, the DNP student is the individual who started the process of persuasion and without reluctance received a positive attitude from the decision-makers and stakeholders within the organizational setting. The stakeholders in this project who were needed to authorize and support the implementation of this evidence-base intervention were the physicians, nurse practitioner, cognitive behavioral therapist, and the manager. These staff were encouraged to participate in a pre-intervention survey regarding their knowledge related to CBT use for obesity. The project included a post-implementation questionnaire to evaluate participants’ satisfaction and confidence in their skill to increase their utilization rate of CBT.

**Decision.** The third stage of the innovation framework is the decision stage which, according to Dobbins et al. (2002), considers the key stakeholders who should be involved in the decision to implement the innovation. The decision making in this project not only considers the
research evidence but also the needs, attitudes, and interest of the key stakeholders as well as the clinical expertise of the staff. According to the framework by Dobbins et al. (2002), for the primary health providers to implement CBT, it must be relevant and in agreement with their values, beliefs and needs. A meeting took place between the DNP student, the cognitive behavioral therapist and the nurse practitioner to ensure interest and support of the proposed project. The primary care providers and cognitive behavioral therapist were supported and empowered to be involved in the decision-making for increasing CBT utilization throughout implementation.

**Implementation.** This is the fourth stage of the innovation framework. Once the decision to implement the increased utilization of CBT for obesity was made, an approach that could promote behavioral changes as well as implementation of the CBT innovation was considered. The CBT innovation was designed to take the research findings around CBT and translate them into useable format to enable the implementation of CBT in the primary care office. A basic review of CBT, and screening for depression, anxiety, and obesity, was provided as an educational support to the participants. This education was provided to the physicians and nurse practitioners and reminder emails and face to face meetings were also used.

A pre-implementation (see Appendix L) and post-implementation questionnaire was created by the DNP student and reviewed by a PhD prepared professor who can confirm validity of the surveys. These surveys were given to participants to identify their basic knowledge of CBT. Participants were encouraged to complete the pre-questionnaire before introducing the intervention. An interactive 30-minute educational session was conducted and all the participants were encouraged to attend. The strategy of this project was to offer education outreach to staff by providing them with information. Questions were addressed during this
time. A post-implementation questionnaire was designed to be administered after education had been completed. The goal of this pre- and post- questionnaire was to increase staff’s knowledge surrounding CBT utilization for obesity and increase the referrals made to the cognitive behavioral therapist in the office. The goal was an 75% response rate to both questionnaires. Handouts were made to provide additional information regarding CBT that staff could take with them.

**Confirmation.** Results were reviewed in the final confirmation stage. The evaluation of both the process and outcomes took place in order to validate the success of the innovation utilization. During the confirmation phase, Dobbins et al., (2002) proposed a question to be asked “did the change in practice occur and did it have the intended impact?” The results of this DNP project intended to incorporate referrals for CBT into health care providers practice for reduction in adult obesity. A post-implementation questionnaire (see Appendix M) helped evaluate if knowledge was increased and review of charts demonstrated if increased referrals were made.

**Implementation Steps and Strategies**

Implementation strategies are important for the DNP student to develop in order to have a clear roadmap for how the project is going to be carried out. Powell et al. (2015) describes implementation strategies that can be used at varying levels of implementation to adequately perform each task. The DNP student utilized three of the implementation strategies in order to meet objectives.

1. Educate health care providers, cognitive behavioral therapist, and other key stakeholders involved in the referral process prior to implementation in January 2019.

   Teaching these stakeholders about the clinical innovation and gaining knowledge into
what they already know is imperative to determine how much education needs to happen.

Steps to meeting this objective included:

- Meeting with the health care providers in December 2018. The objectives of the meeting were to briefly report evidence from the literature supporting the use of CBT for adult obese patients, and distribute a survey regarding pre-knowledge.

2. Reexamine and audit the implementation process weekly for 30 days after implementation begins.

Ensuring that the referrals to the cognitive behavioral therapist are improving weekly, will help guide future progress and determine areas of strength and weaknesses. By auditing the implementation of the innovation, the DNP student can continue to improve patient’s quality care. Steps to meet this objective include:

- Attending monthly staff meetings to encourage continued use of the cognitive behavioral therapist and update staff throughout implementation.
- Evaluate the referrals to the cognitive behavioral therapist starting in January 2018 and ending by March 1, 2018.

3. Deliver a final report regarding if the objective, to increase referrals to the cognitive behavioral therapist, was achieved and how the clinical question was answered.

Finalizing a report was important to help the organization continue its success and be a part of the sustainability plan. Steps to meeting this objective include:

- Gathering and presenting final results in the organization (e.g. on the MDI board)
- A final report on how implementation strategies helped meet the objectives and purpose of the project was delivered by April 1, 2018.
Measurement: Sources of Data and Tools

The sources of data collection for this DNP project included observations, chart review, and a pre and post survey (see Appendix N for measures table). Pre and post intervention surveys were administered to the health care providers to evaluate the existing knowledge and attitudes towards CBT use for obesity as well as determine if knowledge regarding this topic increased after educational meetings. Lastly a chart review was conducted on patients to determine if they required referral for CBT and if the referral was made. Chart reviews on 50 patients were conducted on individuals who are obese and have a mental health condition (anxiety/depression) pre- and post- implementation. This review aided with indicating if there were increased referrals and improved patient outcomes following implementation of the project. The outcomes were discussed and analyzed in the following sections.

Data Collection Procedures

Health care providers were asked to complete a brief questionnaire before and after undergoing a brief educational experience during a staff meeting assessing understanding of the use of CBT to treat obesity, and whether or not they believe this program will be effective for use in their field (see Appendix L and M). These surveys were provided through Survey Monkey and staff was given three weeks to complete this survey. To collect the number of referrals placed to the cognitive behavioral therapist, data was collected through the electronic health record (EHR) and will include a projected sample of 50 patients. The organization has granted the DNP student access to staff meetings and the EHR. The data will be placed in spreadsheets, created by the student, to be analyzed. This data will be de-identified of patient information, and will be stored in the organization on a computer that is accessible only with the students access badge and remain within the site’s server.
Analysis

Data was analyzed using descriptive statistics and schematic analysis to determine any differences in staffs’ knowledge via the survey questions and if an increase in referrals to the cognitive behavioral therapist was demonstrated. The DNP student and statistics graduate student were responsible for post-intervention statistical analysis. Descriptive and appropriate statistics were used to test for significance and be displayed via graphs and charts. This analysis of the data was presented to the stakeholders of the organization as well as the DNP student’s project team and other members of the college who choose to attend the presentation. Additionally, the DNP published the findings of this quality improvement project and disseminated the information regarding CBT use for treatment of obesity.

Budget

A budget for this DNP project was considered (see Appendix O). The cost-benefit and budget are projected to be minimal to the organizational site, providers and patients. The DNP student provided the involved paperwork (educational handouts, pre-, and post- intervention questionnaires). Since there was an educational session provided to the providers of this organization, it was important to consider the cost for their time. The educational session allowed for one hour of allotted time to ensure adequate education and time for questions. The average hourly wage of a primary care physician in the United States is $97 (Salary.com, 2018a). With seven physicians and one hour of time needed, this would cost the organization an estimate of $679. The average hourly wage of a nurse practitioner is $50 (Salary.com, 2018b). With three nurse practitioners and one hour of time needed, this would cost the organization an estimate of $150. The average hourly wage of a social worker with a behavioral therapy background is $33 (Salary.com, 2018c). With one cognitive behavioral therapist and one hour of
time needed this would cost $33. This project would cost the organization a total of $862 for staff time.

This project had potential for a return investment if patient outcomes are improved. For example, premature mortality refers to loss of productivity costs. In the United States, the average loss of productivity costs is $625 for one obese patient. Cost for treatment of obesity related disorders (e.g. diabetes, cardiovascular disease) is $1,116 per person in the United States (Lehnert, Sonntag, Konnopka, Riedel-Heller, & König, 2013). Therefore, aiding one patient in decreasing their BMI below 30 could save $1,741.

**Timeline**

The entire time frame for this project began in August 2018 and terminated in April 2019 (Appendix P). The IRB reviewed the proposal in July 2018 and therefore, chart audits were completed in August with participant recruiting around December 2018. The DNP student sent two separate emails to all staff members between December 2018 and February 2019. Staff were invited to participate in the surveys between the end of December 2018 and the beginning of February 2019. Post-intervention analysis began mid-February 2019 with results shared with participants afterwards in April 2019.

**Results**

**Knowledge and Confidence Level for CBT Utilization**

Due to survey results only being completed by three participants, data analysis was not conducted. The office where this project was conducted was small, therefore three participants in the survey was still beneficial. Questions one through four were regards to knowledge in CBT use for obese patients. Thirty three percent strongly agreed to these questions on the pre-survey compared to 66% strongly agreeing on the post-survey (see Appendix Q and R). These pre-
survey results determined that providers had little baseline knowledge of CBT and its use for effective treatment of adult obesity in the primary care setting. Post implementation results however, showed that providers believed CBT would be effective and appropriate to be delivered to their adult, obese patients. Question five was in regards to provider knowledge related to quality indicators. Survey results showed that pre-implementation, providers were dissatisfied with current care of their adult, obese, primary care patients. Post-implementation results showed a slight improvement (33%) towards more satisfaction. Providers’ attitudes around CBT’s efficacy and suitability for their practice setting was a perceived benefit for adopting the change in practice. Due to the increased knowledge surrounding the use of CBT for obesity treatment, providers in the practice became more interested in incorporating this treatment into their practice.

Review of questions six through twelve of the pre-survey results demonstrated that providers showed little confidence in their ability to incorporate CBT into their practice and that many barriers interfered with CBT being an efficacious choice for their adult, obese patients. At baseline, the providers rated themselves as low confidence range, but on post-survey questions, this drastically improved (66%) to a high confidence level. This suggests that although it was a barrier, their knowledge surrounding the utilization of CBT improved remarkably, and the providers stated that they would continue to refer adult obese patients for CBT treatment in their practice.

The DNP student encouraged providers to use the presented education and resources to increase their knowledge and interest in the utilization of CBT to maintain their interest in the project. Through educational resources, this project will provide interventional support for adult primary care patients to decrease their BMI and increase their quality of life. These findings
provide feedback and rational for further recommendation and utilization of CBT in the future for this organization.

**Screening for BMI and Depression/Anxiety**

For both BMI and PHQ-9/GAD-7, of the 50 charts reviewed, the organization improved to a 100% success rate in screening their patients for these disorders (see Appendix S). This was a 25% increase from pre-intervention where the screening rate was 80%. Increased screening of these disorders can aid providers in making connections to other diagnoses (e.g. obesity), and ensuring a plan is documented on how the provider is going to approach these with their patients. The medical technicians continue to obtain the patients height and weight (calculating their BMI) and administer a short version of the PHQ and GAD tools. If the patients have an elevated score on the short version, the provider is flagged and administers the full questionnaire of the screening tool. The providers are unable to sign off the patients note in the EHR until these scores are linked to a diagnosis and plan within the system. This process aids with ensuring all patients are screened appropriately and consistently for obesity as well as depression and anxiety.

**Referrals for CBT**

A random sample review of 50 charts were assessed post-implementation. The mean age of patients was 56 years old with a standard deviation of 19.69 years. Of these 50 charts, 27 patients (54%) were obese based on BMI score, and 19 of the 27 patients (70%) were obese and considered to have mild to severe anxiety or depression based on GAD-7 and PHQ-9 scores. Of those patients with both diagnoses, 11 (58%) had been referred for CBT (see Appendix T). This is a 53% improvement in referrals when compared to the pre-implementation referral percentage of 38%. There was a statistically significant difference in referrals to the social worker/cognitive behavioral therapist comparing patients with an elevated BMI and PHQ-9/GAD-7 pre-
implementation and post-implementation. \( (x^2 = 7.7973, p = .0052) \). Therefore, there is sufficient evidence to say that there is a difference in proportions of referrals between people with elevated BMI and PHQ-9/GAD-7 scores and pre- and post-implementation.

### Behavioral Therapist Workload

Through discussion with the cognitive behavioral therapist, there was an abundance of new patients that was seen with implementation of this quality improvement project. With only one behavioral therapist in the office, this could be seen as overwhelming for her with such a drastic change in workload. Due to the therapist also being a social worker, she had to prioritize patients in order to manage her time effectively. There was also nobody in the building that could offer help to her as she was the only one trained in CBT.

### Discussion

Overall, providers knowledge and confidence surrounding use of CBT for obesity increased a substantial amount. Implementation of this project allowed for encouragement of providers to increase utilization of the cognitive behavioral therapist in the future. There was a substantial increase in screening of obesity, depression, and anxiety through use of the EHR. This increase could have occurred due to education of the providers regarding benefits and evidence-based outcomes that can arise with proper screening. There was also an increase in referrals to the cognitive behavioral therapist which was further investigated. Due to referrals increasing to the cognitive behavioral therapist, there was also an increase in their workload.

Barriers that arose limiting referrals for CBT in obese patients included: patients being obese, but not depressed or anxious; patients insurance did not participate/cover CBT; patients “no showed” to appointments that were scheduled and did not follow-up; patients reported that providers were placing too much emphasis on their weight; and the patient only wanted to
discuss the anxiety/depression rather than obesity with the behavioral therapist. Further insight into these barriers may be beneficial to further understand patients thinking surrounding CBT for obesity. When reviewing the articles used for evidence-based practice in this project, it was determined that these studies included participants who volunteered to be subjected to CBT. This may be different in this project as many patients refused to be referred for CBT upon review of charts. Determining certain patterns to patients who were not interested in CBT (e.g. gender, culture, race) may be beneficial for future studies in primary care.

**Limitations**

This project had a short implementation period and small sample size of patients/chart reviews. The sample size made it challenging to evaluate statistical difference in each outcome measure. Another limitation was the small size of the organization resulting in a small number of surveys filled out pre and post implementation making it difficult to adequately test statistical significance of the results.

Resources for the proposed EHR alert also limited the quality of this project. While a design was planned and submitted for review by the informatics committee, this was still pending at the end of the project as there was a long list of other submissions that had been made for implementation into the EHR. With this alert in place, more statistics could have been completed on this project. The DNP student would recommend that the providers of the organization create a policy to follow for when CBT should be recommended to their patients.

**Stakeholder Support and Sustainability**

Stakeholder support was essential for success in this DNP project. Opportunities indicated for improvement in referral processes and increased utilization of the cognitive behavioral therapist have been indicated through meetings with the staff in this primary care
office. It is important to have the support of these key stakeholders to ensure the quality improvement project succeeds and will be followed. With stakeholders advocating for the change, the future of the intervention will continue to be carried out.

Sustainability is also an important aspect to consider after implementation. Educational handouts were continued to be available for providers in the office to access after project completion. Embedding the process into the EHR and having a policy that staff chart on the referral process is also be an option if management felt that the intervention has been successful. A hand off occurred to the organization’s management for continuation of the process in the future. With such a drastic increase in workload for the cognitive behavioral therapist, in order for this project to sustain in the future, additional staff trained in CBT may be necessary in order to keep up with referrals. Without additional staff to help with referrals, there is a chance for burnout of the current social worker if workload continues to increase in the future.

Implications for Practice

This DNP project had multiple practice implications. Obesity can be adequately treated. By decreasing BMI and obesity rates, patient quality outcomes are improved and health care costs are decreased. Evidence supports using a CBT approach to aid in weight loss of obese patients and suggests the implementation will increase referrals to the cognitive behavioral therapist to aid in decreasing BMIs.

Evidence suggests that increasing referrals to the cognitive behavioral therapist is a successful method to aid in reducing obesity. Implementation of these recommendations in the future could positively impact patient health outcomes and obesity rates if continued to be put to use. When evaluating the implementation of this quality improvement project and the implications for practice it was important to consider providers reluctance to change. Providers
were often reluctant to change and lean towards their current method of practice due to comfort or ease. Through repetitive discussion and encouragement, change did occur. The implementation of this quality improvement project was to increase the number of referrals to the cognitive behavioral therapist. The idea of obesity reduction utilizing CBT within this organization was not an issue with a simple fix, but rather one to be continuously managed.

**Reflections on DNP Essentials**

The American Association of Colleges of Nursing (AACN) requires that DNP students be skilled in the following eight competencies that are essential for advanced nursing practice roles. Each is reviewed.

**Essential I: Scientific Underpinnings for Practice**

Utilizing this essential, the DNP student learns to integrate nursing science with knowledge, utilize evidence-based theory to guide practice, evaluate outcomes and develop new practice approaches (AACN, 2006). This essential was attained through completion of this project by completing a literature search on CBT use for obesity and utilizing this knowledge to improve care. Evidence based frameworks were used to guide practice and organizational change.

**Essential II: Organizational and Systems Leadership**

Within this essential, improving patient and health care outcomes, organizational and systems leadership are imperative. The DNP student focuses on assessing organizations, identifying issues, and working to facilitate practice changes for improving patient outcomes and safety (AACN, 2006). This essential was demonstrated through meetings with leaders and other stakeholders in the organization to determine needs related to obesity rates. This organizational assessment was used to develop an intervention to improve referrals for CBT in the organization.
Leadership and communication skills were used to assess barriers and facilitators, listen to staff and stakeholder opinions, educate on the selected intervention, and work with staff to encourage implementation. Communication occurred through one-on-one and group conversations, presentation, handouts, and e-mail. The student also developed a budget for this project as well as submitted the project proposal to the organization and university IRB committee which deemed it a non-research, quality improvement project.

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

This essential allows the DNP student to be prepared to use analytic approaches to evaluate evidence, apply applicable findings for improvement of health care practices and outcomes, and participate in data generation and collaborative research (AACN, 2006). The role of the DNP is therefore to interpret the obtained research into evidence-based practice. The student accomplished this through evaluating literature regarding the best evidence for CBT use in the treatment of obesity and analyzing current practice in the primary care office prior to developing an intervention. This project entailed implementation of education for improving referrals for CBT use and evaluation of its effectiveness. This quality improvement project was designed to help improve patient centered care and outcomes.

**Essential IV: Information Systems Technology**

Under this essential, DNP graduates must be proficient in the use of, selection of, and evaluation of information systems and technology resources to support practice and improve care. This comprises the related ethical and legal concerns that come with the utilization of information and systems technology (AACN, 2006). Information technology in the form of the EHR and Excel was used to extract, organize, and analyze data related to CBT for obesity treatment. The EHR was used to gather pre- and post- implementation data. E-mail was used to
communicate with key stakeholders prior and throughout implementation. The use of Excel was applied to organize and analyze data gathered. Ethical guidelines and confidentiality were followed throughout this project.

**Essential V: Health Care Policy for Advocacy**

This DNP essential states advanced practice nurses should be involved in the process of policy development and advocacy for improved outcomes. During this project, the student identified no current organizational policy regarding referrals to the cognitive behavioral therapist, and with use of the literature, worked towards identifying the need for policy and including this in handoff to the organizations key stakeholders and management post-implementation of this project. This project did not include policy change at a state, federal, or international level.

**Essential VI: Interprofessional Collaboration**

This DNP essential places an emphasis on collaborating with multiple health care professions to accomplish a goal (AACN, 2006). The DNP accomplishes this through working in and leading teams of professionals in order to develop and implement practice models that supply patient-centered, quality care. For this project, the DNP student collaborated with many health care professionals including: physicians, nurse practitioners, managers, supervisors, medical technicians, IT, and data specialists. This allowed for better understanding of the organizations current practice, evaluating needs, addressing facilitators and barriers, and gaining input for designing and implementing a necessary practice change.

**Essential VII: Clinical Prevention and Population Health**

This seventh essential discusses the need for the DNP to have a foundation in health promotion and disease prevention. This knowledge basis includes the ability to analyze data in
order to develop, implement, and evaluate care delivery models and or strategies for clinical prevention and population health (AACN, 2006). This project focused on promoting patient health through aiding in decreasing BMI of adult obese patients. The student analyzed specific organizational data related to CBT and attempted to increase referrals to the cognitive behavioral therapist to improve BMI and health status of adult, obese, primary care patients.

**Essential VIII: Advanced Nursing Practice**

The eighth DNP essential states that the DNP graduate has knowledge of one advanced role in nursing practice (AACN, 2006). This project focused on the adult, obese, primary care population. The student demonstrated advanced nursing practice by facilitating increasing referrals in this quality improvement project. The student acted as a leader and consultant during the implementation period. Partnerships were developed with other professionals that allowed optimal outcomes. The student educated and helped guide the organization’s staff through the practice change.

**Dissemination Plan**

Dissemination of outcomes occurred within the organization to aid in sustaining a plan. A formal defense was also presented to the project committee, Grand Valley State University community, and public guests upon completion of all required elements. The final results were also disseminated through publication in Scholar Works, and presented in poster format at the Kirkhof College of Nursing. Presenting project results and collaborating with a current pediatric research committee regarding behavioral and lifestyle intervention through culinary medicine is a recommendation for further dissemination. Sharing the results of this adult DNP project may give insight into further ways for this organization to address the obesity rates in this office, and refer patients for further discussion with dieticians and behavioralists. Dissemination of this
project also has the potential to provide knowledge surrounding applying this process to other chronic diseases that this organization may want to address in the future.
References


Appendix A

Burke-Litwin Causal Model of Organizational Performance and Change

### SWOT Analysis of a Primary Care Office

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Weaknesses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Seven physicians and three nurse practitioners work in this office, and there is low turnover</td>
<td>Busy providers – seeing on average 15 patients daily</td>
</tr>
<tr>
<td>The cognitive behavioral therapist works in the office five days a week.</td>
<td>Only one cognitive behavioral therapist in the office who is a social worker also managing other patient needs</td>
</tr>
<tr>
<td>Part of a health system, which is a top 15 health care system that promotes care improvement initiatives</td>
<td>Potential lack in follow-up with regards to behavioral changes causing decreased follow-through towards decreasing BMI</td>
</tr>
<tr>
<td>Low rate for staff turnover</td>
<td>Cognitive behavioral therapist can only see patients with certain insurances</td>
</tr>
<tr>
<td>Motivated leaders, management, and staff that support process improvements</td>
<td>Lack of complete documentation in regards to obesity and past attempts to decrease BMI</td>
</tr>
<tr>
<td>Obese patients easily identified with height and weight which calculates BMI</td>
<td>Lack of screening/documentation of PHQ-9 and GAD-7 scores for all patients. This screening is dependent on increasing referrals to the behavioral therapist</td>
</tr>
<tr>
<td>Major awareness of providers in the office that obesity is a problem</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Opportunities</strong></th>
<th><strong>Threats</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving quality of care by integrating evidence-based care</td>
<td>Patients may not accept an increased emphasis on cognitive behavioral therapy for obesity reduction</td>
</tr>
<tr>
<td>Decrease patient’s BMI</td>
<td>Patients may not perceive the need or have the desire to change their ways in regards to behavioral aspects in their environment at this current time (e.g. family members food habits)</td>
</tr>
<tr>
<td>Decrease patient’s risk for chronic diseases</td>
<td>Cognitive behavioral therapist not allowed to see patients only for obesity due to coding and billing purposes. The cognitive behavioral therapist cannot code and bill only for obesity; an additional psych diagnosis needed to be included</td>
</tr>
<tr>
<td>Decrease cost of care</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

GVSU IRB Determination

DATE: July 10, 2018

TO: Marie VanderKool
FROM: HRRC
STUDY TITLE: Increasing Utilization of Cognitive Behavioral Therapy to Reduce Morbid Obesity in a Primary Care Setting
REFERENCE #: 19-011-H
SUBMISSION TYPE: HRRC Research Determination Submission
ACTION: Not Research
EFFECTIVE DATE: July 10, 2018
REVIEW TYPE: Administrative Review

Thank you for your submission of materials for your planned scholarly activity. It has been determined that this project does not meet the definition of research* according to current federal regulations. The project, therefore, does not require further review and approval by the Human Research Review Committee (HRRC).

A summary of the reviewed project and determination is as follows:

The purpose of this project is to increase utilization of a cognitive behavioral therapist to reduce morbid obesity in patients at a local Primary Care office, leading to increased function, health and quality of life among adult patients with increased BMIs. While this is a systematic investigation, it is not designed to create new generalizable knowledge. This project is looking at ways to implement evidence-based practices to improve the quality of care being provided to patients at a single medical practice. Therefore, this project does not meet the federal definition of research and IRB oversight is not needed.

An archived record of this determination form can be found in IRBManager from the Dashboard by clicking the "xForms" link under the "My Documents & Forms" menu.

If you have any questions, please contact the Office of Research Compliance and Integrity at (810) 331-3197 or rci@gvsu.edu. Please include your study title and study number in all correspondence with our office.

Sincerely,
Office of Research Compliance and Integrity

*Research is a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge (45 CFR 46.102 (d)).

Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains: data through intervention or interaction with the individual, or identifiable private information (45 CFR 46.102 (f)).
Appendix D

Organization IRB Determination

NON HUMAN RESEARCH DETERMINATION

June 20, 2018

Erin J. McCue, DNP

PROTOCOL TITLE: Increasing Utilization of Cognitive Behavioral Therapy to Reduce Morbid Obesity in a Primary Care Setting

SPONSOR: Investigator

Dear Ms. McCue,

On June 20, 2018, the above referenced project was reviewed. It was determined that the proposed activity does not meet the definition of research as defined by DHHS or FDA.

Therefore, approval by 1 IRB is not required. This determination applies only to the activities described in the IRB submission and does not apply if changes are made. If changes are made and there are questions about whether these activities are research involving human subjects, please submit a new request to the IRB for a determination.

A quality improvement project may seek publication. Intent to publish alone is insufficient criterion for determining whether a quality improvement activity involves human subject research. However, please be aware when presenting or publishing the collected data that it is presented as a quality improvement project and not as research.

Please be advised, this determination letter is limited to IRB review. It is your responsibility to ensure all necessary institutional permissions are obtained prior to beginning this project. This includes, but is not limited to, ensuring all contracts have been executed, any necessary Data Use Agreements and Material Transfer Agreements have been signed, documentation of support from the Department Chair has been obtained, and any other outstanding items are completed (i.e. CMS device coverage approval letters, material shipment arrangements, etc.).

Your project will remain on file with the Office of the IRB, but only for purposes of tracking research efforts within the system. If you should have questions regarding the status of your project, please contact the Office of the IRB at...

Sincerely,

Jeffrey Jones, MD
Chair
cc: Quality Specialist
Appendix E

PRISMA Flow Diagram of Systematic Search

Records identified through three databases searching Cochrane Library, CINAHL, and PubMed (n = 203)

Additional articles identified through review of references (n = 2)

Records after duplicates removed (n = 184)

Records excluded after Title/abstract seen (n = 161)

Records screened (n = 184)

Full-text articles assessed for eligibility (n = 23)

Full-text articles excluded, with reasons pertaining to population, intervention, comparison, and outcome (n = 16)

Studies included in this review (n = 7)
- Meta-analysis – 2
- Systematic – 1
- RCT – 3
- CPG – 1

### Appendix F

**Table of Evidence**

<table>
<thead>
<tr>
<th>Author (Year) Purpose</th>
<th>Design (N)</th>
<th>Inclusion Criteria</th>
<th>Intervention vs Comparison</th>
<th>Results</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacob et al. (2018) To examine the effects of cognitive-behavioral therapy weight loss (CBTWL) on weight loss, eating behaviors [cognitive restraint, emotional/binge eating], and depressive/anxiety symptoms in adults with overweight or obesity in primary care.</td>
<td>Meta-analysis. N = 12 randomized control trials. Total participants = 6,805 (RCTs) assessing the efficacy of a behavioral weight loss intervention were selected. Studies were required to have weight loss as either a primary or secondary outcome. Studies had to have a measure of eating behaviors (cognitive restraint, emotional eating, binge eating), depression and/or anxiety as a reported outcome. Exclusion reasons: (nonrandomized controlled trials); type of participants (non-over weight/obese, nonadults; no CBT weight loss; language-in English.</td>
<td>Interventions were required to include CBTWL strategies, delivered by a trained therapist on an individual basis or in a group setting. CBTWL strategies were defined as interventions that focused on cognitive and behavioral conceptualizations of weight gain and loss (importance of thoughts and impact on behaviors). Comparison groups included only behavioral techniques (e.g., stimulus control, self-monitoring, goal setting) targeting a lifestyle factor (e.g., physical activity or diet) and/or education.</td>
<td>The average weight loss difference between the control group and CBT group was -1.70 kg (95% confidence interval [CI]: -2.52 to -0.86, I² = 1%) in favor of CBTWL. The standardized mean difference on cognitive restraint (restrained eating/eating less) was 0.72 (95% CI: 0.33 to 1.09; I² = 81%) and -0.32 (95% CI: -0.49 to -0.16; I² = 0%) for emotional eating in favor of CBTWL. Cognitive restraint is conscious attempt to monitor food intake overseen by cognitive processes rather than physiologic mechanisms (e.g. hunger/satiety). “Eating behavior/cognitive restraint was measured by using the 51-item Eating Inventory” (p. 419).</td>
<td>Along with weight loss, current evidence suggests that CBTWL is an efficacious therapy for increasing cognitive restraint and reducing emotional eating.</td>
<td></td>
</tr>
</tbody>
</table>
### Pagoto et al. (2013).
The purpose of the study was to test the hypothesis that delivering behavior therapy for depression before a lifestyle weight loss intervention improves both weight loss and depression.

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>N/A</th>
<th>Results</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pagoto et al. (2013).</td>
<td>Randomized controlled trial. N = 161.</td>
<td>Participants were randomized to the behavior therapy with lifestyle intervention (BA) or lifestyle intervention only (LI). Comparison of change in body weight (%) between the two randomized groups at 6 months and 1-year follow-up analyses were included.</td>
<td>Participants who were in remission from depression at 6 months per the BDI-II lost greater weight at 6 months (mean= -4.29%; s.e.= 0.52%) than those who did not (mean= -2.48%, s.e.= 0.53%: t (144) = 3.19, d= -0.41, P= 0.0018)</td>
<td>Adding behavior therapy to a lifestyle intervention results in greater depression remission. “Improvement in depression is associated with greater weight loss” (p. 1427).</td>
</tr>
</tbody>
</table>

### Pereira-Miranda et al. (2017).
This study reviewed and synthesized evidence to assess the association between obesity and depression among adults.

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>N/A</th>
<th>Results</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pereira-Miranda et al. (2017).</td>
<td>Meta-analysis. N = 9 randomized control trials. Total participants = 171,701</td>
<td>In this review, all studies that were published in English and adopted an observational design, and analyzed the direct relationship between excess body weight (independent variable) and depression (the dependent variable) in adults were included. This review considered adults aged 18 to 64.</td>
<td>Comparison of the group of overweight vs normal weight individuals and found that gender (p = 0.562), sample size (p = 0.284), and symptoms of depression (p = 0.738) did not influence the heterogeneity among the studies.</td>
<td>The probability of having depression was 32% greater (PR = 1.32, 95% CI, 1.26–1.38) among obese individuals compared to non-obese individuals. It was identified that obesity increases the prevalence of depression by 29% (PR=1.29 95% CI, 1.24–1.33) There is consistent evidence that obesity is associated with depression.</td>
</tr>
</tbody>
</table>

### Pimenta et al. (2012).
This study

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>N/A</th>
<th>Results</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pimenta et al. (2012).</td>
<td>Randomized control trial. N = 21.</td>
<td>CBT group (n = 11) and the control group (n = 10)</td>
<td>At follow-up, women in the CBT group presented with lower weight (-1.061 kg; p= 0.035, abdominal)</td>
<td>An effective weight loss was achieved by the intervention</td>
</tr>
<tr>
<td>Study</td>
<td>Design</td>
<td>N/A</td>
<td>Participants</td>
<td>Outcomes</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>-----</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>Jacob et al. (2018)</td>
<td>Randomized control trial</td>
<td>N/A</td>
<td>11 participants selected to undergo individual CBT, and 10 were included in a waiting list (WL). The control group (WL) lasted for the same period as the intervention group, which was 26 weeks. The CBT intervention was structured by two psychologists after a literature review and based on previous interventions.</td>
<td>Changes in quality of life were also observed. Furthermore, changes in external eating behavior were successful.</td>
</tr>
<tr>
<td>Swencionis et al. (2013)</td>
<td>Randomized control trial</td>
<td>N = 588</td>
<td>Participants were randomly assigned to one of three intervention groups of different intensities for 12 months. Using a cognitive–behavioral approach for tailoring lifestyle modification goals, incremental levels of intervention</td>
<td>Mean weight loss was 5.0 pounds at 12 months. Weight change at 12 months was associated with higher overall psychological well-being (r = -0.20, p = 0.001), lower levels of anxiety (r = -0.16, p = 0.001) and depression (r = -0.13, p = .004), and higher positive well-being (r = -0.19, p = .001), self-control (r = -0.13, p = .004), and vitality (r = -0.22, p = .001). Vitality was found to be the best predictor of weight change at 12 months (p = .001). Results determined that</td>
</tr>
</tbody>
</table>
et al. (2018) review.

| Wadden et al. (2014). Purpose is to conduct a systematic review of behavioral counseling for overweight and obese patients recruited from primary care, as delivered by primary care practitioners working with trained interventionists, or by trained interventionists working alone. | Systematic Review. N = 12 randomized controlled trials. Total participants = 3,893 | Studies included were randomized trials that were published in English and had the following characteristics: recruited from primary care settings; overweight or obese adults whose BMI was 25 or higher; behavioral weight loss counseling, consisting of the following 3 components: diet, physical activity, and behavioral strategies; offered behavioral counseling for at least 3 months with at least 6 months follow-up after | Behavioral counseling to promote weight loss through high intensity interventions on diet and exercise, using an approach, which includes clear, specific, and personalized behavioral change advice. A maximum of 22 face-to-face sessions over a 12-month period, as follows:  
- One each week for the first month  
- One every other week for months 2 through 6  
- One every month for Mean 6-month weight changes from baseline in the intervention groups ranged from a loss of 0.3 kg to 6.6 kg (p < 0.05). In the control group, mean change ranged from a gain of 0.9 kg to a loss of 2.0 kg (p = 0.02). Weight loss in both groups generally declined with longer follow-up (12-24 months). | Findings suggest that a range of trained interventionists, who deliver CBT in person or by telephone, could be considered for treating obese patients in primary care. |
randomization; delivered the intervention using primary care practitioners, working with trained interventionists, or by trained interventionists alone who provided behavioral counseling in person or remotely (e.g., telephone); included measured change in weight, reported in kilograms, BMI units, or percent change; and had randomized sample size of 15 or more per group.

In the six-month visit, weight loss was assessed.

Jensen et al. (2013) Guideline Appraisal Utilizing Brouwers et al. AGREE II Tool

<table>
<thead>
<tr>
<th>Domain 1</th>
<th>Domain 2</th>
<th>Domain 3</th>
<th>Domain 4</th>
<th>Domain 5</th>
<th>Domain 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives are to prevent cardiovascular diseases; improve the management of people who have these diseases through education and research; and develop</td>
<td>The stakeholders were described in the guideline including employment history, ownership/partnerships, personal research, and who they were consultants for. They included American College of Cardiology and American Heart</td>
<td>The recommendations are based on evidence from a systematic review and synthesis of published medical literature. The references were found using the Cochrane library</td>
<td>The clinical questions answered by evidence-based recommendations summarize current literature on the risks of obesity and the benefits of weight loss. They also summarize knowledge on the</td>
<td>These guidelines state that the authors performed Guideline Implementability Appraisals, planned and coordinated by the National Heart, Lung, and Blood Institute Implementation Work Group, to identify and address barriers to guideline implementation. This information will help PCPs decide who should be recommended for weight loss</td>
<td>A person is deemed to have a significant interest in a business if the interest represents ownership of 5% of the voting stock or share of the business entity, or ownership of $10,000 of the fair market value of</td>
</tr>
</tbody>
</table>
guidelines, standards, and policies that promote best patient care and cardiovascular health. Regarding these objectives, the American Heart Association collaborated with professional organizations to develop CPG for assessment of cardiovascular risk, lifestyle modifications to reduce CV risk, management of blood cholesterol in adults, and management of overweight and obesity in adults. Five critical questions were developed.

| Score – 7/7 |

Association task force members as well as Obesity Society expert panel members. The Obesity Expert Panel comprised 15 members and 3 ex-officio members, including individuals with specific expertise in psychology, nutrition, physical activity, bariatric surgery, epidemiology, internal medicine, and other clinical specialties. The recommendations serve as a guide for PCPs in making evaluations and treatment decisions for overweight and obese patients.

| Score – 7/7 |

Database and MEDLINE. The published literature was evaluated to determine appropriate treatment strategies that would constitute evidence-based clinical guidelines on overweight and obesity. Each question was screened using evidence-based criteria for inclusion/exclusion in the guideline. The guideline was externally reviewed by expert panels and approved for publication.

| Score – 7/7 |

Best diets for weight loss, the efficacy and effectiveness of comprehensive lifestyle interventions on weight loss (CBT) and weight loss maintenance, and the benefits and risks of bariatric surgery. Different options are presented for the primary care providers to choose in regards to screening, prevention, diagnosis, or treatment of overweight/obese adults.

| Score – 7/7 |

and what health improvements can be expected. The guideline states important aspects that need to be monitored by the PCP to aid with weight reduction as well as potential barriers to implementation and the costs associated with these guideline implementations.

| Score – 7/7 |

the business entity; or if funds received by the person from the business entity exceed 5% of the person’s gross income for the previous year. These relationships were reviewed and updated in conjunction with all meetings and conference calls of the Expert Panel during the document development process. Authors with relevant relationships during the document development process recused themselves from voting on recommendations relevant to their relationships.

| Score – 7/7 |
Appendix G

Beck’s Cognitive Model

Regarding: Permission to conduct DNP project at

To whom it may concern:

Erin McCue is a Doctor of Nursing Practice (DNP) student at Grand Valley State University. As part of her DNP studies, she will be conducting a project at This project entails assessing the current referral process to the in-office cognitive behavioral therapist and identifying gaps between evidence-based care and current practice regarding behavioral therapy for obese adult patients. An evidence-based referral process from literature will then be implemented to assist in reducing morbid obesity in patients receiving primary care here.

I will serve as a mentor for Erin McCue in relation to this project. I allow this student to conduct her project on this unit.

Sincerely,

[Signature]

Teresa R. Farah RN, BSN, MSN, ARNP-BC, WCC
### Appendix I

**Proposed Alert in Electronic Health Record**

#### Vital Signs

<table>
<thead>
<tr>
<th>Vital Sign</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>114/74</td>
</tr>
<tr>
<td>Pulse</td>
<td>74</td>
</tr>
<tr>
<td>Resp</td>
<td>16</td>
</tr>
<tr>
<td>Temp</td>
<td>98.1 F (36.7 C)</td>
</tr>
<tr>
<td>Temp src</td>
<td>Oral</td>
</tr>
<tr>
<td>SpO2</td>
<td>99%</td>
</tr>
<tr>
<td>Weight</td>
<td>92.5 kg (204 lb)</td>
</tr>
<tr>
<td>Height</td>
<td>1.651 m (5' 5'')</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Vitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
</tr>
<tr>
<td>BSA</td>
</tr>
</tbody>
</table>

**Alert in electronic health record to consider referral for CBT when BMI >30 and PHQ/GAD scores elevated**

---

**PHQ-4**

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling nervous, anxious or on edge</td>
<td>Nearly every day</td>
</tr>
<tr>
<td>Not being able to stop or control worrying</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Little interest or pleasure in doing things?</td>
<td>Not at all</td>
</tr>
<tr>
<td>Feeling down, depressed, or hopeless?</td>
<td>Not at all</td>
</tr>
</tbody>
</table>

**PHQ-4 Score**

5 (calculated)

**GAD-7 Anxiety Score**

5 (calculated)

**GAD-7 Anxiety Screening**

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worrying too much about different things</td>
<td>More than half the days</td>
</tr>
<tr>
<td>Trouble relaxing</td>
<td>Several days</td>
</tr>
<tr>
<td>Being so restless that it is hard to sit still</td>
<td>Not at all</td>
</tr>
<tr>
<td>Becoming easily annoyed or irritable</td>
<td>Several days</td>
</tr>
<tr>
<td>Feeling afraid as if something awful might happen</td>
<td>Not at all</td>
</tr>
</tbody>
</table>

**Result:**

- 0-4 = Minimal Anxiety
- 5-9 = Mild Anxiety
- 10-14 = Moderate Anxiety
- 15-21 = Severe Anxiety

**GAD-7 Score**

9 (calculated)
Appendix J

Rogers’ Diffusion of Innovation Model

### 1 Cognitive-Behavioral Therapy (CBT) for the Treatment of Obesity
By Erin McCue RN, BSN
DNP Student
Grand Valley State University

### 2 What is Adult Obesity
- Age 18 and older with BMI 30 or greater
- More than one-third (39%) of US adults have obesity
- Current Expenditure for obesity related costs in health care ranges from $147 billion to $210 billion annually
- Linked to chronic conditions (arthritis, diabetes, heart disease, certain cancers, respiratory disorders)

### 3 How is Obesity linked to Depression and Anxiety
- 56% of adults suffering from depression or anxiety are also obese
- Majority of individuals seeking mental health services turn to primary care as their first or only source of treatment
- Privacy
- Trust

### 4 Statistics
- 50 charts with an average age of 51
- 29 (58%) had a BMI of 30 or greater
- PHQ-9 and GAD-7 scores were completed on 40 (80%)
- 29 (72%) identified to have mild to severe anxiety and/or depression
- 21 of the 29 (72%) were determined to have both anxiety and/or depression as well as obesity
- 8 (38%) had been referred to be seen by the cognitive behavioral therapist

### 5 What is CBT
- Set of ‘talk’ psychotherapies that treat psychiatric conditions
- Short-term focused treatment
- Strong empirical support with randomized clinical trials
- As effective as psychiatric medications
- Recommended as critical component of treatment
- States a person may not be able to control how something makes them feel, but can choose how to think and act on those feelings

### 6 Names associated with CBT
- Epictetus, Greek philosopher.
- Observed that people are not disturbed by things that happen but by the view they take of things that happen.
- Albert Ellis, “grandfather of CBT.”
- Aaron Beck, a psychiatrist
- Beck called it cognitive therapy because of the importance it places on thinking. It’s now known as CBT because the therapy employs behavioral techniques also

### 7 What is CBT
- A psychotherapeutic approach that uses a combination of behavioral & cognitive therapies
- It addresses dysfunctional emotions, maladaptive behaviors and cognitive processes through goal-directed & systematic procedures
- CBT uses practical self-help strategies

### 8 What is CBT
- It is a process of teaching, coaching, and reinforcing positive behaviors
- CBT helps people to identify cognitive patterns or thoughts and emotions that are linked with behaviors
- Thinking: Different people can think differently about the same event.
- The way in which we think about an event influences how we feel and how we act
It assumes that the way people behave is based on the way they think.

### What is CBT
- CBT is a collaborative effort between the therapist and the client.
- Client role – define goals, express concerns, learn & implement learning.
- Therapist role – help client define goals, listen, teach, encourage.
- Teaches the benefit of remaining calm when faced with difficult situations. (If you are upset by your problems, you now have 2 problems: the problem and your frustrations).

### Purpose of CBT
- Aims to teach people that it is possible to have control over their thoughts, feelings and behaviors.
- Helps to challenge and overcome automatic beliefs, and use practical strategies to change or modify behaviors.
- The result is more positive feelings, which in turn leads to more positive thoughts and behaviors.
- CBT is a learning process.
- CBT is thought to be effective for the treatment of a variety of conditions:
  - Anxiety
  - Depression
  - Addictions
  - Obesity

### Purpose of CBT
- CBT aims to change the way patients thinks about the triggers of their disorder.
- It is the negative cognitions that cause self-destructive feelings and maladaptive behavior.
- Cognitive therapy challenges those thoughts.
- One approach is cognitive restructuring which involves asking the person to come up with evidence to 'prove' their maladaptive thoughts.
- Thus, the patient learns to firstly identify and challenge negative thoughts and replace them with more realistic and positive thoughts.

### Characteristics of CBT
- Thoughts cause Feelings which causes behaviors.
- Brief and Time-Limited.
- Emphasis placed on current behavior.

### Benefits of CBT
- Clear treatment approach for patients.
- Assumptions make sense to patients.
- Based on patient’s experience.
- Encourages practice and compliance.
- Patients have a sense of control.

### What does the literature show
- High rates of psychiatric disorders in individuals with obesity (especially anxiety and depression).
- 37% of obese adults who seek weight loss treatment have clinical depression.
- Depression is associated with worse weight loss outcomes.
- Obesity increases the prevalence of depression by 32%.
- 6-month CBT trial – down average of 8 lbs.
- 12-month CBT trial – mean % weight loss of 6%.
- 8-month CBT trial – down average of 4kg.
## COGNITIVE BEHAVIORAL THERAPY TO REDUCE OBESITY

### 6-month CBT trial – mean weight loss 7 lbs
- Clinical practice Guideline showed strong evidential support for use of behavioral therapy in obesity management for adult primary care patients
- Improved quality of life
- Larger waist circumference and higher BMI associated with lower quality of life and higher impairment in completing ADLs
- Reduction of chronic conditions

### 15 Who is involved
- Primary care providers
- Cognitive behavioral therapist
- Unit leadership
- Adult patients with obesity
- DNP student

### 16 Purpose of Project
- Seeking to answer: Does increasing health care providers screening of anxiety, depression, and obesity increase referrals to the in-office cognitive behavioral therapist for treatment of adult obesity in a primary care setting?

### 17 Project Plan
- Gain IRB approval
- Administer pre-survey
- Perform education
- Increase knowledge and confidence to refer for implementation of CBT
- Discuss embedding into EHR
- Increase screening for depression, anxiety and obesity
- Increase utilization of the cognitive behavioral therapist
- Administer post-survey
- Gather and analyze data
- Deliver final report

### 18 Benefits to the organization
- Improving quality of care by integrating evidence-based care
- Decrease BMI
- Decrease risk for chronic disease
- Decrease cost of care
- Average loss of productivity costs is $825 for one obese patient
- Cost for treatment of obesity related disorders
- Aiding one patient in decreasing BMI below 30 could save $1741

### 19 Timeline
- December 2018 to February 2019 implementation to increase screening and referrals
- Ongoing support for questions
- Post intervention analysis occurring by end of February
- Results disseminated by end of March 2019
**Appendix L**

Pre-Implementation Questionnaire

Please rate how strongly you agree or disagree with the following statements:


<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive behavioral therapy (CBT) is an effective treatment for adults</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with obesity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBT is appropriate for licensed staff to do in my setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is appropriate at my work setting to refer patients with obesity and/or a mental health disorder to work with a cognitive behavioral therapist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have the ability to identify appropriate patients for CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How satisfied are you with your current care of your adult patients with obesity?

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Very Dissatisfied</th>
<th>Dissatisfied</th>
<th>Neither Satisfied nor Dissatisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please select how strongly you agree or disagree with the following barriers you may perceive to delivering CBT in the adult patient with obesity that may prevent you from referring to the cognitive behavioral therapist.


<table>
<thead>
<tr>
<th>Barrier</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not have enough time to refer to cognitive behavioral therapist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workload is too heavy to learn and develop new knowledge/skill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult with obesity is not motivated enough for CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of support from the institution to utilize CBT to the adults with obesity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of confidence and knowledge to refer for CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Not interested in utilizing CBT for obesity in adults</td>
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<tr>
<td>Do not remember to refer</td>
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</table>

Do you perceive any other barriers to increasing use of CBT in your organization? (e.g. no shows, cost of education)

Yes____ No_____ Discussion_____________________________________________________

Are you utilizing the cognitive behavioral therapist for any other capacity in your organization?

Please list the measures/tools/instruments you routinely use in your practice to treat adult patient with obesity (e.g. medications, discussion, referral for surgery, etc.)

Yes____ No_____ Discussion_____________________________________________________

How do you feel about referring for CBT in your adult patients with obesity?

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Not Comfortable</th>
<th>Need More Information</th>
<th>Interested to Learn More</th>
</tr>
</thead>
<tbody>
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**Appendix M**

**Post-Implementation Questionnaire**

Please rate the following statements:

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<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>CBT is an effective treatment for adults with obesity</td>
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<tr>
<td>CBT is appropriate for licensed staff to do in my setting</td>
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<tr>
<td>My work setting is appropriate for me to refer patients with obesity and a mental health disorder to the cognitive behavioral therapist</td>
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<tr>
<td>I have the ability to identify appropriate patients for CBT</td>
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How satisfied are you with your current care of your adult patients with obesity?

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<tr>
<th>Satisfied Level</th>
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<tbody>
<tr>
<td>Very Dissatisfied</td>
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<tr>
<td>Dissatisfied</td>
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<td></td>
</tr>
<tr>
<td>Neither Satisfied nor Dissatisfied</td>
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<tr>
<td>Satisfied</td>
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<td></td>
<td></td>
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<tr>
<td>Very Satisfied</td>
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</tbody>
</table>

Please select how strongly you agree or disagree with the following barriers you may perceive to delivering CBT in the adult patient with obesity that may prevent you from referring to the cognitive behavioral therapist

<table>
<thead>
<tr>
<th>Barriers</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not have enough time to refer to cognitive behavioral therapist</td>
<td></td>
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<tr>
<td>Workload is too heavy to learn and develop new knowledge/skill</td>
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<tr>
<td>Adult with obesity is not motivated enough for CBT</td>
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</tr>
<tr>
<td>Lack of support from the institution to utilize CBT to the adults with obesity</td>
<td></td>
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</tr>
<tr>
<td>Lack of confidence and knowledge to refer for CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not interested in utilizing CBT for obesity in adults</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not remember to refer</td>
<td></td>
<td></td>
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</tbody>
</table>

How satisfied were you with the level of educational training you received for this CBT project?

<table>
<thead>
<tr>
<th>Satisfied Level</th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Dissatisfied</td>
<td></td>
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<tr>
<td>Dissatisfied</td>
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<tr>
<td>Neither Satisfied nor Dissatisfied</td>
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<tr>
<td>Satisfied</td>
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<tr>
<td>Very Satisfied</td>
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</table>
Please rate the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found the quality of the educational handouts to be sufficient</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel motivated and comfortable referring for CBT in adult obese patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I will continue to refer adult obese patients for CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I found having ongoing support during the training program was necessary for learning needs and questions of CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I found the ongoing support provided was sufficient for learning needs and questions of CBT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall, I was pleased with the CBT project developed</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Appendix N

#### Data Measures Table

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
<th>Data Location</th>
<th>Collection Method</th>
<th>Data Collector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider Knowledge</td>
<td>Change in staff and provider knowledge regarding CBT utilization for obesity (Questions 1-4)</td>
<td>Pre/post Survey</td>
<td>Manual collection</td>
<td>Doctoral Student – information de-identified to student</td>
</tr>
<tr>
<td></td>
<td>Change in staff and provider knowledge related to quality indicators (Question 5)</td>
<td>Pre/post Survey</td>
<td>Manual collection</td>
<td>Doctoral Student – information de-identified to student</td>
</tr>
<tr>
<td></td>
<td>Change in staff and provider knowledge related to barriers to referrals (Questions 6-11)</td>
<td>Pre/post Survey</td>
<td>Manual collection</td>
<td>Doctoral Student – information de-identified to student</td>
</tr>
<tr>
<td>Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up</td>
<td>Percentage of patients aged 18 and older with (1) BMI documented and (2) follow-up plan documented if BMI is outside normal parameters</td>
<td>Quality measure reporting from EHR utilizing ICD 10 codes E66-, Z68, (excludes Z68.1, Z68.20-Z68.29, Z68.51, Z68.52)</td>
<td>Quality report query within EHR</td>
<td>Doctoral Student – information de-identified to student</td>
</tr>
<tr>
<td>Preventive Care and Screening: Depression and Anxiety Screening and Follow-up</td>
<td>Percentage of patients aged 18 years and older who (1) were screened for depression and anxiety utilizing (PHQ-9 and GAD-7 scales) one or more times within establishing BMI &gt;30 (obesity diagnosis) (2) follow-up plan documented if BMI within obesity parameters and depression or anxiety scores elevated.</td>
<td>Quality measure reporting from EHR utilizing ICD 10 code F41.3, F41.8, F41.9, F32.0-F32.9, F33.0-F33.9, F34.1, F43.20-F43.23</td>
<td>Quality report query within EHR</td>
<td>Doctoral Student – information de-identified to student</td>
</tr>
<tr>
<td>Referrals to cognitive behavioral therapist</td>
<td>Percentage of patients aged 18 years and older who were (1) identified to be obese (2) identified to be anxious/depressed (3) were referred to be seen by the cognitive behavioral therapist</td>
<td>Progress notes from the EHR documented by the cognitive behavioral therapist utilizing CPT codes 96150, 96160, 99401-99404</td>
<td>Quality report query within EHR</td>
<td>Doctoral Student – information de-identified to student</td>
</tr>
</tbody>
</table>
### Appendix O

#### Budget for DNP Project

<table>
<thead>
<tr>
<th><strong>Revenue</strong></th>
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</thead>
<tbody>
<tr>
<td>Project Manager Time (in-kind donation)</td>
<td>2,790.00</td>
</tr>
<tr>
<td>Consultations</td>
<td></td>
</tr>
<tr>
<td>Statistician (in-kind donation)</td>
<td>100.00</td>
</tr>
<tr>
<td>Cost Mitigation (decrease in one patient’s BMI below obesity range)</td>
<td>1,741.00</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>4,631.00</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Expenses</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager Time (in-kind donation)</td>
<td>2,790.00</td>
</tr>
<tr>
<td>Consultations</td>
<td></td>
</tr>
<tr>
<td>Statistician (in-kind donation)</td>
<td>100.00</td>
</tr>
<tr>
<td>Team Member Time (for one hour of education)</td>
<td></td>
</tr>
<tr>
<td>Physician(s) (7)</td>
<td>679.00</td>
</tr>
<tr>
<td>Nurse Practitioner(s) (3)</td>
<td>150.00</td>
</tr>
<tr>
<td>Social Worker/Cognitive Behavioral Therapist</td>
<td>33.00</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>3,752</td>
</tr>
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</table>

Net Operating Plan 1,179.00
### Appendix P

CBT Project Timeline from December 2018-April 2019

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Participant recruitment</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Educational class during staff meeting with pre-intervention survey</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>3. Intervention period with ongoing support for questions</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Post-intervention survey</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>5. Post-intervention analysis</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>6. Results disseminated</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>
Appendix Q

Pre-Implementation Survey Answers

Pre Survey Results by Number

n=3
Appendix R

Post-Implementation Survey Answers

Post Survey Results by Number

n=3
Appendix S

BMI and Anxiety/Depression Screening

Review of 50 Patient Charts
Appendix T

Refferrals for CBT

Pre-Implementation Referrals

Did Patients who Qualified get Referred for CBT?

n=50 Charts

Post-Implementation Referrals

Did Patients who Qualified get Referred for CBT?

n=50 Charts
Appendix U

PowerPoint Presentation

Increasing Utilization of Cognitive Behavioral Therapy to Reduce Morbid Obesity in a Primary Care Setting

Erin McCue BSN, RN
DNP Project Final Defense
April 3, 2019

Acknowledgements

Advisory Team Members:
Marie VanderKooi DNP, RN
Sylvia Simons DNP, RN
Teresa Farah FNP, MSN, RN
Objectives for Presentation

1. Review the clinical problem
2. Review the organizational assessment
3. Review evidence-based solutions
4. Present QI project results and analysis
5. Discuss implications for practice, DNP essentials, sustainability and dissemination plan

Introduction

- More than one-third (39%) of U.S. adults (18 years of age and older) have obesity¹
- Current expenditure for obesity related costs in health care ranges from $147 billion to $210 billion annually²
- Obesity is linked to a variety of chronic conditions including: diabetes, heart disease, certain cancers, and arthritis³
- Obesity is frequently accompanied by mental health disorder (e.g. depression),
  - The two can trigger and influence each other⁴
- Cognitive behavioral therapy (CBT) has been demonstrated as a key weight loss support tool⁵
Problem Statement

- 56% of adults suffering from depression or anxiety are also obese.
- Embedding CBT into treatment is essential to aid in weight loss and reduce chronic diseases associated with obesity.
- Improving integration of CBT into primary care may be crucial for improving patient outcomes and providing quality care.
- Increasing utilization of the in-office cognitive behavioral therapist in a large West Michigan primary care office is therefore crucial for implementation of this quality intervention.
- The focus is increasing health care providers screening of depression, anxiety, and obesity.
  - Informing primary health care providers about CBT use for reducing obesity.
  - Encouraging providers to recommend this treatment.
  - Continuation for future use.

Organizational Assessment
**SWOT Analysis**

<table>
<thead>
<tr>
<th>Internal</th>
<th>Strengths</th>
<th>Weaknesses</th>
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<thead>
<tr>
<th>External</th>
<th>Opportunities</th>
<th>Threats</th>
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</table>

**Helpful**

- Serves as an intervention to support work in the office.
- Works to reduce obesity.
- The cognitive behavioral therapy works in the office for 1 hour a week.
- The analysis is used for referral and follow-up in regards to patients.
- Part of a health system, which is a part of a health care organization promoting patient care improvement initiatives.

**Barriers**

- High patient care within the regulatory
- Staff provides - caring an average 1 patient daily
- Only one cognitive behavioral therapist in the office who is a social worker also managing other patient needs.
- Cognitive behavioral therapy can only accommodate 2 or 3 patients with certain behaviors.
- Lack of complete documentation in cognitive behavioral and patient education.
- Lack of waitlist for patients who are in cognitive behavioral therapy.
- Potential issues with regard to behavioral changes causing discontinue follow-up towards decreasing BMI.

**Conditions**

- Improvement quality of care integrating evidence-based care
- Improved engagement of care
- Decrease in BMI
- Decrease in chronic diseases
- Decrease in smoking and BMI.

**Risks**

- Patients may not accept an increased emphasis on cognitive behavioral therapy for chronic diseases.
- Patients may not accept care for smoking, weight, and BMI.
- Cognitive behavioral therapy can only accommodate 2 or 3 patients with certain behaviors.
- Cognitive behavioral therapy cannot relate to smoking and BMI.
- Cognitive behavioral therapy cannot address smoking, weight, and BMI.
- Cognitive behavioral therapy cannot include smoking, weight, and BMI.
- Cognitive behavioral therapy cannot include smoking, weight, and BMI.
- Cognitive behavioral therapy cannot include smoking, weight, and BMI.
- Cognitive behavioral therapy cannot include smoking, weight, and BMI.
Current Practice

- Random sample audit of 50 charts
  - Age range 18 to 99 years
    - Mean age of 51.3 (standard deviation [SD] 19.8) years
  - 29 (58%) had a BMI of 30 or greater
  - PHQ-9 and GAD-7 scores were completed on 40 (80%) of these 50 patients
  - 29 of the 40 (72%) had scores that identified them to have mild to severe anxiety or depression
  - 9 of the 21 (43%) had been referred to be seen by the cognitive behavioral therapist.

Clinical Practice Question

- Does increasing health care providers screening and documentation of anxiety, depression, and obesity increase the number of referrals made to the in-office cognitive behavioral therapist to aid in weight loss of adult, obese, primary care patients?
Stakeholders

- Health care providers (nurse practitioners and physicians),
- The in-office cognitive behavioral therapist
- Unit leadership (manager and supervisor)
- Adult patients with obesity and mental health conditions(s)
Review Method

- Electronic databases searched utilizing a systematic search approach
  - CINAHL
  - Cochrane Library
  - PubMed
- Keywords
  - Overweight
  - CBT
  - Weight loss
  - Mental health

PRISMA Figure

Records identified through three databases searching Cochrane Library, CINAHL, and PubMed (n = 285)

Records after duplicates removed (n = 186)

Records screened (n = 186)

Full-text articles assessed for eligibility (n = 23)

Studies included in this review (n = 7)

- Meta-analysis: 2
- Systematic: 1
- RCT: 3
- CPC: 1

Records excluded after full-text review (n = 161)

Full-text articles excluded, with reasons pertaining to population, interventions, comparators, and outcomes (n = 16)
Findings

- Association of Mental Health and Obesity?
  - Yes!
- High rates of psychiatric disorders in individuals with obesity
  - Especially anxiety and depression
- 37% of obese women who seek weight loss treatment have clinical depression
  - Depression is associated with worse weight loss outcomes
- Obesity increases the prevalence of depression by 32%

Findings

- CBT efficacy for weight loss?
  - Yes!
- 6 month CBT trial – down an average 8 pounds
- 12 month CBT trial – mean % weight loss is 6%
- 8 month CBT trial – down an average 3 kg
- 6 month CBT trial – mean weight loss was 7 pounds
- 4.3 kg more weight loss with CBT compared to no CBT (5% loss of baseline weight)
- Clinical Practice Guideline
  - Strong evidential support for use of behavioral therapy in obesity management for adult primary care patients
Findings

• Improved quality of life?
  – Yes!
• Larger waist circumferences and higher body mass indices (BMI)
  – Lower quality of life
  – Higher impairment in completing ADLs\textsuperscript{12}
• Reduction of chronic conditions\textsuperscript{14}
  – Cardiovascular disease
  – HTN
  – Dyslipidemia
  – DM 2
  – CAD
  – Respiratory issues (e.g., asthma, OSA)

Evidence-Based Practice Change

• Increase screenings of anxiety, depression, and obesity to improve referrals to the cognitive behavioral therapist
  – Evidence-based
  – Improves patient outcomes
Model to Examine Phenomenon

- Situation
- Automatic Thoughts and Images
- Reaction
  - Emotional
  - Behavioral
  - Physiological

DNP Project Plan
**Project Purpose & Objectives**

- Improve health care providers screening of anxiety, depression, and obesity
  - Increase referrals to the in-office cognitive behavioral therapist for treatment of adult obesity
- Objectives of this DNP project:
  - Determine appropriate use of social worker
  - Determine scope of practice of the behavioral therapist
  - Establish current practice/use of the cognitive behavioral therapist
  - Expand role of an existing social worker
  - Develop a format for the education and referral process
  - Increase screening of anxiety, depression, and obesity
  - Increase health care providers’ knowledge and confidence to refer for implementation of CBT
  - Increase utilization of the in-office cognitive behavioral therapist
    - Increased referrals
Project Type

- Quality Improvement
  - Organizations with a strong QI orientation continually seek to improve their performance
    - Improve the outcomes of patients
  - Improved efficiency of clinical processes
  - Improved per capita cost
  - Improved communication with resources
    - Internal
    - External

Setting & Participants

- West Michigan primary care office
- Participants
  - Staff (health care providers, cognitive behavioral therapist, MAs)
  - Patients (Age >18; BMI >30; elevated PHQ-9 and/or GAD-7 scores)
Project Design

- Observational pre-post intervention based on the Diffusion of Innovations Model
- Addressed barriers that developed upon implementation

Implementation Model
Implementation Strategy & Element

- Educated health care providers, cognitive behavioral therapist, and other key stakeholders involved in the referral process prior to implementation in January 2019
  - Teaching stakeholders about the clinical innovation and gaining knowledge into what they already know
  - Meeting with providers in December 2018 helped determine pre-education knowledge with completion of a survey
Implementation Strategy & Element

- Proposed an electronic health record alert in current system to aid with recognizing need for referral to the cognitive behavioral therapist in December 2019.
  - Meeting with nursing informatics committee and IT specialist to develop alert
  - In queue for future processing
Implementation Strategy & Element

- Reexamined and audited the implementation process weekly for 30 days after implementation begins
  - Ensuring referrals to the cognitive behavioral therapist are improving weekly
    - Help guide future progress
    - Determine areas of strength and weaknesses
- Evaluated the referrals to the cognitive behavioral therapist starting in January 2019 and ending March 1, 2019

Implementation Strategy & Element

- Delivered a final report regarding if the objective, to increase referrals to the cognitive behavioral therapist, was achieved
  - How was the clinical question answered?
  - Future success
  - Spread knowledge
- Gathered and presented final results in the organization
- A final report on how implementation strategies helped meet the objectives and purpose of the project delivered by April 3, 2019
# Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
<th>Site Location</th>
<th>Collection Method</th>
<th>Data Collector</th>
<th>Description Date</th>
<th>Test Improvement Data</th>
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</thead>
<tbody>
<tr>
<td>Provider Knowledge</td>
<td>Change in self-rated provider knowledge regarding CBT efficacy for obesity (Question 1-5)</td>
<td>Project Survey</td>
<td>Manual collection</td>
<td>Doctoral Student - Information is identified to student</td>
<td></td>
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<tr>
<td></td>
<td>Change in self-rated provider knowledge related to other indicators (Ques. 6)</td>
<td>Project Survey</td>
<td>Manual collection</td>
<td>Doctoral Student - Information is identified to student</td>
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<tr>
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<td>Change in self-rated provider knowledge related to barriers to referral (Questions 9-10)</td>
<td>Project Survey</td>
<td>Manual collection</td>
<td>Doctoral Student - Information is identified to student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider Care and Influencing: Body Mass Index (BMI) Screening and Follow-Up</td>
<td>Percentage of patients aged 10 years and older (BMI) screened for depression and anxiety utilizing PHQ-9 and GAD-7 scales; any symptoms identified not to be diagnosed within 2 weeks after screening and for depression or anxiety scores obtained</td>
<td>Quality measures reporting from DSM-IV criteria (EPIC, 2005) (includes: 26, 26-05, 26-06, 26-07, 26-08, 26-09)</td>
<td>Quality report—within EPIC</td>
<td>Doctoral Student - Information is identified to student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider Care and Influencing: Depression and Anxiety Screening and Follow-Up</td>
<td>Percentage of patients aged 10 years and older whose symptoms identified for depression or anxiety as having depression or anxiety</td>
<td>Quality measures reporting from DSM-IV criteria (EPIC, 2005) (includes: 26, 26-05, 26-06, 26-07, 26-08, 26-09)</td>
<td>Quality report—within EPIC</td>
<td>Doctoral Student - Information is identified to student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referrals to Cognitive-Behavioral Therapist</td>
<td>Percentage of patients aged 10 years and older whose symptoms not identified for depression or anxiety are referred for cognitive behavioral therapy</td>
<td>Referrals from the EPIC document</td>
<td>Quality report—within EPIC</td>
<td>Doctoral Student - Information is identified to student</td>
<td></td>
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</tr>
</tbody>
</table>

## Pre-Survey Questionnaire

Please rate how strongly you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Cognitive behavioral therapy (CBT) is an effective treatment for adults with obesity.

It is imperative to recognize the benefits of CBT to the adult patient with obesity.

The use of CBT may result in a reduced likelihood of obesity.

The use of CBT in the adult patient with obesity is a reasonable approach.

Do you believe that any other barriers to increasing use of CBT in your organization? (e.g., lack of time, cost, etc.)

The use of CBT in your organization (e.g., lack of time, cost, etc.)

Are you willing to receive further information on CBT for obesity?

Are you interested in learning more about CBT for obesity?

<table>
<thead>
<tr>
<th>Not Interested</th>
<th>Need More Information</th>
<th>Interested to Learn More</th>
</tr>
</thead>
</table>
Analysis Plan

- Descriptive statistics and schematic analysis
  - Difference in staff knowledge pre and post?
  - Increase in screening of depression, anxiety and obesity?
  - Increase in referrals to cognitive behavioral therapist?
- Chi-Square – statistics grad student
  - Testing significance
  - Graphs and charts
- Present to stakeholders
- Publish findings
- Disseminate information
Resources

- Time
  - Educate staff
- Technology
  - EHR
  - Survey Monkey
  - Email
- Printed materials
  - Educational materials

Budget

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager Time (initial donation)</td>
<td>2,790.00</td>
</tr>
<tr>
<td>Contributions:</td>
<td></td>
</tr>
<tr>
<td>Statistical (in-kind donation)</td>
<td>100.00</td>
</tr>
<tr>
<td>Cost Mitigation (decrease in one patient's BMI below obesity range)</td>
<td>1,741.00</td>
</tr>
<tr>
<td>TOTAL INCOME</td>
<td>4,631.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager Time (initial donation)</td>
<td>2,790.00</td>
</tr>
<tr>
<td>Contributions:</td>
<td></td>
</tr>
<tr>
<td>Statistical (in-kind donation)</td>
<td>100.00</td>
</tr>
<tr>
<td>Team Member Time (1 hour of education)</td>
<td>679.00</td>
</tr>
<tr>
<td>Physician(s) (7)</td>
<td>180.00</td>
</tr>
<tr>
<td>Nurse Practitioner(s) (2)</td>
<td>23.00</td>
</tr>
<tr>
<td>Social Worker/Cognitive Behavioral Therapist</td>
<td>23.00</td>
</tr>
<tr>
<td>TOTAL EXPENSES</td>
<td>3,752</td>
</tr>
</tbody>
</table>

Net Operating Plus: 1,179.00
# Timeline

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1. Participant recruitment</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Educational class during staff meeting with pre-intervention survey</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Intervention period with ongoing support for questions</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Post-intervention survey</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5. Post-intervention analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>6. Results disseminated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

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# Results
Pre/Post Education Surveys

Screening of Disorders

Review of 50 Patient Charts
25% Increase
Referrals for CBT

Did Patients who Qualified get Referred for CBT?

Pre-Implementation Referrals

Post-implementation Referrals

$\chi^2 = 7.7973, p = .0052$

53% Improvement

Discussion
Discussion

- Provider knowledge and confidence increased
- Increase in screening for disorders
- Increase in referrals for CBT
- Increase in cognitive behavioral therapist’s workload
- Barriers preventing change
  - Co-diagnosis of disorders
  - Insurance not covering CBT
  - “No-Shows” to appointments
  - Over emphasis of weight at appointments
  - Patient wanting to discuss other aspects of care (e.g. mental health issues)

Limitations

- Short implementation period
- EHR alert still processing
- Small sample size
  - Unable to generalize to other populations
  - Difficulty evaluating statistical significance
Sustainability Plan

- Involve stakeholders and gain support
  - Continued advocacy
- Continue access to educational handouts
  - After completion of project
- Embedding into EHR
- Additional staff training in CBT
- Connections with outside sources

Dissemination

- Results shared with key stakeholders
- Site poster exhibit
- DNP defense
- Scholar Works
- Current research committee collaboration
  - recommended
DNP Essentials

DNP Essentials Reflection

• I: Scientific Underpinnings for Practice
  – Evidence-based practice guided change
  – Use of science based theories to guide implementation

• II: Organizational and Systems Leadership
  – Meetings with organizational leaders
  – Assessment of the organization
  – Communication with key stakeholders
  – IRB approval
DNP Essentials Reflection

- III: Clinical Scholarship and Analytical Methods
  - Review of the literature
  - Statistics for analysis of results
- IV: Information Systems Technology
  - Use of EHR
  - Email, survey websites
  - Microsoft Excel for analysis
- V: Advocacy for Health Care Policy
  - Identification of need for policy

DNP Essentials Reflection

- VI: Interprofessional Collaboration
  - Collaboration with stakeholders
- VII: Clinical Prevention Population Health
  - Analysis of specific organizational data related to CBT use
- VIII: Advanced Nursing Practice
  - Adult/Older Adult focus
  - Quality improvement project
  - Acted as advisor during implementation
Conclusion

- Needs to increase referrals in a Midwest primary care office
- An organizational assessment and literature review was conducted
- The QI project was implemented
- Results indicated improvement in three areas
- Potential saving in money and reduction in morbidity/mortality
- Potential for application to other chronic diseases
References


Questions?