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Improving Knowledge of Obesity Treatment Options: A Quality Improvement Project

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Improving Knowledge of Obesity Treatment Options: A Quality Improvement Project

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Table of Contents

Abstract

Background: It is reported that obesity accounts for over 40% of adults in the United States in and continues to grow worldwide. A patient is diagnosed with obesity when they have an excess fat accumulation leading to a body mass index (BMI) over 30 kg/m2. It affects almost every system within the body. Obesity places patients at an increased risk for many comorbid conditions and can exacerbate existing co-morbidities. This disease not only contributes to an increase rise in medical costs and burdens public health systems but may also have a negatively effect on patient's quality of life.

Objective This quality improvement project (QIP) was to educate patients on obesity and treatment options available. With the increased knowledge, patients can translate this into making lifestyle changes in their lives resulting in better quality of life.

Methods: This quality improvement project utilized a pre/posttest design. The patients recruited from a primary care practice had their knowledge of obesity assessed before and after a 15-minute educational intervention. Their knowledge was assessed using an author developed survey. The survey results should indicate if an improvement in their knowledge from the educational intervention was effective.

Results: A total of $n=6$ patients from a primary care practice agreed to participate in the project, with an average age of 50.33 years (*SD 11.81*). Mean knowledge scores increased from 4.71 (*SD 1.49)* at baseline to 5.79 (*SD 0.43)* post intervention. A Mann-Whitney U-test to compare the scores indicated the following $z = 1.67709$, $p < 0.04648$, suggesting that their knowledge improvements statistically significant.

Conclusion: For patients with a diagnosis of obesity, patient education does increase their knowledge of obesity and treatment options available to them.

Implications: The increase in knowledge of obesity, should translate into patients making positive changes in decreasing their weight. This should improve, decrease, or eliminate any obesity-related co morbidities and improve their overall quality of life.

Introduction

Obesity is defined by the World Health Organization (WHO, 2020) as having an abnormal or excessive fat accumulation that is a risk to one's health, with body mass index (BMI) over 25 kg/m2 considered overweight and over 30 kg/m2 to be obese. Obesity has progressed to epidemic proportions and according to WHO, over 4 million people die each year as a result. The disease continues to grow, accounting for approximately 42% of adults in the United States (U.S.) in 2017-2018 (Hales et al., 2020). Obesity puts the patient at an increased risk for mortality with risks for development of comorbid conditions including respiratory issues, type 2 diabetes (T2D), gastrointestinal, and cardiovascular disorders, muscular and psychological disorders, and certain cancers (Fruh, 2017). Obesity not only affects the patient's quality of life but also contributes to increased medical costs and the public health systems (Zelenytė et al., 2021).

With such an increased rise in obesity, there is a need for prevention as well as effective treatment by primary care providers (PCP). Intensive medical treatment can reduce the risk of cardiovascular disease by 5% to 8% for obese patients, while bariatric surgery may offer longer term treatment for obesity related comorbidities such as hypertension, diabetes, and dyslipidemia (Jakobsen et al., 2018). Current guidelines suggest that PCPs take a step approach in treating obesity as it relates to an increasing BMI. One should first start with lifestyle changes that includes dietary and exercise for BMI between 25-30 kg/m2 (Bottcher & Chao, 2021). If a patient's BMI however is 25 kg/m2 or higher with obesity related co-morbidities or the patient has no obesity-related comorbidities but a BMI of 30 kg/m2 then medication can be started along with lifestyle modifications (Bottcher & Chao, 2021). There are currently medications (Chakhtoura et al., 2023) approved by the Food and Drug Administration (FDA) for long-term

treatment of obesity with extremely limited studies showing effectiveness (Chakhtoura et al., 2023; Khera et al., 2016). Patients may be unsure of the safety of the medications and whether the risk of taking these medications outweighs the benefits. With such hesitant of not knowing if medications are safe or part of a "fad" diet, patients are hesitant is requesting medications for obesity. Lastly, patients with a BMI of 35 kg/m2 with obesity related comorbidities, or BMI greater than 40 kg/m2 with no comorbidities can be referred for bariatric surgery (Bottcher & Chao, 2021), although most patients tend to are sometimes unaware that they may be a candidate for this surgery.

With proper treatment, a modest weight lost can lead to improvement or prevention of comorbidities (Stanford et al., 2015). Weight loss of even 5 percent can significantly improve patient's outcomes, with one study showing an average weight loss of 5.5 kg can reduce mortality by 15 percent (Stanford et al., 2015). The modest weight reduction of at least 5% can reduce an individual's risk for CVD, diabetes, sleep apnea and hypertension (Fruh, 2017). There are a few barriers that prevent the treatment of obesity in the primary care settings.

Problem Statement

Problem Identification

The problem being addressed through this quality improvement project involves patients' knowledge of obesity and how it may affect their health and quality of life. Obesity is a worldwide epidemic that has major health concerns with a higher risk for mortality due to increased risk for obesity-related comorbidities (Blüher, 2016). Comorbidities ranging from cardiovascular disease (CVD), gastrointestinal disorders, type 2 diabetes, joint and muscular disorders, respiratory disorders, cancers, and psychological issues which all may have significant impact on the daily lives as well as increase mortality risks (Fruh, 2017). Most recently during

the pandemic, obesity has contributed to deaths related to COVID-19 virus (Hecker et al., 2022,). There are a few barriers that emerged from the studies as to why patients aren't routinely treated for obesity. Some barriers identified includes lack of communication in the provider-patient relationship, lack of treatment from the primary care providers and the stigmatization of obesity in society.

Studies have shown that patient tend to believe there is a stigmatism in society on views of people who are overweight (Ananthakumar et al., 2019). The systematic review study by Ananthakumar et al., of 21 previous studies conducted that complied of approximately 466 patients' response to their encounters with their primary care provider, it revealed that the number one theme presented in their research showed that people who are overweight or obese felt that other are judging them including their doctors as lazy or not committed. This stigmatism or thinking may lead patients to lower self-esteem. In fact, according to research by Glauser et al (2015) people with obesity tends to have lower self-esteem, fewer employment opportunities and lower admission into college (Glauser et al., 2015). Another theme brought forward in the study by Ananthakumar, patients admitted that their doctors never initiated the conversation and should be the ones to initiate the conversation with proper goal setting to facilitate more adherence.

Studies reviewed in this project reveals the most common reasons for not treating obesity in the primary care settings are due to lack of communication between the provider and the patient and the barriers that prevent treatment of obesity by the primary care providers. Studies reviewed from Ananthakumar et al., (2019), Zevin, et al., (2021), and Kaplan et al. (2017) demonstrate that most patients were not told that they were obese or how obesity can seriously affect their lives. In the study by Kaplan et al., more patients felt they were solely responsible for

their weight management than the primary care providers. This is also seen as a barrier for primary care providers in treatment their patients for obesity. In the study conducted by Falvo et al. (2017) some of the barriers for providers in treating obesity in the primary care setting includes lack of motivation by the patient, limited visit time as well as lack of knowledge for obesity treatment options. In the same study by Falvo et al., more than 66% of providers prescribed diet and exercise for obesity treatment for their patients but less than half of those providers prescribed medication in the treatment of obesity.

Background

PCPs are the primary contact for patients seeking medical interventions and should know how to treat and manage obesity (Zevin, et al., 2021). Weight management can be effective in the primary care setting however treatment is often uncommon (Kaplan et al., 2017). Studies reviewed by Zevin, et al. demonstrates a great lack of knowledge and communication between providers and patients (Zevin, et al., 2021). Additionally, there is still a stigma associated with patient with obesity, even with the rise of obesity as a recognized disease. Weight bias is defined as having a negative view or believe of people with obesity while weight stigma is fueled by the weight bias of societal normal as a way of discriminating or devaluing the lives of people with obesity (Ananthakumar et al., 2019)

One of the themes that Ananthakumar et al., (2019) presented in their study was that a "profound" amount of people who was overweight believed that their doctors were judging them about their weight in a negative way. Moreover, if the provider did not mention their weight, then the patient perceived it as not of importance and was not seriously affecting their health. Patients in the same study reportedly felt that their primary doctor should have warned their patients of future health risk which the patients only assumed that the doctor had a perception of them as

being fat, lazy, or not committed to weight loss. In a cross-sectional design study conducted by Kaplan et al. (2017), approximately 64% of patients with obesity understood obesity as a disease but a little over half, 54%, worried that their weight may affect their health in the future. In the same study, the majority of patients, 82% felt completely responsible for their weight loss with less providers, 72%, feeling responsible in contributing to weight loss efforts. The study also demonstrated only half of patients with obesity saw themselves as obese and approximately the same number of patients, 54%, receiving a diagnosis of obesity. Patients and providers often underestimate a patients' weight by sight and weight may not be include it in discussion with their provider (Zevin, et al., 2021). In a quality-of-care study conducted in an ambulatory care setting, approximately fifty percent of patient records did not include weight or height data and almost 70% of patients with BMI over 30 kg/m2 were not reported (Zelenytė et al., 2021). The reported BMI that was over 30 kg/m2, only 37% of patients received counselling of diet, exercise, or weight reduction (Zelenytė et al., 2021). In the same study by Zelenyte et al., all the respondents in all groups that includes doctors, nurses, and patients, were not aware of risk factors associated with obesity. The study also concluded that more than half of the participants were not aware of obesity being a risk factor for depression. Additional less than a quarter of nurses and patients that participated correctly corelated obesity being associated with an increased risk of some cancers (Zelenyte et al., 2021).

With inconsistency of treatment options available to patients whether its due to lack of provider and or patient knowledge, adequate self-management is important. Providing patient education in improving adherence to obesity treatments can help lower the risk of comorbidities and/or improve other comorbid conditions related to obesity.

Scope of the Problem

Obesity is a global epidemic, which affects more than 78 million adults and 12.5 million children and adolescents in the U.S. (Stanford et al., 2015). Obesity from 1999-2000 through 2017 to March 2020 showed that obesity in the United States (US) has increased from 30.5% to 41.9% with severe obesity increasing from 4.7% to 9.2% (Center for Disease Control and Prevention, 2022). There are over 650 million adults worldwide as well that has have this disorder (Stanford et al., 2015). Subsequently, obesity creates both a health and economic toll according to Stanford et al., (2015). The disease can adversely affect the quality of life of an individual which research as shown a direct link to more than 65 comorbidities which includes coronary artery disease, diabetes mellitus, hypercholesterolemia, hypertension, some cancers, musculoskeletal disorders, and mental health disorders (Stanford et al., 2015). Obesity-related conditions are among the leading causes of preventable and premature death (Center for Disease Control and Prevention, 2022).

Obesity does contribute to burdens to society and the economy (Hecker et al., 2022). Increase comorbidities from obesity leads to more sickness which leads to increased healthcare costs, as well as costs to the patient and to overall productivity (Hecker et al., 2022). People with obesity have a 42% higher medical cost a year than people who are not obese (Glauser et al., 2015). Studies have shown that obesity contributes 5.5 to 7.8% of total healthcare expenditures in most countries (Hecker et al., 2022,).

Obesity also contributes to 17% of the national health expenditure due to obesity related comorbidities (Glauser et al., 2015). Medical costs due to obesity is as high as $173 billion in the United States (Ward et al., 2021). Adults with obesity spends approximately $1,861 more in medical costs per year than people with healthy weight (Ward et al., 2021). An individual who is

overweight can average over $600 per person per year with individuals with severe obesity averaging healthcare cost goings high as $3,000 more a year (Ward et al., 2021). These excess costs contribute to over $50 billion in medical spending a year due to obesity (Ward et al., 2021). Obesity also increase mortality significantly with life expectancy decreasing by 5-10 years (Fruh, 2017). Evidence suggests that individuals with obesity have higher mortality rates with comorbidities of CVD and cancer (Fruh, 2017). In a large meta-analysis study that included studies with over 10 million individuals enrolled, the hazard ration (HR) for all-cause mortality significantly increased with an increasing BMI (Fruh, 2017). For individuals with BMI of 25.0 to less than 30.0 kg/m2, the HR was 1.11 and increased as the BMI increased (Fruh, 2017). For BMI of 30.0 to less than 35.0 kg/m2, the HR increased to 1.44 and up to 2.71 for a BMI of 40.0 to 60 kg/m2.

Consequences of the Problem

Individuals with obesity has an increased risk for a range of comorbidities which includes diabetes, cardiovascular disease, hypertension, dyslipidemia, osteoarthritis, cancers, benign prostatic hyperplasia, reduced fertility, asthma, sleep apnea and more (Glauser et al., 2015). When the body goes from lean to obesity, there is a phenotype change in the adipose tissue which leads to the development of low-grade inflammation that becomes chronic (Fruh, 2017). There are increasing levels of free-fatty acids circulating along with soluble pro-inflammatory factors within the body as well as the activation and occupation of immune cells into sites of inflammation (Fruh, 2017). Obesity is also associated with atherogenic dyslipidemia that leaves small, dense low-density lipoprotein (LDL) particles, low high-density lipoprotein (HDL) particles as well as high triglyceride levels (Fruh, 2017). The chronic inflammation along with

dyslipidemia leads to atherosclerosis formation and impaired fibrinolysis, putting the individual at risk for CVD as well as stroke and thrombus (Fruh, 2017).

The chronic inflammatory state that obesity brings is a contributing factor for insulin resistance, which is a key component for developing type 2 diabetes (Fruh, 2017). Increased waist circumference as can be seen in obesity is a defining component of metabolic syndrome which also includes raised triglycerides, reduced HDL, raised blood pressure and raised fasting glucose (Fruh, 2017). These conditions (dyslipidemia, systemic inflammation, and insulin resistance) are also associated with sleep apnea (Fruh, 2017). Fat deposits can accumulate around the upper airway and thorax which directly affects the lumen size also limiting chest compliance, subsequently contributing to the development of obstructive sleep apnea (OSA) (Fruh, 2017). Cancers are also associated with obesity due to the excess levels of fat, obesity-related insulin resistance, hyperinsulinemia, sustained hyperglycemia, inflammation, and production of adipokines (Fruh, 2017). These cancers include colorectal, pancreatic, kidney, adenocarcinoma of the esophagus and postmenopausal breast cancer (Fruh, 2017).

Knowledge Gap

There are limited studies examining patients' perspective on obesity treatment and the importance of receiving adequate treatment by the primary care provider. Thus, leaving a knowledge gap that is related to the current state of patient's knowledge regarding obesity and obesity treatments. Knowledge of obesity and treatments can affect health results in patients with obesity to improve their quality of life. Open discussion educating patients on the risks and comorbidities of obesity may help patients make decisions that are individualized for their situation. All patients with a diagnosis of obesity should be appropriately advised regarding this disease and options available to them. Patients have a wide range of options including lifestyle

changes that includes diet and exercise, weight loss medications, nutritional counseling, weight loss support groups and surgery.

Patient knowledge of the available resources for treatment of obesity and risk that obesity has on their health can help change weight loss effort results. Provider's bias and stigmatization needs to be nonexistent in the patient-providers interaction. Weight stigma has been shown to provide patient with poorer health outcomes and management on a physical, mental, emotional, and behavioral level (Ryan et al., 2023). Increased adherence to treatment options can help to improve exacerbations of comorbidity, reduce the risk of obesity related comorbidities thus improving quality of life. With lack of proper information about the effectiveness of patient education, adequate teaching must be done by the PCP of obesity in the clinical setting.

Significance

Primary care providers must take the time to assess the patient's knowledge of obesity for patients to improve their adherence to treatment. The patient must be provided with the proper education on how serious obesity can affect their health and quality of life. The patient's obesity status should always be monitored at every visit as any or co-morbidities or diseases that the patient may have. Appropriate treatment options should be offered to patients during these sessions. The purpose of this study is to improve the knowledge of obesity in patients with the diagnosis so that they would be able to manage this disease effectively. Understanding the disease and the serious effects it may have on their quality of life is significant to overcome any obstacles that may prevent adherence to treatment of obesity. As stated above, knowledge of obesity from the provider to patient opens an unbiased provider-patient relationship that encourages individualized treatment approaches that can improve the patient overall quality of life.

Literature Review

The World Health Organization and Centers for Medicaid and Medicare in 2013 initially defined obesity as a disease (Tucker et al., 2021). Obesity is one of the leading causes of death in the United States and the prevalence has since tripled worldwide since 1975 (Tucker et al., 2021). There are many factors that influences obesity including genetics, behavioral and environmental which leads to accumulation of adipose tissue which may disrupts the body's energy regulatory system making weight loss harder (Tucker et al., 2021). Obesity also may lead to other diseases such as cardiovascular disease, cancer, type 2 diabetes, stroke, hypertension, osteoarthritis, respiratory disorders, reproductive disorders, and many more (Zevin et al., 2022). Although the modest weight loss can improve life expectancy, quality of life, and reduce medical expenditures associated with chronic conditions, primary care providers (PCP) are reluctant or avoid the discussion and prolong the treatment of obesity (Falvo et al., 2017).

PCPs are essentially the ones to offer obesity care however very few providers treat or refer patients for weight loss. The United States Preventative Services Task Force (USPSTF), American Academy of Family Physicians, American College of Cardiology (ACC), American Heart Association (AHA), The Obesity Society (TOS), American Association of Clinical Endocrinologist/American College of Endocrinology (AACE) and the American College of Obstetrics and Gynecology (ACOG) all have recommendation that patients with obesity should be offered treatment or referred for treatment (Bailey-Davis et al., 2022). Barriers for obesity treatment by PCPs were reported as having lack of known effective treatments, inability to change patient's behavior, negative attitudes, and lack of motivation by the patient (Falvo et al., 2017).

The literature review presented will examine the current literature addressing PCPs perception and barriers to weight management options within the primary care setting, the patient's perception of obesity and treatment options and the need for patient to be educated on weight loss management stepwise approach. Studies were reviewed and analyzed as to PCPs and patients' perceptions, knowledge, and interventions associated with obesity. Interventions for obesity includes a step approach starting with lifestyle modifications, pharmacological treatments, and referrals for additional weight loss management with a specialist or for bariatric surgery. The population of interest will be patients with a diagnosis of obesity being treated within the primary care office settings.

Literature Search Process

The literature search involved keywords associated with the PICO question, keywords included: "primary care providers" OR "healthcare providers" or "patients" AND "perception on obesity" OR "primary care providers" AND "obesity treatment" OR "weight loss management" OR "bariatric surgery." The initial search yielded 7,983 articles, however once the limits on the timeframe and database were selected, the search was reduced to 2,044 articles. The database selected for review were PubMed, DOAJ Directory of Open Access Journals, Medline, Gale OneFile: Health and Medicine and Springer Online Journals. Articles were searched between the time period of 2017 to 2023 using Boolean/Phrase search terms, full text only, adults, English, peer-reviewed, and articles. Eight articles were selected based on relevancy to PICO question and a literature matrix can be found in the attached Appendix A.

Inclusion and Exclusion Criteria

The results of research were further narrowed to include primary care providers and patients' perception and treatment of obesity. Understanding first the barriers that PCPs are faced

in addressing obesity in the primary care setting are essential in providing an appropriate solution. Studies have identified barriers to primary care providers inability to properly and/or adequately treat and educated patients on obesity during an office visit. With new updates to FDA approved medications, studies have suggested the need for ongoing training in obesity treatment can be helpful for providers to confidently treat this disease appropriately or refer the patient to a specialist. There are also very limited studies examining patients' perspective on obesity treatment and the importance of receiving adequate treatment by the primary care provider. Exclusion criteria included articles that involved children and adolescents, and outside of the United States. Articles were excluded if they did not present with any obesity treatment or either primary care providers or patients' perception on obesity treatments. Articles that focused on specific population groups were also excluded from the literature review, to have an analysis of an overall population instead of one specific group.

Literature Appraisal and Literature Matrix

Evidence in research has different levels that are used to categorized studies performed based on the research design, quality of evidence as well as strength of evidence. Research with evidence that has the highest rating in research design, quality and strength usually translate into having a higher impact on patient outcomes (Dearholt & Dang, 2018). The literature matrix attached in the Appendix has mostly quantitative nonexperimental studies. These studies contain Level III evidence and is the lowest in the research hierarchy (Dearholt & Dang, 2018). Nonexperimental studies have subjects that are not randomly assigned to different groups, and variables are not manipulated which is the main difference with experimental studies (Dearholt & Dang, 2018). Nonexperimental studies may or may not have an intervention and the investigator may not be able to control the environment (Dearholt & Dang, 2018). The majority

of studies listed in the literature matrix for this review falls under the category of univariate descriptive studies by using exploratory or survey designs to identify the frequency of an occurrence (Dearholt & Dang, 2018). Exploratory or survey designs are common in healthcare setting when little is known about a particular phenomenon of interest (Dearholt & Dang, 2018). The studies listed in the literature matrix explores the both the PCP and patients' perception of obesity and treatment options. This is used to better understand the lack of obesity treatment within the primary care settings. Understanding the perception of both PCPs and patients on obesity and treatment options can aide in providing better training for providers to better education their patients on the available treatment options.

Characteristics of the Included Studies

The study titled "Primary care providers' attitudes and knowledge of bariatric surgery" purpose is to assess the barriers that PCPs encountered when treating patients with obesity (Lopez et al., 2019). Surveys containing 39-questions were sent to 121 PCPs at an academic institution with community physicians, which included demographics, patterns of referrals, knowledge of obesity pathophysiological process and the criteria for bariatric surgery (Lopez et al., 2019). The study met for Level III evidence with good quality due to "reasonably consistent results, fairly definitive conclusions, with fairly comprehensive literature review including some reference to scientific evidence" (Dearholt & Dang, 2018). The sample size was small, 41 respondents, at a 33.9% response rate (Lopez et al., 2019).

The results from this study showed that less than 50% of PCPs initiated weight loss management conversations with only 48.8% of their patients (Lopez et al., 2019). The study also identified PCP barriers for referral for patients to weight loss surgery included not being sure if patient's insurance would cover the procedure, 24.4% or if patients would qualify for surgery,

19.5%. Less than half, 43.9% of the providers that responded felt the benefit of weight loss surgery did not outweigh the risk (Lopez et al., 2019). The study provided insight on PCPs attitudes and knowledge of why they may not refer a potentially eligible patient for weight loss surgery, which can be concluded as lack of knowledge regarding the safety of bariatric surgery. Limitations of this study includes a small sample size, only consisting of 41 PCPs that are relying on their ability to recall patients' interactions (Lopez et al., 2019). Further limitations include the study not being validated (Lopez et al., 2019).

"Qualitative inquiry with primary care providers and specialists about adult weight management care and referrals" is a qualitative Level III study by (Bailey-Davis et al., 2022) with good quality evidence. The purpose of this study was to understand PCPs' and specialty providers' perspective on weight management and referrals to community-based programs (Bailey-Davis et al., 2022). The study included PCPs as well as specialty providers that treat obesity-related comorbidities (Bailey-Davis et al., 2022). A national survey research company (Qualtrics) was used to conduct the survey to identify qualifying PCP and specialists in urban, rural, and suburban populations, where providers can represent a specific population and practiced for at least 1 year. Formative interviews with clinicians were conducted that included questions about specific clinical guidelines (Bailey-Davis et al., 2022). Questions also included confidence in delivering or making referrals to lifestyle interventions, prescribing medications, and making referrals for bariatric surgery evaluations (Bailey-Davis et al., 2022). Conversation starters about weight management and impressions about community based intensive lifestyle interventions were also a part of the interview (Bailey-Davis et al., 2022). Each interview was conducted by a phone call that was recorded and transcribed verbatim.

A total of 33 PCPs and 31 specialists completed the phone interview which lasted an average of 12-15 minutes (Bailey-Davis et al., 2022). Thematic analysis was completed with the transcripts involving six phases (Bailey-Davis et al., 2022). Using an open-coding approach to compare initial codes from data to arrive with themes from the data (Bailey-Davis et al., 2022). Consensus was reached on emergent themes using inductive, constant comparative strategy through a written review and Socratic discussion of coded data (Bailey-Davis et al., 2022). The four themes that emerged from the study were 1) providers and specialties used their discretion and clinical guidelines to influence their care for obesity 2) providers identified different approaches and strategies, as well as barriers to discussing weight with patients 3) referrals were given informally to patients for community based weight management programs and 4) the challenges and opportunities that the providers noted when integrating clinical and community services for weight management (Bailey-Davis et al., 2022). Limitations in this study included have a small sample size with limited interviewing time (Bailey-Davis et al., 2022).

The quantitative research titled "An Exploration of Barriers Facing Physicians in Diagnosing and Treating Obesity" aimed to identify if primary care physicians could visually determine a patient's body mass index (BMI) and to identify barriers related to diagnosis and management of obesity (Hite et al., 2018). This prospective survey study was in the setting of hospitals and clinics with primary care providers that specialize in the fields of internal medicine, family medicine and obstetrics/gynecology (Hite et al., 2018). The survey was sent to primary care providers via survey e-mail link or via paper survey and responses were entered into the RED-Cap survey platform and SPSS Version 23 were used in all analyses (Hite et al., 2018). Three scales emerged from the descriptive statistics and frequency of responses calculations: 1.

Barriers to obesity care 2. Comfort providing obesity care 3. Comprehensive obesity care (Hite et al., 2018) (Hite et al., 2018).

The study above is characterized as Level III quantitative nonexperimental study with high quality rating due to having a sufficient sample size, definitive conclusions, consistent recommendations (Dearholt & Dang, 2018). The Classical Test Theory-based analyses of reliability and validity were used to evaluate psychometric properties, then the Spearman Correlation Coefficient was used to find associations within the 3 scales (Hite et al., 2018). Analyses to find relationships to each other were used and included the Chi-square analysis, Fisher exact test, and Student t-test (Hite et al., 2018). The results from the study showed that providers are not able to accurately calculate a patient's BMI from just looking at the person, majority underestimating the patient's true BMI (Hite et al., 2018). The study also shows that providers may not document the patient's BMI within the medical record, leading to miss opportunities to discuss obesity treatment options as well as treatment to prevent obesity-related complications (Hite et al., 2018). While time was reported as being a common barrier to treatment options, many providers reported not feeling comfortable with prescribing medications and/or surgery to treat obesity (Hite et al., 2018). The study was limited in diversity of the providers that responded as well as only working in a health-system and a university-based practice (Hite et al., 2018). The study did not include other resources such as a referral to other specialties that can better treat the patient's obesity (Hite et al., 2018). This survey has been one of the largest identified with at least 200 participants (Hite et al., 2018).

"Developing weight navigation program to support personalized and effective obesity management in primary care settings: protocol for a quality improvement program with an embedded single-arm pilot study" by Griauzde et al., (2022) is a study considered Level II

mixed-methods sequential explanatory design since it shows that an "intervention causes a particular outcome" (Dearholt & Dang, 2018). The study does contain an experimental group, participants in the Weight National Program (WNP), and is compared with the control group (matched cohort of patients from another primary care site) Griauzde et al., (2022). There is no randomization of placing participants into either the WNP group or the cohort of patients from another primary care site, eliminating this study as a true experimental study (Dearholt & Dang, 2018). The quality of evidence is good since it has reasonable consistent results, some control, reasonable consistent recommendations, however the sample size was small (Dearholt & Dang, 2018).

The purpose of the study was to develop and pilot test an innovative care model that would integrate ABOM-certified physicians into primary care settings in providing personalized obesity care to patients at a Michigan Medicine primary care site. (Griauzde et al., 2022). This study was a quality improvement program with a 12-month single arm pilot study (Griauzde et al., 2022). PCPs could refer patients to WNP if they were obese and had at least 1 weight-related co-morbidity (Griauzde et al., 2022). The patients seen at WNP during the pilot would be compared to matched cohort of patients from another primary care site (Griauzde et al., 2022). Surveys would be done at 0,6, and at 12 months, qualitative interviews done at 0 and 6 months and electronic health record (EHR)-based text messaging program for weight monitoring (Griauzde et al., 2022). Descriptive analyses were done using measures of central tendency then the mean 3-month and 6-month weight changes from baseline was calculated as well as the number of participants that have at least 5% body weight loss at 6 and 12 months (Griauzde et al., 2022). Between group changes were calculated using a difference-in-difference analytic approach and all analyses were conducted using Stata 15 (Griauzde et al., 2022). Interviews were

entered into qualitative analysis software, which was conducted via semi-structured interviews that were recorded and transcribed verbatim (Griauzde et al., 2022). The quantitative and qualitative findings in the final stage of data analysis were integrated with a mixed-methods sequential explanatory design (Griauzde et al., 2022). Limitations for this study includes the fact that it was done at a single site which cannot be used to generalize all practice settings (Griauzde et al., 2022). Secondly, there are cost barriers identified within this study, out of pocket costs may be high if insurance does not cover weight management services including medications are nutritionist, although most insurances are starting to cover these expenses (Griauzde et al., 2022).

The study titled "Primary Care Physicians' Perceptions of Bariatric Surgery and Major Barriers to Referral" by Conaty et al., (2019) purpose was to analyze a large cohort of PCPs clinical perceptions regarding bariatric surgery and to identify major barriers to referral to create future educational strategy for underutilization of bariatric surgery (Conaty et al., 2019). A prospective anonymous electronic survey was sent to all PCPs at a multicenter community-based academic hospital system between March and June of 2018 with 150 respondents (Conaty et al., 2019). The study used a five-point Likert scale including strongly disagree, disagree, neutral, agree and strongly agree (Conaty et al., 2019). Final 3 questions are for freeform answers with results of the study showed that between 83 and 88 % of PCPs agreed that bariatric surgery is effective and a valuable tool for the treatment of obesity and related comorbidities (Conaty et al., 2019). Majority of the PCPs within the study also believes that bariatric surgery is the best option for weight loss for pts with BMI of 40 and above and benefits patients with BMI of 38 and above with comorbidities (Conaty et al., 2019).

The majority of providers (86%) agreed that having a BMI over 40kg/m2 is a greater risk to patient's health than the bariatric surgery (Conaty et al., 2019). Less than half the providers

interviewed acknowledged being familiar with NIH criteria for bariatric surgery with 59.5% reporting feeling comfortable taking care of a post operative bariatric patient (Conaty et al., 2019). The primary barriers that providers reported facing for referring patients for bariatric surgery were surgical complications or long-term effects accounting for 21.5% and 18.5% of providers believe that bariatric surgery is ineffective for weight loss (Conaty et al., 2019). The study above is considered a Level III nonexperimental cohort study with high level evidence based on having a sufficient sample size for study design with definitive conclusions with consistent recommendations (Dearholt & Dang, 2018).

"Primary care provider management of patients with obesity at an integrated health network: A survey of practices, views, and knowledge" by Falvo et al. (2017) is considered to be Level III mixed-methods research evidence with reasonably consistent results, fairly definitive conclusions and reasonable recommendations resulting in good quality evidence (Dearholt & Dang, 2018). The article purpose was to evaluate PCPs perceptions, knowledge, and habits for their patients with obesity (Falvo et al., 2017). Evaluation also includes barriers that PCPs may face with treatment options including bariatric surgery in an integrated health network (Falvo et al., 2017). The study was done using a 16-question survey electronically sent to 160 PCPs at their integrated health network (Falvo et al., 2017). Results from the study were then analyzed based on PCPs attitudes, knowledge, practice habits and referrals to bariatric surgery (Falvo et al., 2017). A 5- point Likert scale was used to analysis the results of the study which showed out of 160 PCPs the response rate was 28.1%, 45 participants (Falvo et al., 2017). Most PCPs, 88.9% responded as always calculating patient body mass index but only 13.3% of those PCPs actually discussed the BMI results with their patients (Falvo et al., 2017).

The results also showed that PCPs most often prescribed diet and exercise, rarely prescribed medications, or referral to bariatric surgery (Falvo et al., 2017). Most of the PCPs that responded believes that patients are responsible for the management of obesity (97.6%) as well as the PCP (100%) (Falvo et al., 2017). There were no providers able to correctly identify the prevalence of obesity within their region, but 93% believe that it is a common diagnosis in their practice (Falvo et al., 2017). The majority of providers knew what the eligible criteria was for bariatric surgery and were able to identify specific medical problems that could be improved or eliminated after surgery (Falvo et al., 2017). Some PCPs were hesitant to refer additional patients due to prior negative experiences with postoperative bariatric patients (Falvo et al., 2017).

The study showed that most providers prescribed lifestyle modifications and believes that this is the most effective way to treat obesity (Falvo et al., 2017). Most of the providers surveyed are also aware of services provided within their integrated health network such as weight loss informational sessions and bariatric services (Falvo et al., 2017). Barriers reported that only one third of patients with obesity is motivated to lose the weight (Falvo et al., 2017). Additional barriers include insurance coverage and the inability to identify a bariatric surgeon within their integrated health network (Falvo et al., 2017).

"Provider Advice About Weight Loss in a Primary Care Sample of Obese and Overweight Patients" by Halbert et al., (2017) is a Level III quantitative nonexperimental descriptive design study with a cross sectional time-dimensional design. The study has a good quality rating due to reasonably consistent results with a sufficient sample size and fairly definitive conclusions. The purpose of the study was to evaluate what advice was given to patients who is overweight or obese from their provider (Halbert et al., 2017). This was an observational study with 282 patients and results showing that approximately 59% of participants

had been advised to lose weight by their providers (Halbert et al., 2017). The study also showed that participants who were obese or believed they were obsessed were more likely to report providers advice compared to overweight patients (Halbert et al., 2017). Also, patients who shared decision making with their provider were more willing to report that they did receive weight loss management from the provider (Halbert et al., 2017). The study shows the need for more providers to be comfortable with discussing weight loss management with obese/overweight patients with an opportunity for continual education among providers about weight loss (Halbert et al., 2017).

"Online Lifestyle Modification Intervention: Survey of Primary Care Providers' Attitudes and Views" by Hanna et al., (2018) is a Level III nonexperimental cross-sectional study with good quality evidence (Dearholt & Dang, 2018). The aim of the study was to evaluate the response of PCPs to a referral model that consist of a yearlong weight loss program online for obese adult patients (Hanna et al., 2018). PCPs were asked to refer obese patients to a year-long self-managed lifestyle intervention support program (Hanna et al., 2018). After the year-long program, the providers were surveyed on the views of the program, including their attitudes, level of satisfaction with the counseling services and the process that involved using the electronic health record for referrals (Hanna et al., 2018). The results of study showed 67 out of 185 providers within six primary care practices responded, 17 were nonreferring providers and 50 were referring providers (Hanna et al., 2018). The nonreferring providers showed a preference for counseling their patients themselves on lifestyle modification including diet and exercise, acknowledging having enough time. They also reported that their patients lacked computer skills or did not have access to the internet and 19% of respondents stated that obesity should be managed outside of the practices (Hanna et al., 2018). Referring providers found that referral to

community counseling programs for health lifestyle promotion was useful, which includes in-person counseling visits with a health coach, online support from a health educator and reminder phone calls (Hanna et al., 2018).

Limitations of the study includes a low response rate of 37% which does not reflect a vast amount of PCP opinions regarding the referral program, lacking diversity among different areas (Hanna et al., 2018). Secondly, since this is a cross-sectional study, providers attitudes may have changed due to exposure to the intervention, since they were surveyed after the yearlong intervention (Hanna et al., 2018). Strength of the study includes evaluating physicians' views with referral to an online self-management support that has not been done before the time of this study (Hanna et al., 2018). Another strength of the study includes the multiple sites that were participated (Hanna et al., 2018).

The study "Patients' perceptions and experiences of patient-centered care in dietetic consultations" by (Sladdin et al., 2017) is a qualitative study aimed to educate on how effective patient-centered care (PCC) are in dietetic consults by looking at the patient's perception and experiences of individualized PCC dietetic consultations. The study is considered level III constructivist-interpretivist paradigm that involved adult participants who had participated in at least 1 dietetic consultation (Sladdin et al., 2017). The study involved 11 patients that were interviewed in a 3-month timespan, on their experiences. The study produced 4 themes which includes: creating a caring relationship, individualizing care, patient involvement, and taking control of one's own health. The study emphasize how important individualized PCC treatment plans are important to all patients involved, which ultimately is a strength of the study. Limitations to this study includes the small sample size consisting of only 15 participants.

Synthesis of the Literature

During the literature review, there were three themes that were consistent throughout the literatures that directly relates to the PICO question. The first theme explored was providers' communication when it came to treating obesity. This is a significant finding since obesity is a disease on the rise but very much undertreated within this primary care setting. The second theme that emerge throughout the literature reviews were the barriers that providers faced in treating obesity through lifestyle modifications, medications and/or bariatric surgery. The first step that almost all providers agree on when treating obesity is to first suggest lifestyle modification that includes diet and exercise. Providers have different views and techniques on how to approach this with their patients. Although providers would agree that bariatric surgery is the most effective intervention for morbid obesity or obesity with co-morbidities, surgery is very underutilized for treatment. The last theme that was seen in most studies was the stigmatization of obesity in society and how it can affect action and adherence from patients in obesity treatment and management.

Primary Care Primary Communication to Patients

In the majority of the studies reviewed, providers always reported a barrier to approaching weight loss conversations or treatment with their patients. The studies reviewed has shown some consistencies with how PCP perceives obesity as a disease and how these perceptions can create a barrier that delays and/or prevents treatment of obesity as a chronic disease. It is significant to identify the barriers that is perceived by providers so that continual education can be focused on how to tackle these obstacles. Several common perceptions have been identified in current available research.

One common barrier that providers reported facing is lack of motivation from their patients. In the research conducted by Falve et al., (2017) only 32.5% of providers reported

positively that their patients were motivated to lose weight with 30.2% reporting lack of motivation. Additionally in the above-mentioned study, an average of 75.6% of providers reported discussing weight loss frequently but only 17.8% of providers discussing it always with their patients. In the study conducted by Lopez et al., (2019) only 51.2% of providers-initiated weight loss management conversations to their patients greater than half the time. In a qualitative study titled "Qualitative inquiry with primary care providers and specialists about adult weight management care and referrals" by Baily-Davis et al., (2022) providers believed that they spoke about weight as a health issue all the time. While some providers may choose to build a relationship over a few visits then approach the weight subject others used a "didactic approach" to discuss how obesity affects the body and the risk factors that are associated. The main barrier that providers reported in the Baily-Davis et al., study in discussing weight with patients was their own perception that patients were not motivated to lose the weight. Providers responded similarly in the study conducted by Hanna et al., (2018) with results showing providers reported that their patients would benefit from lifestyle changes advice despite 18% of providers believing that their patients were not interested in losing weight. The study also stated that 19% of their providers surveyed believed that weight loss management should be done outside the clinical settings.

In a different approach to their research titled "Provider Advice About Weight Loss in a Primary Care Sample of Obese and Overweight Patients," Halbert et al., (2017) surveyed the patients with diagnosis of overweight and obese, to see if they ever received advice from the PCP to lose weight. The study found that 59% of patients were advised to lose and/or manage their weight while 41% reported not receiving any advice about weight loss. This study brought forth another view, particularly that patients who were obese were more likely to report receiving

weight loss advise that patients who were just overweight. Although this suggests that providers are having conversations with patients that are at higher risk for comorbidities or adverse health conditions, it also suggests that patients who are overweight are not receiving weight loss advise until they have reached the criteria of obesity (Halbert et al., 2017).

In the study conducted by Hite et al., (2018), the results showed that providers would rely on visual assessment of BMI to diagnose and manage overweight and obese patients. Most providers (59%) were able to calculate their patients BMI however, many providers failed to report BMI in the patient's chart or discuss the abnormal level with patients Hite et al., (2018). Identifying the BMI is important, but if not reported in the chart or discussed with the patient, there is a missed opportunity for the patient to know that their BMI is a problem and ways to tackle this health issue. Similarly, the study conducted by Falvo et al., (2017), it was reported that while 88.9% of PCPs always calculating the patient's BMI, only 13.3% of providers reported always discussing it with their patients and 57.8% discussing it frequently.

Barriers for Weight Loss Prescription

In most studies when it came to treatment options there are a few barriers that PCPs report that interferes with treatment. The study conducted by Baily-Davis et al., (2022), providers report offering lifestyle modification advice such as increasing physical activity with most suggesting to a food diary, and only endocrinologists suggesting the use of medications. an average of 75.6% of providers reported discussing weight loss frequently but only 17.8% of providers discussing it always. In the study by Falvo et al., (2017), 66.7% of providers prescribing diet and 55.6% prescribing diet and over a half of providers reporting almost never prescribing medications. In the same study, 88.2% of providers viewed diet and exercise as an effective treatment for obesity with only 32.5% reporting effectiveness with prescribing

medications. The researchers Lopez et al., (2019) reported in their study that the majority of providers in the study recommended exercise as a form of weight loss management, but only 29.3% recommended medication as treatment for obesity.

In the study by Hanna et al., (2018), 17 providers believed that they had enough time to counsel their patients themselves on healthy eating and exercise while 50 providers (referring providers) do not believe that they have enough time in their office visit to counsel their patients in weight loss management and would refer their patients to community-based weight loss programs. Additionally, research conducted by Hite et al., (2019), only 35% of providers reported not having enough time to address obesity in an office visit. However, the majority of providers felt comfortable in discussing diet and exercise to their patients however very few were comfortable with discussing weight loss medication due to lack of knowledge of contraindications or side effects of medications (Hite et al., 2019). The similarities in the above research studies suggest that education is needed for providers to offer consistent treatment for obesity to their patients.

Barriers to Referral for Bariatric Surgery

Providers often agree that bariatric surgery is an effective treatment in patients with morbid obesity however fewer than 1% of eligible patients actually undergo bariatric surgery to treat obesity and obesity-related comorbidities (Conaty et al., 2019). In the study by Conaty et al., 82.7% of providers reported that they believe bariatric surgery is useful in treating extreme obesity. Similar to the study by Falvo et al., (2018) where 74.4% of providers believed that bariatric surgery is an effective weight loss method. Although the majority of providers believe weight loss surgery is needed for morbid obesity, they also believe that surgery may not be a safe intervention. Falvo et al, reported 55.9% of providers reporting surgery as being safe, while the studies conducted by Conaty et al., identified complications from bariatric surgery and

ineffective weight loss after surgery as major barriers to referral. Adverse effects from surgery were also a barrier identified in the study conducted by Lopez et al. (2019). Other barriers to referrals for weight loss surgery includes lack of patient interest, time restraints in office visits and prior experiences with poor side effects of bariatric surgeries (Lopez et al., 2019). Both Lopez and Conaty studies addressed that PCP felt uncomfortable with complications from surgery and that the risks of surgery may not be worth the benefits (Conaty et al., 2019; Lopez et al., 2019).

Stigmatization of obesity

In the study conducted by (Ryan et al., 2023), that patients who perceived weight bias in the primary care setting, had an expectation of receiving different healthcare from others. This led to underutilization of healthcare leading to poorer health outcomes. This is believed to also contribute to nonadherence treatment and management of obesity. When comparing other studies identified above, the study conducted by Halbert et al., (2017) most of the PCPs that responded believes that patients are responsible for the management of obesity (97.6%). This study also showed that most providers prescribed lifestyle modifications and believes that this is the most effective way to treat obesity. This is certainly not considering that individual patients may need individualized treatment plans and options. In other studies, mentioned above, providers demonstrated weight bias in the study conducted by Hanna et al., (2018) with results showing providers reported that their patients would benefit from lifestyle changes advice despite 18% of providers believing that their patients were not interested in losing weight. The study also stated that 19% of their providers surveyed believed that weight loss management should be done outside the clinical settings. Additionally, the study by Falvo et al. (2017), providers identified barriers reported that only one third of patients with obesity is motivated to lose the weight.

Purpose and PICO Question

The purpose of this project is to improve knowledge of obesity in patients with a diagnosis of obesity or has a BMI of 30 kg/m2. By improving their knowledge, patients can understand why treatment and management is important in reducing and/or prevent the risk of obesity-related co-morbidities, decrease exacerbations of current comorbidities which ultimately will improve their quality of life. Obesity is disease that is both preventable and treatable for most, if not all patients. When addressed, it can prevent other chronic and serious diseases in a patient. Although guidelines support evidence-based interventions for providers to help support patients in achieving a healthy weight, there is still a stigmatism in society on views of people who are overweight (Ananthakumar et al., 2019). Obesity is viewed by many as a lifestyle choice that can be resolved by diet and exercise and not as a disease (Shahed et al., 2022). With the emergence of new weight loss medications that have recently been approved by the FDA for obesity and have become very popular, our research study was to educate patients on obesity and treatment options available. With the increased knowledge, patients can translate this into making lifestyle changes in their lives resulting in better quality of life. With studies suggesting lack of knowledge in treatment options, time constraints within a visit, and the stigmatism associated with obesity, patients may be reluctant in asking for help or not fully understanding the importance of obesity management (Bottcher & Chao, 2021).

Among patients with a BMI above 30, does the patient's knowledge of the evidence-based treatment and management of obesity increase from baseline after receiving an obesity educational session?

P - Patients with an existing BMI above 30

I – Educational session on obesity management and treatment options.

C – Patient's knowledge at baseline will be assessed by an anonymous pretest questionnaire about obesity risk factors, treatment options and management. It will then be compared with a posttest after receiving an educational session.

O – increased patient's knowledge about their obesity treatment options.

SMART Objectives

To facilitate the goals of the project, the following SMART objectives were identified for this DNP quality improvement project:

- Educate patients with a diagnosis of obesity on the importance of treatment for obesity within 1 months of the quality improvement project. As studies have shown, the primary care provider is the first point of contact for care of chronic diseases for most patients.
- Patient should be able to identify at least three comorbidities associated with obesity.
- Patient should be able to identify at least three treatment options available to them from their primary care providers.

Definition of Terms

Bariatric: relating to or specializing in the treatment of obesity: involving or practicing bariatrics (Merriam-Webster, 2022)

Body Mass Index: a measure of body fat that is the ratio of the weight of the body in kilograms to the square of its height in meters ("Definition of body mass index," 2022)

Comorbidity: occurs when a person has more than one disease or condition at the same time (Center for Disease Control and Prevention, 2022)

Lifestyle modification: involves altering long-term habits, typically of eating or physical activity, and maintaining the new behavior for months or years. Lifestyle modification can be used to treat a range of diseases, including obesity (Nature, n.d.)

Class III Obesity (Formerly Known as Morbid Obesity): is a complex chronic disease in which a person has a body mass index (BMI) of 40 or higher or a BMI of 35 or higher and is experiencing obesity-related health conditions (Cleveland Clinic, n.d.)

Obesity: abnormal or excessive fat accumulation that presents a risk to health (World Health Organization, 2020)

Primary DNP Project Goal

The purpose of this project is to provide education to patients with a diagnosis of obesity on evidenced-based treatment options and management. Obesity is a disease that affects approximately one-third of adults in the United States (US), which can put a patient at risk for other conditions (Iwamoto et al., 2018). Obesity has been recognized as a worldwide national epidemic however remains undertreated within the primary care settings (Hanna et al., 2018). According to studies, treatment for obesity accounts for less than 25% within the primary care settings (Hanna et al., 2018). The treatment of obesity can prevent patients from developing comorbidities such as diabetes, cardiovascular disease, hypertension, musculoskeletal conditions, and some cancers (Halbert et al., 2017). It is imperative that primary care providers work along with their patients in their weight loss management and to help prevent other health issues from occurring.

Theoretical Framework/Conceptual Underpinning

The theoretical framework is one of the most important aspects in research as it provides the foundation of the knowledge acquired (Grant & Osanloo, 2014). Theoretical framework provides the structure and support for the study and the rationale for the study (Grant & Osanloo, 2014). The framework drives the problem statement, purpose, and the research questions according to Grant and Osanloo (2014). Theoretical frameworks are important in nursing as most

are used to address specific nursing problems in a wide range of populations (Chesnay & Anderson, 2016). In this quality improvement project, the theoretical framework The Transtheoretical model (TTM) will be utilized to help providers develop a patient-centered treatment plan for obesity (Sturgiss & Van Weel, 2017).

Theory Overview

The transtheoretical model (TTM) is a theory used to describe behavior changes and involves stages of change, processes of change, decisional balance, self-efficacy, and temptation (Spencer et al., 2007). The stage of change measures the degree of readiness a person presents when confronted with change. The stage of changes has five stages used to classify behavior, which are precontemplation, contemplation, preparation, action, and maintenance (Spencer et al., 2007). The 1st stage precontemplation is noted to be the pre-change stage, where an individual may not even be aware that a change is needed and is not ready or prepared to change in the next 6 months (Spencer et al., 2007). The contemplation stage is the opposite of the first change, where an individual is aware of a change needed and wants to make a change within the next 6 months (Spencer et al., 2007). The third stage is known as the preparation change where a person is working on making the change in the next 4 weeks (Spencer et al., 2007). The action stage, which is the fourth stage, is the when the person makes the behavior change and has maintain that change for at least 6 months (Spencer et al., 2007). The action stage usually lasts until the individual reaches the last stage of maintenance, where the person has kept the change for 6 months (Spencer et al., 2007).

The second part of the TTM is the process of change which contains 10 strategies to assist with movement throughout the stages (Spencer et al., 2007). The individual should be using the most appropriate process for each stage when trying to accomplish maintenance of the

new behavior. In the first 2 stages, precontemplation and contemplation, the five cognitive processes are most affected (Spencer et al., 2007). The 5 cognitive processes include dramatic relief, consciousness raising, self-re-evaluation, environmental re-evaluation, and social liberation (Spencer et al., 2007). The behavior processes most effective in the last 3 stages are helping relationships, self-liberation, counterconditioning, stimulus control and reinforcement management (Spencer et al., 2007).

The third construct of TTM is decisional balance that balances the pros and cons of changing one's behavior (Spencer et al., 2007). It is based on the theory that an individual usually weighs the pros and cons for changing a behavior (Spencer et al., 2007). The individual often finds that the pros outweigh the cons when they are going from the contemplation stage into the preparation stage (Spencer et al., 2007). In contrast, the cons outweigh the pros of changing when the individual is in the precontemplation stage (Spencer et al., 2007).

The self-efficacy stage, originally developed by Albert Bandura, was adopted as the fourth TTM construct, which is defined as an individual confidence in performing a behavior according to Spencer et al., (2007). The last TTM construct is the temptation stage, which measures how an individual feels tempted to lapse into their old behavior (Spencer et al., 2007). This construct has been used for most healthy behaviors including exercise and smoking (Spencer et al., 2007).

Theory/Clinical Fit

The quality improvement project intervention focuses on educating patients on obesity management and treatment options available, which, ultimately, they are responsible in making the lifestyle change for the treatment of obesity to be successful (Mastellos et al., 2014). The provider should be assessing the patient on their readiness to make the lifestyle change for

treatment of obesity. As stated earlier in this paper, studies have shown the success of lifestyle changes for obesity treatment requires intensive behavioral changes is needed for at least 6 to 12 months ("Weight loss to prevent obesity-related morbidity and mortality in adults: Behavioral interventions," 2018). The transtheoretical model became popular in health promotions and health education (Spencer et al., 2007), believed to be successful in changing behavior if used by the patient and provider in the correct process of change at the right stage (Spencer et al., 2007).

Since treating patients with obesity successfully requires intensive behavioral counseling, the providers must first consider and assess the patient's readiness for change. The patient may or may not realize that their rising BMI or weight is a health problem and could be the underlying cause of most of their other chronic conditions such as hypertension, musculoskeletal complaints, or complications as well as type 2 diabetes and many more conditions. Although a patient may be open to receiving treatment for those other conditions, they may not see a high need for lifestyle modifications if all their other conditions are stable. It is important for the provider to acknowledge the patient's BMI during every office visit to identify what stage of change the patient is currently in. Since the precontemplation stage can last up to 6 months, it gives time for the provider and patient to develop a strong therapeutic relationship to move to the next stage of contemplation, where the patient may realize a change is needed. The provider can then work with the patient in developing a plan of action, preparing the patient to move into the preparation plan which may consist of outside referrals, bariatric surgery referrals, diet plans, weight loss support groups and/or programs.

Methodology

Study Design

This quality improvement project utilizes a pre-and post-test design. The pre-and post-

tests contains 5 demographic questions including their age range, gender, height, weight, and BMI. The knowledge section contained 9 evidenced-based factors about obesity that was obtained from the literature in this QI project. The lastly the treatment options contained 4 treatment-based questions obtained from the studies in this QI project. The primary investigator was able to compare the pre- and post-test results to determine the effects of an educational intervention on patients' knowledge of obesity and treatment options. The aim of the quality improvement project was to help increase patients' knowledge on the importance of treatment in obesity in reducing the risk and/or exacerbation of comorbidities.

Setting and Participants

This quality improvement project was conducted at a single primary care practice. It was design to help patients understand how obesity can increase their risk and sometimes exacerbate existing comorbidities. The research project is a way to help battle the rise in obesity as well as improve the quality of life of patients seen within the practice. The participants chosen where patients that are had a diagnosis of obesity or an existing BMI of 30 kg/m2 and above, and over the age of 18 years old. The practice currently sees approximately 10-25 patients daily per provider, with majority of patients having multiple chronic conditions. The author aimed to recruit approximately 15 patients to participate within the study, however since the study is completely voluntarily, only 6 participants completed the study.

Procedures/Participant Recruitment

Permission was sought out at the practice site (Appendix B) and Institutional Review Board (IRB) approval was granted by Florida International University (Appendix C). Participants were recruited by a recruitment poster that was posted in the waiting room (Appendix D). The recruitment poster contained an email and phone number of the primary

investigator. All (n = 6) participants that were interested received an email from Qualtrics, an online survey tool, which included the recruitment letter (Appendix E), informed consent form (Appendix G), the pre-and post-test (Appendix H) and the educational presentation (Appendix I). The recruitment letter contains information about the quality improvement project, the purpose of the project, and what will be conducted within this projection. Weekly email reminders were sent to participants for 4 weeks.

Data Collection

Data collection for this project occurred through Qualtrics. Qualtrics is an online platform that is secured through a password protected account that could only be accessed by this author. All participants were required to have an email address which was recorded in Qualtrics. The other data collection form included in this study were the pre-and post-test (Appendix G) and the data collection worksheet (Appendix F). The Pre-and post-test included the demographics of the patient, the knowledge assessment, and the treatment questions. All data was first collected and stored in Qualtrics, and the answers then were converted onto the data collection workbook (Appendix F).

Data Management

The data will be collected via the Qualtrics online survey platform on a password protected laptop. The only identifier of the patient that was collected in this study were the patients email address. The email addresses were stored on Qualtrics online survey platform under a password protected laptop. Once all responses were received from the study, the responses were then transferred to the worksheet (Appendix F) for analysis. The data collection worksheet was stored in a password protected folder on this author password protected laptop. Comparisons of scores will be made based of the correct answers to determine if higher scores

are seen on the posttest compared to pretest. Consent in the study as well as demographics, initial and final questionnaire will be stored on the Qualtrics platform until the end of the survey period. Statistical analysis will be performed by the principal investigator after the completion of the data collection on the data collection worksheet, again, stored in a password protected folder, on a password protected laptop. After the project, the data obtained will be erased from the hard drive of the laptop.

Protection of Human Subjects

The study received IRB from Florida International University IRB board to ensure protection of human subjects. To ensure safety of data collection, the primary investigator of this study was the only person with access to the participants' email address. All email communications were sent via a secure online platform, Qualtrics, over a password protect server with use of a blind copy feature to ensure all participant privacy and confidentiality. All communications and analysis were conducted on password protected laptop that can only be accessed by the principal investigator. All results of the questionnaire were saved on the online platform of Qualtrics as well as the worksheet (Appendix F) in a password protected folder on a password protected laptop that only can only be accessed by the primary investigator. Moreover, all participants completed an informed consent form indicating the risks and benefits of this project.

Data Analysis

Statistics can be divided into descriptive and inferential statistics (Kaliyadan & Kulkarni, 2019). In a descriptive comparative design, descriptive statistics is often used analyze the data collected (Dang & Dearholt, 2018). Descriptive statistics gives a summary of what is being studied without making any inferences (Kaliyadan & Kulkarni, 2019). Within descriptive

statistics, frequency distributions and measures of central tendency are used to summarize the differences (Dang & Dearholt, 2018). Descriptive analysis was also used to determine mean pre- and post-intervention scores to provide a comparison. When reviewing the mean scores, it is possible to determine if the score increased or decreased because of the intervention. Inferential statistics uses a specific statistical test when comparing mean scores to state a statistical significance (Kaliyadan & Kulkarni, 2019). The Mann-Whitney U-test was used with an alpha value of 0.05 to demonstrate statistically significant. If the results of the Mann-Whitney U-test indicated that the p-value is > 0.05, a statistically significant change in the scores.

Results

The results from this quality improvement project are listed below. Initially, descriptive statistics were utilized to characterize the demographics of the subjects involved in the study. Table 1 includes a summary of the demographic data for the same (n=6).

Table 1

Demographics of the Sample (N=6)

Measure	Results
Age (years)	50.33 (*SD 11.81*)
Range (years)	25-66
18-25 years old	0 (0%)
26-59 years old	4 (66.7%)
60 and above	2 (33.3%)
Gender	
Female	4 (66.7%)
Male	2 (33.35%)
Height	5 feet 9 inches (*SD 2.23),*
Range	66-73in
Weight	231.16 lbs. (*SD 29.63*),
Range	200-280 lbs.
BMI	33.67 kg/m2 (*SD 2.59*),
Range	30-36.9 kg/m2

Table 2

Improving Knowledge of Obesity Treatment Options: Pre- and Post-Test results

Questions	Pre-Test (*N*=6)	Post-Test (*N*=6)
Which of the BMIs below are considered obese?	6 (100%)	6 (100%)
What is the percent of adults that are considered obese in the United States	2 (33.3%)	5 (83.3%)
How many adults are affected by obesity worldwide?	4 (66.7%)	6 (100%)
How many other conditions have obesity been linked to?	4 (66.7%)	6 (100%)
What are some conditions that obesity contributes to?	6 (100%)	6 (100%)
True or False. Obesity-related conditions are among the leading causes of preventable and premature death.	6 (100%)	6 (100%)
People with obesity have a higher medical cost a year than people who are not obese.	3 (50%)	5 (83.3%)
An average weight loss of 5.5 kg (12.1 lbs) can reduce mortality by __ percent?	3 (50%)	5 (83.3%)
Weight reduction of at least 5% can reduce an individual's risk for?	6 (100%)	6 (100%)
True and False. Diet and exercise are the only way to lose weight.	6 (100%)	6 (100%)
What are some treatment options available for obesity (Select all that apply)?	5 (83.3%)	6 (100%)
Which medication below has been approved by the FDA for weight loss?	3 (50%)	6 (100%)
What are some ways to help manage your weight (Select all that apply)?	6 (100%)	6 (100%)
Choose some of the community resources available to help with weight loss?	6 (100%)	6 (100%)

Table 3

Pre- and Post-Test Mean Scores and Standard Deviation (N=6)

	Mean	Standard Deviation
Pre-Intervention Test	4.71	1.49
Post-Intervention Test	5.79	0.43

In determining if the change in test scores from the pre-to post-intervention phase of the project was statistically significant, a Mann-Whitney U-test was performed. However, due to the small sample size (n=6), the data would not be distributed normally. An alpha value of 0.05 was used to demonstrate significance in the results. Results from the test indicated the following $z = 1.67709$, $p < 0.04648$. Comparison with the alpha value with the p-value indicates that the results were statistically significant suggesting that the educational program did contribute to the change in scores noted from the descriptive analysis (Table 2).

Discussion of the Results

The result of the project demonstrates that education for patients can serve to increase their knowledge of obesity and management of obesity. Research has illustrated that obesity puts an individual at a higher risk for mental and physically comorbidities. This quality improvement project is meant to close the knowledge gaps that prevent patients from receiving full treatment and use of recommended guidelines within the clinical practice. The study incorporates the Transtheoretical framework that helps the provider assess their patients to see if they are ready and wanting to make a positive health change in their lives. The structure of the study and setting of the project includes the primary care providers and patients in the clinical care settings.

As mentioned throughout the project from the literature reviewed, patients are sometimes unaware of how obesity can affect their health. The project provided the risks and comorbidities related to obesity to patients. The project also provided patients with treatment options available. Since research process involves identifying participants with a diagnosis of obesity, and/or BMI of 30 kg/m2 at the clinical practice, the goal of the project was successful in closing the knowledge gap presented by directly increasing their knowledge on the obesity management treatments that are available to them. It can also help to improve their quality of life with treatment adherence by lowering and/or eliminating risk factors and/or existing comorbidities.

There has been limited number of studies available in the last 5 years that addressed patient knowledge on obesity in the primary care setting. Most studies available are aimed at increasing the providers knowledge or on patients perceptive of obesity, the provider and/or their interactions during an encounter. This quality improvement project, including the educational program and content, can hopefully be used in as a guide in the future for evidence-based educational material on increasing patients' knowledge of obesity to help fill in gap in practice.

Limitations

There were some important limitations to the project that should be addressed. The project was implemented at a single practice site. Additionally, there were a limited number of participants in this study. Another limitation of the project was the short duration of the project. If a longer timeframe was allowed for completion of the study, months instead of weeks, more patients would have been able to participant. These restrictions of the study limites the ability to generalize the findings to other primary care sites or outpatient clinical settings. Therefore, there is no guarantee that the project could be successfully translated into other practices, although the

results of the project did indicate that obesity education was effective thus meeting the goal of the project.

Implications for Advanced Practice Nursing

There is a known gap in healthcare between the acquirement of new knowledge and the implementation of this knowledge into practice (Zaccagnini & Pechacek, 2019). After review of the educational component, the goal of the project is ultimately that the patient is benefiting from the implementation of new clinical knowledge in obesity management (Zaccagnini & Pechacek, 2019). To limit the gap in translation, and for successful transfer of knowledge translation, this study has identified barriers that may occur such as organizational and professional-to-patient barriers (Zaccagnini & Pechacek, 2019). By identifying the consequences that patients may experience, such as increase in comorbidities and mortality rates, within the educational intervention, the project hopes to eliminate the identified barriers of implementation. The presentation on obesity treatments and available resources may be used as for participants to increase their own quality of life. Primary care providers may also realize that patients are waiting and or need of an educational component on obesity in the clinical settings. Some patients may not even realize that obesity is a problem if the providers are not addressing the consequences of obesity and the need for treatment and adherence to treating this disease.

Conclusion

Obesity is an undertreated chronic disease that is very common within the primary care settings. Research has suggested that providers perception and lack of knowledge may impact the way providers treat this disease. Some providers still believe that obesity is a choice that patients choose due to lack of motivation. Although patients may not be interested in making changes right away, it it's still a disease that should be addressed within the clinical setting.

Obesity can lead to many other acute and chronic conditions that can be costly and debilitating to the patient. The research suggests that a lack of knowledge in the stepwise approach to weight loss management is lacking in the primary care setting. Patients and providers alike are often not well verse in initiating the conversation as well as providers not being able to offer personalized individual plan for lifestyle modifications. Along with lack of time in individualizing a lifestyle change, most patients are lacking the knowledge of available anti-obesity medication when lifestyle modification is not working. Finally, bariatric surgery has less than a 1% referral rate when research has shown this to be the most effective treatment for morbid or severe obesity. A quality improvement plan is needed to increase patient education on the importance of evidence-based treatment and management of obesity to prevent and/or decrease the risk of co-morbidities while improving their quality of life.

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Appendix A: Literature matrix

Author (s)/ Date	Purpose	Methodology	Results & Analysis	Conclusion
Bailey-Davis, 2022	Perception of PCP and specialists in regards to obesity treatment and referrals for weight management	Qualitative study of 33 PCP and 31 specialists. Level III good quality evidence,	- Thematic analysis for transcripts; - Open-coding approach to compare initial impressions from data and all transcripts - Use of inductive, constant comparative strategy through a written review - Discussion of coded data on emergent themes	All providers perceive discussing obesity and offered care but varied awareness of clinical guidelines - Specialist advised on obesity according to their specialty - No effective community based referral program - No provider acknowledged obesity as a disease, but did note associated comorbidities - Lifestyle changes included food diary but no follow up for obesity
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Falvo, 2018	Level III good evidence PCP knowledge, practice habits of obesity management and barriers with bariatric surgery referral	16 question survey electronically sent to 160 physicians 45 participants	5 point Likert scale for providers practice habits, views and experiences – depicted as diverging bar graphs	Most providers always calculate BMI but only 13% always discussed BMI. Most prescribed diet and exercise. Rarely prescribed medications or bariatric surgery. Viewed obesity as patient responsibility. Providers had adequate knowledge of consequence of obesity. Most knew correctly eligibility criteria for bariatric surgery. 62% were aware of free weight loss and bariatric information sessions

				- some providers reported negative experience with surgery
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Halbert et al., 2017	To examine providers advice for overweight and obese patients to loose weight	Level III, good evidence - Observational, cross sectional study - 282 existing patients 18 years and older in a 3-year period, from 7 national practice-based research network - BMI between 25.0 and above	- SDM-Q-9 used to measure shared decisions making about weight loss management. - Descriptive statistics to characterize sociodemographic, clinical factors, psychological and receipt of physician advise. - Bivariate analyses – chi-square and t test - Multivariate logistic regression analysis conducted to identify having singificant independent associations - binomial test – 50% received advise about weight loss.	65% females 55% maried 57% some college education 54% employed 60% annual income greater than $20k 59% minority 59% reported provider advised them to loose weight. - females and obese patients more likely to report provider told them to loose weight. - Diabetic patients were significantly more likely to report that provider advised them to loose weight
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Conaty, 2019	PCP perception on bariatric surgery and identify barriers to referral	Level III good quality evidence Anonymous electronic survey of 11 questions,	1st 8 utilizing a 5-point Likert scale on Efficacy and value of bariatric surgery, familiarity with surgical options and NIH eligibility criteria, comfort in long term care after surgery and willingness to refer patients for surgery	- Efficacy & utility of bariatric surgery 82.7% agree 4.7% disagreed - PCP familiarity & comfort with bariatric care 72.6% consult a surgeon 10% disagreed - PCP comfort on informing pt about surgical options 51% comfortable 29.5% neutral

			3 questions on opinions regarding BMI thresholds on surgery	19.5% not comfortable - PCP familiar with NIH eligibility criteria 35.3% unfamiliar 59.5% familiar - PCP comfort with post-op 21.6% neutral 18.9% not comfortable 41.3% neutral - Treating extreme obesity effectively without surgery 39.9% disagree 19.3% agreed BMI greater than 40 is greater risk to health than surgery 86% agreed 2% disagreed
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Lopez, 2019	Treatment barriers for referral to bariatric surgery and implementation of interventions	Qualitative Level III good evidence Univariate descriptive study; 39 question electronic survey emailed to PCP 121 surveys sent, 33.9% response rate (n-41) at an academic instituition with community physicians;	Data analyzed according to providers, gender, age, position and BMI. Analysis of providers position to 3 categories. BMI divded into two groups, overweight or obese. Statistical analysis using SPSS, version 24. Categorical data analyzed using ANOVA and X2 test. Continuous values analyzed using independent t samples. T test for parametric data and Mann-Whitney U test	Less than 50% PCP initiated weight loss conversation with 48.8% pts. 24% of providers unsure if pt insurance would pay for surgery; 19.5% providers were not sure if pt qualify for weight loss surgery 43.9% providers believe the risk outweighed benefits Providers reported not having sufficient knowledge to educate pt on options

			for nonparametric data as well as the F test. Continuous data reproted as the mean standard deviation. Univariate analyses used to compare providers.	
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Hite et al., 2018	Can PCPs determine BMI by visual inspection. Also to assess any barriers related to management of obestiy	Prospective survey, Level III good evidence. Survey sent via email link or paper survey. 280 Physicians,	SPSS version 23 in all analyses. Descriptive statistics and frequency of responses calculated leading to 3 scales emerging. Total summed scores for barriers to obesity care – 15 items, comfort providing obesity care – 7 items, comprehensive obesity care – 11 items. Classical Test Theory-based analyses for reliability and validity, Spearman Correlation Coefficient Chi-Square analysis, Fisher exact test, Student t-test	Visual assessment of BMI is inaccurate Management of overweight and/or obesity inconsistent Providers fail to document an elevated BMI in the medical record or discuss elevated BMI with patient. Time was commonly reported barrier System related barriers to obesity management reported. Many expressed lack of comfort with treatment options. Most comfortable with diet and exercise but not medications or surgery referral. Not familiar with contraindications or side effects of medication.
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Griauzde et al., 2021	Develop and pilot test an innovative care model – the Weight Navigation	- Quality improvement project -embedded single arm pilot study - Surveys at 0, 6, 12 months	Semi-structured interviews recorded and transcribed verbatim. Interviews imported into qualitative analysis software, Dedoose,	-WNP uses ABOM providers, EMR, community weight loss resources, -uses existing weight management resources and billable services

	Program (WNP) – to integrate ABOM-certified physicians into primary care settings and to enhance the delivery of personalized, effective obesity care	-optional semi-structured interview participation at 0 and 6 months - use of text messaging program for remote weight monitoring pilot. WNP initiated at a single Michigan Medicine primary care site -30 initial participants - PCP in health system, 107, refer patients with obesity to a dietitian, - Semi-structured interviews. Survey PCPs and patient -abstract weight and height data, evaluate average weight change among WNP patients during the 12 months. Identify cohort of patients with obesity matched by gender and approximate age (within 10 years) to WNP patients.	analyzed using template qualitative analysis. initial codebooks reflect interview questions. Mixed methods sequential explanatory design used to integrate the quantitative and qualitative findings in the final stage of data analysis. Quantitative data interpret in context of qualitative participant experience.	Personalized weight management plan - referred to WNP by PCP
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Hanna et al., 2018	Evaluate the response of PCPs to a referral model for implementing	Level 1 Good evidence randomized controlled trial, 3 online lifestyle interventions were implemented in 6 primary care clinics and compared	-Survey anonymous, can only complete once, contact by email with survey lings, paper surveys distributed at practice meeting and resident seminars	75% referred at least 1 patient to the program. 71% of nonreferring providers and 12% of referring providers were resident physicians.

	a yearlong online intervention for weight loss to obese adult patients	among 373 patients over 1 year of follow up -67 providers in clinics in Western Pennsylvania, USA - academic, private, rural, and urban - PCP asked to refer adult obese patient to a year-long online lifestyle intervention -After the 1- year intervention, providers were surveyed regarding their views of the program -completed survey items assessing their attitudes regarding the 1-year intensive weight loss intervention and identifying resources they would find helpful	-Survey used 5-point Likert scale -EHR referral approach to enrollment and processes for feedback on patient progress with lifestyle change integrated smoothly with clinical workflow - Cross-sectional analyses examined sample demographics, compared attitudes toward obesity counseling, quantified impressions of how smoothly the referral model of obesity integrated. -summarized with descriptive statistics include means and standard deviation -chi-square test - All analyses used Stata 11.1	94% referring providers agree the enrollment of program integrated smoothly. 80% process of providing 1 year follow up reports on lifestyle progress integrated smoothly. 52% referring providers report providing patients with feedback on their efforts. -More non referring providers prefer counseling their own patients on eating and exercise patterns 29% non-referring providers had sufficient time during clinical visits to provide counseling. 1% patients were not interested in receiving counseling for diet, physical activity or weight loss. 19% obesity should be managed outside the clinical setting. Non referring more often report patient not interested in using internet-based lifestyle counseling.
Author (s)/ Date	**Purpose**	**Methodology**	**Results & Analysis**	**Conclusion**
Sladdin, et al., 2019	Exploring patients' perception and experience of PCC in dietetic consulting	Qualitative Constructivist-interpretivist paradigm 11 participants 3-month span	Semi-structured interviews Data analyzed thematically 4 themes - Caring and trusting relationship, Individualized care, Patient involvement, taking control of one's own health.	Offers insight on the patient experience and how patient would like an educational session/visit on diet recommendations

Appendix B: Letter of Organization Support

HealthStone

PRIMARY CARE PARTNERS

CHARLES B. STONE, M.D., F.A.C.P.

Diplomate of American Board of Internal Medicine Fellow of the American College of Physicians

Internal Medicine

CAROLINA DE VARONA, DNP, AGPCNP-BC
Nurse Practitioner

JENSY J. KURIEN, FNP-C
Nurse Practitioner

KEVIN ARIEL LARA, FNP-BC
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Nurse Practitioner

07/24/2023

Jean Hannan, PhD, ARNP, FAAN
Clinical Associate Professor
Nicole Wertheim College of Nursing & Health Services
Florida International University

Dear Dr. Hannan,

This letter will acknowledge that I have reviewed a request by doctoral student Leslie Ann Banks to conduct a quality improve project entitled, "Improving knowledge of the importance of Adhering to evidenced based Obesity Treatment Options among Patients with a *BMI* above 30kg/m2 to Reduce the Risk and/or improve exacerbations of comorbidities: A Quality Improvement Project" at HealthStone Primary Care Partners.

When the researcher has received approval for his project from the Florida Intemationa\ University Institutional Review Board and upon presentation of the approval letter to me as the operations specialist for the facility, I will agree to allow access for the approved research project. If we have any concerns or need additional information, the project researcher wi.l\ be contacted.

Sincerely,

Approval Person

Katy McAndrew
HealthStone Primary Care Partners Office Manager

Appendix C: FIU IRB Approval/Exemption Letter

FIU | Research & Economic Development
FLORIDA INTERNATIONAL UNIVERSITY

MEMORANDUM

To:	Dr. Jean Hannan
CC:	Leslie Ann Banks
From:	Carrie Bassols, BA, IRB Coordinator CeB
Date:	August 7, 2023
Proposal Title:	"Improving Knowledge of Obesity Treatment Options: A Quality Improvement Project"

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #:	IRB-23-0422	**IRB Exemption Date:**	08/07/23
TOPAZ Reference #:	113478		

As a requirement of IRB Exemption you are required to:

1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
1) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at http://research.fiu.edu/irb.

Appendix D: Recruitment Flyer

Participate in a new study: Improving Knowledge of Obesity Treatment Options: A Quality Improvement Project

Overview

- Participate in a research study on the importance of obesity treatments
- Engage in a 45 minutes study that involves a brief educational presentation and pre- and post-test.

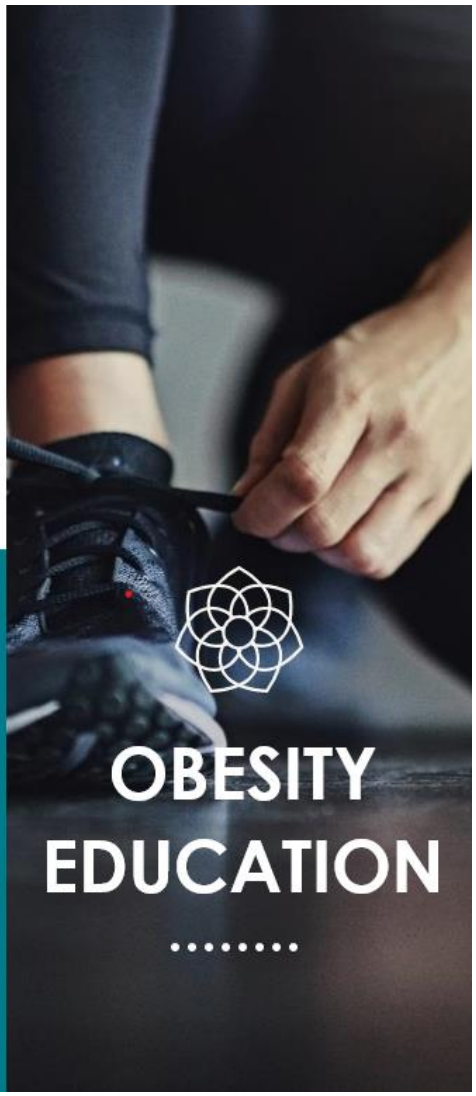
Eligibility

- 18 years or older
- Have a diagnosis of obesity
- Have an email address

Contact

Leslie Ann Banks, MSN APRN
Florida International University
Email: LTOYL001@FIU.EDU

Or speak with your provider today!



Appendix E: Recruitment Letter

Improving Knowledge of Obesity Treatment Options: A Quality Improvement Project

My name is Leslie Ann Banks, and I am a student from the Graduate Nursing Department at Florida International University (FIU). I am writing to invite you to participate in my quality improvement project. The goal of this project is to provide patients with knowledge of obesity and to help encourage adherence to treatments to help prevent and/or lower the risk of exacerbations of other chronic illnesses and diseases. You will be 1 out of 15 participants in this study. To be eligible in this project you must be at least 18 years or older and have a diagnosis of obesity with a body mass index of at least 30 kg/m2. If you decide to participate in this project, it will take approximately 45 minutes of your time in the timeframe of 1 week. If you agree to participate in the study, you will be asked to do the following things:

1. Read and sign the consent form outlining the details of the project.
2. Complete a pre-test survey to collect demographic data and your knowledge of obesity that could take approximately 10-15 minutes.
3. Watch a 15-minute presentation on obesity, the risks associated with it and treatment options.
4. Complete a post-test questionnaire, which should take approximately 10-15 minutes.

This is completely voluntarily, and no compensation will be provided. You can choose to be a part of the study or not and withdraw at any time. You will remain anonymous in this project and no identifiable information will be included in the final project report. You will be assigned a code to link you to the information you provide. All information provided will be handled with confidentiality. The information collected as part of this project will not be used or distributed for use in other studies or projects.

If you would like to participate, and meet the eligibility criteria, then please complete the consent form that has been emailed to you. If you have any questions about the study, please contact me via email at ltoyl001@fiu.edu or call at 954-668-7010. Thank you for your time and consideration.

Appendix F: Data Collection Worksheet							
Patient #		Age	Gender	Height	Height inches	Weight	BMI
1							
2							
3							
4							
5							
6							
total							
total mean							
percentage aver							
Questions		Pre test correct anwers	post test correct answers				
6							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							

Appendix G: Participant Informed Consent

FLORIDA INTERNATIONAL UNIVERSITY

ADULT ONLINE CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Improving Knowledge of Obesity Treatment Options: A Quality Improvement Project

SUMMARY INFORMATION

Things you should know about this study:

- **Purpose:** The purpose of the study is to improve the knowledge of patients with obesity and to help adherence in treatment options.
- **Procedures**: If you choose to participate, you will be asked to complete a pre-test survey, which is expected to take approximately 10-15 minutes. Then, you will be sent via email a 15-minute-long educational presentation. After watching the presentation, you will be asked to complete the post-test survey which is expected to take approximately 10-15 minutes.
- **Duration:** This will take about 45 minutes to complete in a week timeframe.
- **Risks**: The main risk or discomfort from this research is is a minimal discomfort associated with test anxiety and the risk of exposure of your email address.
- **Benefits:** The main benefit to you from this research improving your knowledge on the proposed topic.
- **Alternatives:** There are no known alternatives available to you other than not taking part in this study.
- **Participation:** Taking part in this research project is voluntary.

Please carefully read the entire document before agreeing to participate.

PURPOSE OF THE STUDY

The purpose of this study is to to provide an educational intervention to improve the knowledge of obesity among patients with a body mass index above 30kg/m2 to help reduce the risk and/or minimize exacerbations of co-morbidities.

NUMBER OF STUDY PARTICIPANTS

If you decide to be in this study, you will be one of 15 people in this research study.

DURATION OF THE STUDY

Your participation will involve approximately 45 minutes of your time in which you will have one week to complete.

PROCEDURES

If you agree to be in the study, we will ask you to do the following things:

1. Consent to participate in this study by clicking on "I consent" at the bottom of this page.
2. Complete the pre-test questionnaire.
3. Watch the educational presentation on obesity.
4. Complete the post-test survey questionnaire.

RISKS AND/OR DISCOMFORTS

The study has the following possible risks to you: First, participants may be at minimal risk of experiencing the physical, psychological, and/or social discomfort associated with test anxiety. Second, although unlikely there is a minimal risk of exposure of your email address.

BENEFITS

The study has the following possible benefits to you: improving your knowledge on obesity, treatment options, and overall improved quality of life.

ALTERNATIVES

There are no known alternatives available to you other than not taking part in this study.

CONFIDENTIALITY

The records of this study will be kept private and will be protected to the fullest extent provided by law. In any sort of report, we might publish, we will not include any information that will make it possible to identify you. Research records will be stored securely and only the researcher team will have access to the records. However, your records may be inspected by authorized University or other agents who will also keep the information confidential.

USE OF YOUR INFORMATION

Your information collected as part of the research will not be used or distributed for future research studies even if identifiers are removed.

COMPENSATION & COSTS

There are no costs to you for participating in this study.

RIGHT TO DECLINE OR WITHDRAW

Your participation in this study is voluntary. You are free to participate in the study or withdraw your consent at any time during the study. You will not lose any benefits if you decide not to participate or if you quit the study early. The investigator reserves the right to remove you without your consent at such time that he/she feels it is in the best interest.

RESEARCHER CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues relating to this research study you may contact Leslie Ann Banks by email Ltoyl001@fiu.edu.

IRB CONTACT INFORMATION

If you would like to talk with someone about your rights of being a subject in this research study or about ethical issues with this research study, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to participate in this study. I have had a chance to ask any questions I have about this study, and they have been answered for me. By clicking on the "consent to participate" button below I am providing my informed consent.

- ○ I consent.
- ○ I do not consent.

Appendix H: Pre-and Post-Test

Demographic Questions

Q1 What is your age range:

- ○ 18-24 years
- ○ 25-59 years
- ○ 60+ years

Q2 What is your gender.

- ○ Male
- ○ Female

Q3 What is your weight

_____

Q4 What is your height?

_____

Q5 What is your BMI?

_____

Knowledge Based Questions

Q6 Which of the BMIs below are considered obese?

- ○ 20-25 kg/m2
- ○ 26-29 kg/m2
- ○ 30-35 kg/m2
- ○ 19-25 kg/m2

Q7 What is the percent of adults that are considered obese in the United States

- 5%
- 30%
- 42%
- 67%

Q8 How many adults are affected by obesity worldwide?

- 78 million
- 10 million
- 50 million
- 100 million

Q9. How many other conditions have obesity been linked to?

- 10
- 20
- 5
- 65

Q10 What are some conditions that obesity contributes to?

- type 2 diabetes mellitus
- certain cancers
- psychological disorders
- all of the above

Q11 True or False. Obesity-related conditions are among the leading causes of preventable and premature death.

- True
- False

Q12 People with obesity have a ___ higher medical cost a year than people who are not obese.

- 8
- 90
- 42
- 17

Q13 An average weight loss of 5.5 kg (12.1 lbs) can reduce mortality by __ percent?

- 15
- 50
- 22
- 10

Q14 Weight reduction of at least 5% can reduce an individual's risk for?

- CVD,

- ○ diabetes,
- ○ sleep apnea
- ○ hypertension
- ○ all of the above

Treatment Questions:

Q15 True and False. Diet and exercise are the only way to lose weight.

- ○ True
- ○ False

Q16 What are some treatment options available for obesity (Select all that apply)?

- ○ diet and exercise
- ○ weight loss injections
- ○ medications
- ○ do nothing.
- ○ nutritional counseling

Q17 Which medication below has been approved by the FDA for weight loss?

- ○ Ozempic
- ○ Wegovy
- ○ Mounjaro

Q18 What are some ways to help manage your weight (Select all that apply)?

- [ ] Add motion to your day.
- [ ] Have a health snack on hand.
- [ ] Reduce screen time.
- [ ] Food diary
- [ ] All of the above

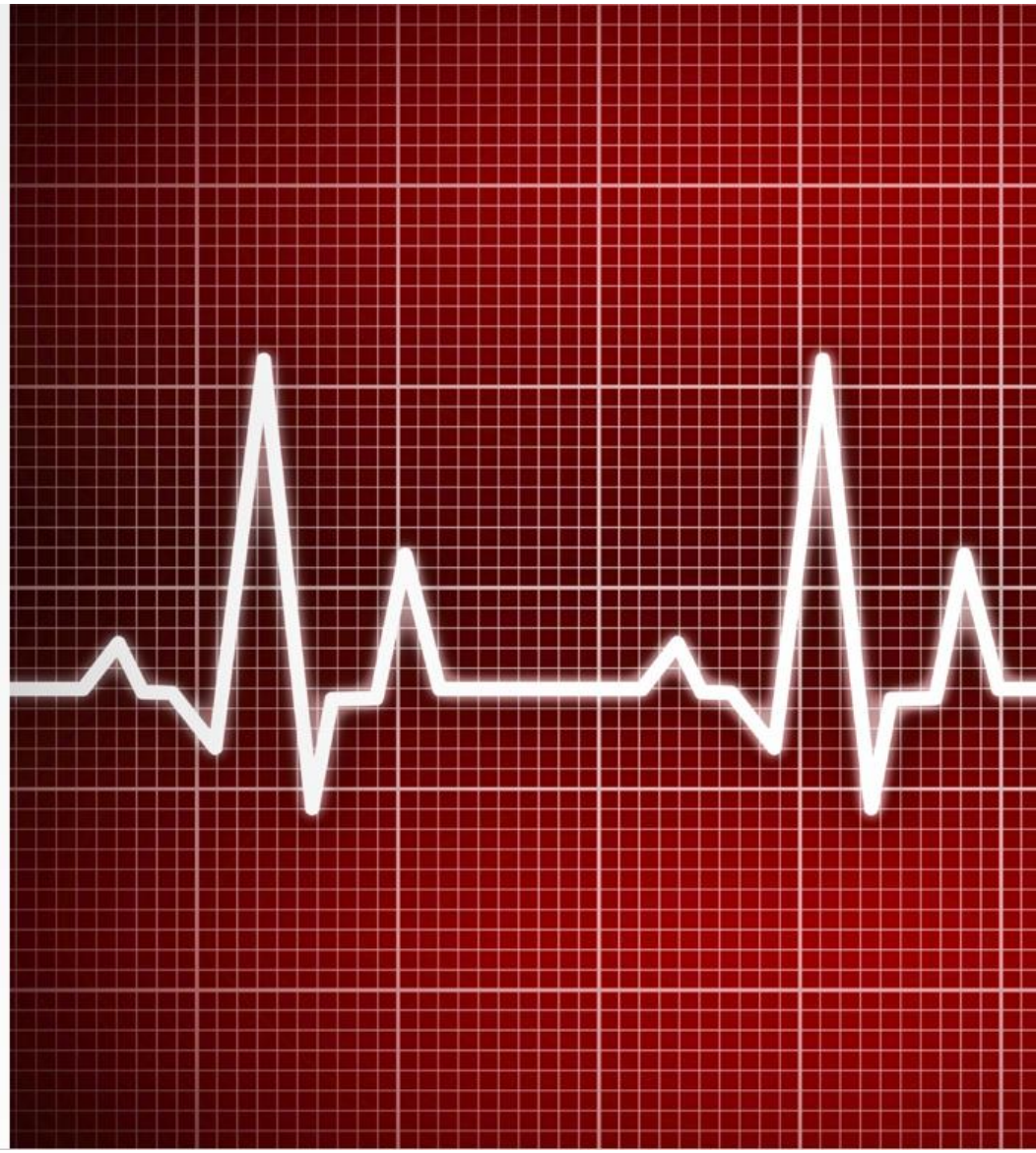
Q19 Choose some of the community resources available to help with weight loss?

- ○ Support groups online
- ○ Ask your neighbor.
- ○ Joining a local gym
- ○ Both 1 and 3

Appendix I: Educational Intervention

Improving Knowledge of Obesity Treatment Options: A Quality Improvement Project

LESLIE ANN BANKS MSN APRN



Background

- Obesity is a global epidemic, which affects more than 78 million adults and 12.5 million children and adolescents in the United States (U.S.).
- It is reported that obesity accounts for about 42% of adults in the United States and continues to grow worldwide.
- A person is diagnosed with obesity when they have an excess fat accumulation leading to a body mass index (BMI) over 30 kg/m2.
- Obesity places a person at an increased risk for many comorbid conditions and can exacerbate existing co-morbidities.
- It affects almost every system within the body, with about 65 other conditions being linked to obesity.
- This disease contributes to an increase rise in medical costs and burdens the public health systems
- Obesity can also have a negative affect on quality of life.

Definitions

- **Body Mass Index:** a measure of body fat that is the ratio of the weight of the body in kilograms to the square of its height in meters. Simply put a measure of body fat based on the weight and height of a person.
- **Class III Obesity (Formerly Known as Morbid Obesity):** is a complex chronic disease in which a person has a body mass index (BMI) of 40 or higher or a BMI of 35 or higher and is experiencing obesity-related health conditions
- **Comorbidity**: occurs when a person has more than one disease or condition at the same time. Such as obesity and diabetes.
- **Lifestyle modification**: involves changing long-term habits, typically of eating or physical activity, and maintaining the new behavior for months or years. Lifestyle modification can be used to treat a range of diseases, including obesity.
- **Obesity:** according to the World Health Organization (WHO) definition, it is abnormal or excessive fat accumulation that presents a risk to health

Obesity- related co-morbidities

Cardiovascular	Respiratory	Gastrointestional	Musculoskeletal	Cancers	Psychological
• High cholesterol • High blood pressure • Exacerbations of heart failure	• Sleep apnea • Risk for asthma and COPD exacerbations • Obesity hypoventilation syndrome • Exertional dyspnea • Obesity has contributed to deaths related to COVID-19 virus	• Acid reflux • Barrett's esophagus • Fatty liver • Gallstones • Change in bowel movements • Hemorrhoids • Increased risk of Crohn's disease and Ulcerative colitis	• Osteoarthritis • Rheumatoid arthritis • Spondyloarthropathy • fibromyalgia	• High risk of getting the following • Adenocarcinoma of the esophagus • Breast (post menopause) • Colon and rectum • Uterus • Gallbladder • Upper stomach • Kidneys • Liver • Ovaries • Pancreas • Thyroid • Meningioma • Multiiple Myeloma	• Lower self-esteem • Anxiety • Depression • Social isolation • Fewer employment opportunities • Lower admission into college

The Real Cost of Obesity

Obesity creates a burdens to both

- Society
- Economy
- Person

Increase comorbidities from obesity can lead to:

- More sickness
- An increased healthcare costs
- 5.5 to 7.8% of total healthcare expenditures in most countries
- 17% of the national health expenditure
- Medical costs due to obesity is as high as $173 billion in the United States

Costs increases for patients:

- Decreased productivity
- 42% higher medical cost a year than people who are not obese
- Adults spends approximately $1,861 more in medical costs per year than people with healthy weight

Higher mortality

- life expectancy decreasing by 5-10 years
- Obesity-related conditions are among the leading causes of preventable and premature death
- higher mortality rates with comorbidities of CVD and cancer
- the hazard ration (HR) for all-cause mortality significantly increased with an increasing BMI

Treatments

WITH SUCH AN INCREASED RISE IN OBESITY, THERE IS A NEED FOR PREVENTION AS WELL AS EFFECTIVE TREATMENT BY PRIMARY CARE PROVIDERS (PCP).

INTENSIVE MEDICAL TREATMENT CAN REDUCE THE RISK OF ALMOST ALL COMORBIDITIES BY 5% FOR OBESE PATIENTS,

CURRENT GUIDELINES SUGGEST THAT PCPS TAKE A STEP APPROACH IN TREATING OBESITY AS IT RELATES TO AN INCREASING BMI.

THESE GUIDELINE INCLUDES:

- LIFESTYLE CHANGES THAT INCLUDES DIETARY AND EXERCISE FOR BMI BETWEEN 25-30 KG/M2
- BMI 25 KG/M2 OR HIGHER WITH OBESITY RELATED CO-MORBIDITIES OR NO OBESITY-RELATED COMORBIDITIES BUT A BMI OF 30 KG/M2 AND HIGHER THEN MEDICATION CAN BE STARTED ALONG WITH LIFESTYLE MODIFICATIONS
- BMI OF 35 KG/M2 WITH OBESITY RELATED COMORBIDITIES, OR BMI GREATER THAN 40 KG/M2 WITH NO COMORBIDITIES CAN BE REFERRED FOR BARIATRIC SURGERY CONSULTATION

Lifestyle modifications

- As stated in the definitions, lifestyle modifications including making changes to diet and exercise.
- Diet and exercise is more effective when used with behavioral interventions as well
- There was adequate evidence that shows behavioral interventions in adults with obesity can lead to clinically significant improvements in weight status as well as lowering the incidence of obesity-related comorbidities such as type 2 diabetes.
- Effective behavioral interventions help the patients achieve and maintain at least a 5% weight loss with diet and exercise alone.
- These interventions last typically 1 to 2 years with at least 12 visits in the first year
- Problem solving sessions helps to identify barriers, self-monitoring of weight, peer support, relapse prevention,
- Some tools to support weight loss include seeing a nutritionist, obtaining food scales, exercise videos, adding motion to your day, having a healthy snack on hand, reduction of screen time, and keeping a food diary

Weight Loss Medications

- Studies show that at 12 to 18 months, medication-based weight loss programs had more weight loss and a greater decrease in waist circumference, as well as a likelihood of losing 5% in their initial weight
- Currently there are approximately 7 medications approved by the Food and Drug Administration (FDA) for long-term treatment of obesity
- These medications include Metreleptin and Setmelanotide approved for a rare obesity syndrome while the other 5 medications are approved for non-syndromic obesity.
- The 5other medications are : orlistat, phentermine-topiramate, naltrexone-bupropion, liraglutide (saxenda), and semaglutide (wegovy)

Bariatric Surgery

- Bariatric surgery should be offered to patients with a BMI of 40kg/m2 or any one with BMI of 35 kg/m2 with obesity related comorbidities
- Bariatric surgery is the most effective treatment for morbid obesity, comorbidities resolutions and lowering of mortality
- Increasing evidence has shown that patients with uncontrolled type 2 diabetes with a BMI of 30 to 35 kg can benefit from having surgery.
- Random clinical trials with patient that has type 2 diabetes, BMI of 25 to 53kg/m2 and have undergone bariatric surgery have been able to lower their hemoglobin level A1c (HbA1C) to 6.5 percent or lower without the use of medications

Conclusion

- Obesity is disease that is both preventable and treatable for most, if not all patients.
- When addressed, it can prevent other chronic and serious diseases in a most people.
- Although guidelines support evidence-based interventions for providers to help support patients in achieving a healthy weight, there is still a stigmatism in society on views of people who are overweight.
- Obesity is viewed by many as a lifestyle choice that can be resolved by diet and exercise and not as a disease, which it is.
- With the emergence of new weight loss medications that have recently been approved by the FDA for obesity and have become very popular, our research study aims to help my patients adhere to treatment guidelines by providing them with obesity related education.
- Thank you!