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Managing Obesity in Primary Care

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Walden University

College of Nursing

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Nkechi Okwara

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the review committee have been made.

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Walden University

2023

Abstract

Managing Obesity in Primary Care

By

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MS, Walden University, 2014

BS, University of Maryland, 2006

Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Walden University

November 2023

Abstract

Excess body weight has been shown to negatively impact morbidity and mortality in both developed and underdeveloped countries. Over two thirds of U.S. adults are considered overweight or obese. Obesity and overweight present a pressing practice problem in primary care because many of these patients suffer from long-term consequences. Thus, the practice-focused question that guided this project was: Whether a clinical practice guideline (CPG) would be accepted for implementation in a primary care setting. The purpose of the doctor of nursing practice (DNP) project was to develop a CPG for use in primary care and present the CPG to a panel of four expert nurse practitioners (NPs) in primary care practice. The project was based on the Johns Hopkins Evidence-Based Practice model and was supported by a comprehensive review of the literature. All four participants strongly agreed with each of the 23 Agree II survey items, resulting in a score of 100% across all six domains. Answering the question about their planned use of the CPG, all four NPs stated that they will use the CPG in their practice. NP1 and NP2 had already implemented the CPG for use in their practices. This DNP project supports positive social change by improving the primary care provider PCPs' knowledge and participation in obesity and overweight care management in primary care. Patients needing to lose weight to maintain optimal health status are the primary beneficiaries because the CPG clearly fosters weight reduction.

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Dedication

This project is dedicated to God Almighty who has sustained me through this process, to both of my late parents, Chief Sylvester Nnagbo and Mrs. Catherine Nnagbo, for encouraging me to become a nurse and my husband, Dr. Ikechi Okwara, for the support, love, and above all being there for me.

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Lastly, my profound gratitude to my husband, Dr. Ikechi Okwara, for encouraging me to pursue and achieve my dream. You stood by me, with all your love, encouragement, patience, and utmost support throughout this process. I will forever love and cherish you.

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Section 1: Nature of the Project

Introduction

Obesity is a serious, common, and expensive chronic disease that affects some groups more than others. The prevalence of obesity in United States adults was over 39% or 93.3 million U.S. adults in 2015–2016 (Center for Disease Control & Prevention [CDC], 2018). Obesity-related conditions include heart disease, stroke, Type 2 diabetes, and certain types of cancer, and these conditions are some of the leading causes of preventable, premature death (CDC, 2018). Overweight is defined as a body mass index (BMI) of 25–29.9, while obesity is defined as a BMI of 30–34.9 (CDC, 2022). The United States Department of Health and Human Services, Office of Minority Health noted that 60% of African American women are more likely to be either overweight or obese than non-Hispanic, White women and that in the United States, 4 out of every 5 African American women are overweight or obese. In 2015, the U.S. Department of Health and Human Services reported that African Americans are 20% less likely to engage in active physical activity as non-Hispanic Whites. This evidence shows the importance of actively addressing the issue of overweight and obesity.

The increase in obesity prevalence has been noted across all gender, race, and socioeconomic groups; hence, due to a relatively high prevalence, a rapidly increasing trend, and large social group disparities, adult obesity has been observed to be a major public health problem in the United States (Singh et al., 2011). Another important reason for preventing and managing obesity is the rising prevalence of obesity and obesity-related diseases and treatment complications in general, which have exacerbated health

care cost inflation (Finkelstein et al., 2008). Thorpe et al. (2015) estimated that increases in the proportion of and spending on obese people relative to people of normal weight accounts for greater than 27% of the rise in inflation adjusted per capita spending since 1987.

The global burden of obesity-associated diseases indicate that the obesity epidemic is worsening in different parts of the world. Gregg and Shaw (2017) studied model trends in overweight and obesity and related morbidity and mortality in 195 countries and found that obesity prevalence has more than doubled since 1980. They also found that obesity rates in children and youths have increased, indicating this is not just an issue in adults. Findings for Type 2 diabetes also showed the same kinds of trends as obesity, meaning that there will be more people with Type 2 diabetes because of the increased trend of obesity (Gregg & Shaw, 2017).

There are cardiovascular risk factors other than diabetes that have been linked to obesity. A cross-sectional study using the National Health and Nutrition Examination Survey (NHANES) conducted between 1999 and 2010 examined trends in the prevalence and diagnosis or treatment of cardiovascular risk factors by weight status among adults in United States and found a higher prevalence of diabetes, hypertension, and dyslipidemia during the study period among obese individuals when compared to those that were overweight or have normal BMI (Saydah et al., 2014).

The need for control of obesity and overweight is of paramount importance because obesity has been deemed one of the very essential risk factors for several other chronic medical conditions, like coronary artery disease (CAD), and a host of other

circulatory diseases, certain kinds of malignancies (e.g., cancer of the colon), and diabetes mellitus (CDC, 2022). According to De Fries (2007), the importance of calling obesity a disease falls essentially on the research proposition that confirms the negative health implication of obesity.

The aim of this project was to screen patients with abnormal BMI early in life and initiate an intervention to significantly reduce the complications and improve human and social conditions by maintaining maximum good health and a reduction in cost of care associated with obesity and its complications. Aside from the morbidity associated with obesity, extreme obesity, if untreated, can lead to mortality (Glauser et al., 2015). In the face of these challenges, a good practice guideline was needed that can assist providers and medical assistants in a primary care setting to identify patients with abnormal BMI and subsequently initiate obesity counseling and other treatment measures. Banerjee et al. (2017) noted that the counseling offered by primary care physicians was very important in encouraging weight loss activities in low-income African American women.

To address the problem of obesity and overweight in a primary care practice, I developed a clinical practice guideline (CPG) based on current evidence with the use of motivational interviewing (MI) techniques to get the patient to accept a weight loss intervention. In this project, a CPG composed of a systematically developed set of statements that will assist the medical practitioners with identifying patients who are overweight and with obesity, was developed. Following the CPG, during patient assessment the nurse practitioners (NPs) and medical doctors (MDs) will use MI to direct the patient to an appropriate or approved weight loss intervention. Sometimes the height

and weight are missed during triage by the medical assistant and BMI was not triggered, meaning the provider may not address abnormal BMI. A cross-sectional secondary data analysis by Ghosh (2016) showed that recording of obesity and overweight in general practices within regional settings is much lower than optimal. Therefore, obtaining and recording the patient's height and weight should be emphasized as an important vital sign during triage.

In the CPG, I emphasized obtaining every patient's weight and height and that it should be documented for every encounter. The system then automatically calculates the BMI for the provider. The clinical practice guideline also helped ensure that the practitioner addresses every case of obesity and initiates management using MI. According to Glauser et al., (2015), despite the problems associated with obesity, the rate of obesity screening, diagnosing, and management remains low amongst physicians. In a study of 140 primary care physicians, about 19.9% of patients with obesity had obesity diagnosis documented in their medical record, and 22.6% were noted to have a recorded obesity plan of care (Glauser et al., 2015). This is another reason that the comprehensively developed guideline should be followed to direct care. In a cross-sectional survey done in the United Kingdom on weight assessment and the provision of weight management advice in primary care, Critchlow et al. (2020) noted that the suggestions from CPGs and performance indicators along with the ideas from best practices recommended that practitioners in primary care should constantly evaluate a patient's BMI, and when necessary, initiate conversations regarding weight control as well as offer necessary recommendations and referrals to weight control services.

Problem Statement

Extant research shows that obesity rates are of great concern in the United States and globally. Fruh (2017) reported that obesity has been increasing in United States and globally and that it is a public health issue, with over one third of U.S. adults being obese. Fruh further noted that evidence has shown obesity is associated with a range of comorbidities, including diabetes, cardiovascular disease, obstructive sleep apnea, and cancer; however, modest weight loss in the 5%–10% range and above can significantly improve health-related outcomes.

I have worked in one of the affluent counties in Maryland for over 8 years and have carefully monitored the obesity and overweight trend with the patient population that I care for. I have noted that 3 out of every 5 patients seen in the clinic I work at are either overweight or obese, which means that more than 50% of the patient population being cared for are either obese or overweight. According to Robert Wood Johnson Foundation (2018), the adult obesity rate in Maryland is 30.9% overall, with Whites at 28.7%, Blacks at 39.5%, and Latinos at 29.7%. In the local county of interest in the current study, the adult obesity rate is 30.7%.

Most of the project site patients are obese and overweight and have diabetes, hypertension, hyperlipidemia, CAD, sleep apnea, stroke, certain types of cancers, and osteoarthritis. Although, their chronic conditions may not have categorically all been caused by their obesity and overweight problem, obesity and overweight will complicate the conditions in general. Obesity is a physical condition that puts humans at risk for diabetes, hypertension, hyperlipidemia, CAD, stroke, and sleep apnea (Klosek et al.,

2018). Obesity also affects the emotional state of an individual and subsequently adds to the nation's health care costs (James, 2008). There are cardiovascular risk factors other than diabetes that have been associated with obesity. Shirasawa et al. (2019) confirmed that normal weight central obesity is linked to other predisposing factors of cardiovascular disease (CVD), such as hypertension and hyperlipidemia. Goh and Hart (2018) reported that abdominal obesity predisposes an individual to metabolic syndrome and insulin resistance, which is another precursor for CVD. The NHANES showed that there was a higher prevalence of diabetes, hypertension, and dyslipidemia among obese individuals when compared to those that were overweight or with normal BMI in the United States (Saydah & Bullard, 2014). Another study demonstrated that obesity increased the risk of mortality in trauma patients with either a blunt or penetrating injury after controlling for severity of the impact (Hatchimonji et al., 2019). Hatchimonji et al. (2019) also demonstrated that obese individuals suffered more complications overall after trauma compared to nonobese individuals.

The economic implications of the chronic diseases associated with obesity are significant. According to Finkelstein et al. (2008), the lifetime costs associated with obesity and obesity-related diseases are significant and generally increase with increasing BMI. The Maryland Department of Health noted that chronic disease is the main reason for high health care costs in Maryland in the form of direct care costs that include hospitalization, visits to the clinics, and prescribed medications and indirect health care costs, including loss of productivity and early deaths. The obesity epidemic is quickly spreading to all age brackets, including children, and has been deemed a major health

issue facing the whole world. The WHO reported that obesity is at the epidemic level currently, with about 1.9 billion overweight individuals worldwide and 650 million obese individuals.

Practice-Focused Question

The practice-focused question that guided this doctor of nursing practice (DNP) project was: Will a CPG that is implemented at a primary care office facilitate the early detection and intervention of overweight and obesity in the primary care patient population? In order to bridge the gap in practice that obesity and overweight is sub-optimally addressed in primary care, a practice guideline development can potentially help to determine active interventions, whether the patient visits the practice for another reason or for overweight or obesity as the presenting chief complaint. Key to understanding the need for weight loss is to help change the perceptions of some patients regarding obesity, especially among the Black culture in which overweight and obesity is a show of affluence and beauty instead of a serious condition that requires early intervention in order to reduce its many complications (Ozodiegwu et al. 2019). In a research synthesis of contextual factors contributing to female overweight and obesity over the life course in sub-Saharan Africa, Ozodiegwu et al. (2019) noted that women are expected to be heavy set-in order to be considered beautiful. This example shows how closely culture and social environment are linked to the obesity and overweight problem. Fraser (2003) added that one of the reasons for increased obesity in the Caribbean is the traditional notion dating back to Africa that obesity is seen as being healthy and fat women are admired more than thin women. Lin et al. (2003) reported that acculturation

or the adoption of other cultures have been noted to have positively influenced the eating habits of Puerto Rican and Dominican elders. These studies suggest that there may be underlying cultural factors influencing eating and exercise.

On a positive note, recent studies have shown that women from African descent are beginning to see obesity and overweight as a problem instead of a show of affluence. In a study on body weight, obesity perception, and actions taken to achieve normal weight in Ghana, Agyapong et al. (2020) found improved perception of obesity and the acknowledgement of obesity as a factor in many chronic medical conditions and a threat to health, which shows that creating awareness of obesity can make a difference.

This project is significant to nursing practice because the increase in obesity prevalence has been noted across all gender, race, and socioeconomic groups; hence, due to a relatively high prevalence, a rapidly increasing trend, and large social group disparities, adult obesity has been observed to be a major public health problem in the United States (see Singh et al., 2011). Furthermore, the rising prevalence of obesity and obesity-related diseases and treatment complications in general have exacerbated health care costs (Finkelstein, et al., 2008). Thorpe et al. (2015) estimated that increases in the proportion of spending on obese people relative to people of normal weight accounts for greater than 27% of the rise in inflation adjusted per capita spending since 1987.

The global burden of obesity-associated diseases shows that the obesity epidemic is worsening in different parts of the world. Gregg and Shaw (2017) studied model trends in overweight and obesity and related morbidity and mortality in 195 countries and found that obesity prevalence has more than doubled since 1980, and this increase was also seen

in children and youths, not just in adults. Findings regarding Type 2 diabetes are following the same kinds of trends as obesity, meaning that there will be more people with Type 2 diabetes because of the increased trend of obesity (Gregg & Shaw, 2017).

The challenges created by obesity and overweight are grave, and creating awareness is a major part of helping curb this disease. Nurses are known for their outreach and patient education (Griffin, 2017). Additionally, nursing has been in the forefront of disease management, and nurses have been known to be key players in chronic disease management (Griffin, 2017). The shift from acute to chronic care model where the patient is the focus and the active participant in care has emerged in recent years (Wilson, 2001). Russell et al. (2009) noted that in Canada, an excellent chronic disease management program was linked to NPs. A nurse-guided shared care in the Netherlands where specialists and generalists work together with the aim of focusing on the patient's needs found that patients prefer the treatments by the NP (Russell et al., (2009). The current project is significant to nursing practice because nurses have been found to bridge the gap in chronic disease management and health care in general, through patient and family education.

Purpose Statement

The aim of this project was to develop a CPG focused on screening patients who have abnormal BMI early in life and initiating an intervention to reduce complications as well as improve human and social conditions by maintaining maximum good health and a reduction in cost of care associated with obesity and its complications. Aside from the morbidity associated with obesity, extreme obesity, if untreated, can lead to mortality

(CDC, 2018). Considering these challenges, I developed a CPG that can assist providers and medical assistants in a primary care setting to identify patients with abnormal BMI and initiate obesity counseling and other treatment measures. Banerjee et al. (2017) showed that primary care physicians' counseling may be an important factor in prompting weight loss in low-income African American women.

Nature of the Doctoral Project

Considering that obesity is a fast-growing health issue, essentially reaching epidemic levels (World Health Organization, 2014), it is important that the best available evidence is applied to combat this concern. In this doctoral project, I developed a CPG comprising a systematically developed set of statements that will assist medical practitioners with identifying patients with overweight and obesity. The CPG is intended to give the NPs and MDs best practices for the early detection of overweight and obesity in the primary care patient population. The CPG will not only serve as guide or recommendation for the primary care team but also helped answer the project question. I conducted this DNP project to measure the healthcare providers' views of the CPG using the Appraisal of Guidelines Research and Evaluation (AGREE II) instrument and their intentions to implement the CPG at the project site.

Significance

A review of the literature indicated a gap in the diagnosis and management of overweight and obesity in primary care office. Researchers have noted that the rate of obesity and overweight has continued to increase globally, and obesity has been closely linked to many metabolic syndromes, like cardiovascular diseases, fatty liver, Type 2

diabetes mellitus, and certain forms of cancer like colon cancer (Kanneganti & Dixit, 2012). Furthermore, the economic implications of the chronic diseases associated with obesity are significant. Finkelstein et al. (2008) stated that, the lifetime costs associated with obesity and obesity-related diseases are remarkable and generally increase with increasing BMI. The CDC (2022), reported that annual obesity cost in United States, in 2019 were estimated at about \$173 billion

This project is significant because it will help to screen patients who have abnormal BMI early in life and initiate an intervention to reduce complications and improve human and social conditions by maintaining maximum good health and reducing the cost of care associated with obesity and its complications. Aside from the morbidity and cost implications associated with obesity and overweight, extreme obesity, if untreated, can lead to mortality (CDC, 2018). To address these challenges, a good CPG becomes a necessity to guide practice in a primary care setting for the detection and management of patients with abnormal BMI. Banerjee et al. (2017) showed that primary care physicians' counseling may be an important factor in prompting weight loss especially in low-income African American women

Summary

Obesity is a global public health problem that has been found to cause multiple medical conditions and increased health care costs (CDC, 2018). The rate of obesity has continued to increase in United States and around the world (Ogden et al., 2015). The overall goal of care should be to improve screening, which includes the early detection of patients with obesity, and implementation of interventions. In this project, I developed a

CPG, which is a systematically developed set of statements that will assist NPs and MDs with identifying patients with overweight and obesity. Once patients have been screened, interventions can be initiated using MI.

In this section, I highlighted the prevalence of obesity and supporting research to establish the importance of practitioners screening patients and initiating interventions early. Studies that showed the significance of initiating interventions for obesity were also provided. In the next section, I will discuss in detail the development of the CPG and the model used for this project.

Section 2: Background and Context

Introduction

Obesity has been classified as a growing epidemic both in United States and other parts of the world. More than one third (39.8%) of U.S. adults have a BMI over 30 kg/m² (Rust & Prior, 2020). Obesity and overweight have been associated to common and expensive chronic disease that affects some groups more than others. The prevalence of obesity in U.S. adults is over 39% or 93.3 million US adults in 2015–2016 (CDC, 2018). Obesity-related conditions include heart disease, stroke, Type 2 diabetes and certain types of cancer, and these conditions are some of the leading causes of preventable, premature death (CDC, 2018). Overweight is defined as a BMI of 25–29.9, while obesity is defined as a BMI of 30–34.9 (CDC, 2022). In this section, I discuss pertinent concepts, models, and theories; the relevance of the project to nursing practice; and the project's significance.

The increase in obesity prevalence has been noted across all gender, race, and socioeconomic groups; hence, due to a relatively high prevalence, a rapidly increasing trend, and large social group disparities, adult obesity has been observed to be a major public health problem in the United States (Singh et al., 2011). The NHANES has been used to study a pool of nationally representative sample of participants in the United States from 1999 to 2014 and indicated that more than half of U.S. adults have central obesity with a majority of the obese adults being metabolically unhealthy (Yue et al., 2022).

Although there is a high prevalence of obesity in the population, there is low rate of diagnosing patients with overweight and obesity, according to another sectional evaluation of the NHANES III (1988–1994) and the continuous NHANES (1999–2008) that used a total of 31,039 nonpregnant, U.S. adults. The findings showed that physicians were less likely to guide weight loss for overweight and obese persons that have comorbidities associated with a weight problem (Yates et al., 2012). Another research project called the Provider and Healthcare Team Adherence to Treatment Guidelines intervention on adherence to national obesity CPGs in a primary care center also showed that primary care providers did not clearly document the diagnosis and management of patients with obesity problem (Barnes et al., 2015). Despite the recent national recommendations and policies on obesity management since 2008, Fitzpatrick and Stevens, (2017) reported that the care of patients with obesity was suboptimal. According to current evidence for weight loss counselling, in general, patients will like their providers to arrange, advise, agree, and assist them in their weight loss journey (Sherson et al., 2014). With the rising rates of overweight and obesity, the management of patients with overweight and obesity in primary care should be continuously improved to deal with this epidemic.

Concepts, Models and Theories

The DNP graduate has a wide array of knowledge that comes from sciences and possesses the ability to translate that knowledge to benefit patients in the daily patient care environment (American Association of Colleges of Nursing [AACN], 2006). To address future and current practice problems, the DNP graduate must have a good

understanding of scientific foundation for practice (AACN, 2006). The DNP Essential II emphasizes that nursing must focus on both natural and social sciences because they help create the body of knowledge that guide nursing practice (AACN, 2006). In the current DNP project, I developed a CPG from the best available evidence to facilitate better obesity and overweight screening and the application of MI to initiate an intervention in a primary care office. This project was based on the Johns Hopkins evidence-based practice (JHNEBP) model that focuses on the use of the best evidence to improve practice.

The current DNP project was based on the application of a CPG, which is a methodically fixed plan or set of statements that will assist the medical practice with identifying patients with overweight and obesity (see Polit & Beck, 2017). This systematic set of statements includes recommendations that were put together using known experimental, available, clinical evidence in addition to bedside encounters, and it is open for critique and suggestions (see Ghai et al., 2021). There has been an increase in the use of CPGs in the past years (Dang & Dearholt, 2017). The Institute of Medicine (IOM) noted that eight important attributes (i.e., validity, reliability and reproductivity, clinical applicability, clinical flexibility, clarity, documentation, development by multidisciplinary process, and plans for review) must be available in a CPG for it to be an efficient guideline (Dang & Dearholt, 2017). Some of the above attributes were found deficient in CPGs, Dang and Dearholt (2017) noted, and this led to the Conference on Guideline Standardization to advocate for and encourage the improvement of guideline quality and its application process. To improve the quality and reliability of the CPG in

this project, I used the AGREE II, which has been found to be reliable with demonstrated validity (see Dang & Dearholt, 2017).

The need for control of obesity and overweight is of paramount importance because obesity has been deemed one of the essential risk factors for several other chronic medical conditions, like CAD, a host of other circulatory diseases, certain kinds of malignancies (e.g., cancer of the colon), and diabetes mellitus (CDC, 2018). According to Keramat et al. (2021), the importance of calling obesity a disease falls essentially on the research proposition that confirms the negative health implications of obesity. Increased weight is strongly linked to greater prevalence of chronic diseases (Keramat et al., 2021).

The aim of this project was to evaluate if a practice guideline that is implemented at a primary care office will facilitate the early detection and intervention of overweight and obesity in the primary care patient population. and whether screening patients who have abnormal BMI early in life and initiating an intervention to reduce complications improve human and social conditions by maintaining maximum good health and a reduction in the cost of care associated with obesity and its complications. Aside from the morbidity associated with obesity, extreme obesity, if untreated, can lead to mortality (CDC, 2018). To address these challenges, a good practice guideline is needed that can assist providers and medical assistants in a primary care setting to identify patients with abnormal BMI and subsequently initiate obesity counseling and other treatment measures.

The management of obesity and overweight conditions in primary care patients can be a challenge. Rust et al. (2020) noted that although obesity is nearing epidemic levels, obesity screening and management in primary care remains poor. To address this problem of obesity and overweight in a primary care practice, I introduced the use of a CPG that will guide practitioners to screen patients and initiate an intervention using MI techniques. The CPG is a systematically developed set of statements that will assist the medical practitioners with identifying patients with overweight and obesity. The NPs and MDs will carefully evaluate the patients and, with the aid of MI, direct the patient to the right plan of care.

Overweight and Obesity in Primary Care

More than two thirds of adults in the United States are considered overweight or obese, and with obesity being linked to multiple medical conditions, the need for treatment becomes significant (Flegal et al., 2012). The U.S Preventive Service Task Force, Obesity Society, American College of Cardiology, and the American Heart Association developed a combined recommendation stating that primary care physicians should screen patients for overweight and obesity in their practice setting and offer patients at risk for cardiovascular diseases intense behavioral counseling (Fitzpatrick et al., 2016). Although screening is done, the patients may not receive counseling to address the obesity or overweight problem. A cross-sectional analysis of the Behavioral Risk Factor Surveillance Survey data of 244,496 U.S. adults 18 years and older showed that only a small percentage of adults with a healthy weight had primary prevention during

routine office visits (Lutfiyya et al., 2008). This means that providers do not discuss obesity problems when patients visit the office.

Barriers to Healthy Eating

Obesity and overweight predispose individuals to comorbidities and, as such, should be considered serious and management should be initiated. There are different ways of managing obesity, including healthy eating. Healthy eating sounds easy but can be difficult to manage. According to Mestral et al. (2019), healthy eating is considered a great tool for the prevention of obesity and other chronic diseases, such as hypertension, cardiovascular diseases, diabetes, and cancer. In a cross-sectional nationwide Swiss adult population-based study of 21,597 participants, Mestral et al. (2020) noted that some of the barriers to healthy eating included taste, lack of time, and will power. In a study of 21,870 university students, Abdelhafez et al. (2020) shared that the frequently reported barriers to healthy eating included the availability of fast foods, high price of healthy food, time factor, and not willing to or feeling lazy to prepare healthy meals.

Strategies to Address Overweight and Obesity in Primary Care

Obesity has been noted to be a chronic medical condition that needs a prolonged, structured, and multidisciplinary team approach to treat; however, obesity remains an underdiagnosed and not well treated condition (Kahan, 2018). The U.S Preventive Service Task Force [USPSTF] (2018) recommended that health care providers screen all patients and provide intensive behavioral counseling, with the key aspect of obesity management being behavioral counseling. Some of the strategies used for obesity management include diet and exercise, lifestyle intervention, medication therapy, and

surgical intervention. In a mixed method study of about 1,200 low-income African American women to evaluate factors that may cause them to achieve a successful weight loss, Banerjee et al. (2017) noted that the counseling offered by primary care physicians was very important in encouraging weight loss activities in the participants.

Obesity, like most chronic conditions, requires behavior change, and the process of change can be difficult. MI has been found to be a helpful resource for patients adopting lifestyle change (Richardson, 2012). According to Miller and Rollnick (2013), MI is a joint, person-centered type directive that will enhance someone's intrinsic motivation to consider making a change by exploring and resolving conflicting beliefs or feelings towards something. In this case, the motivation will be to engage in self-care activities that will improve weight management. This will take place in a conversation about change between the practitioner and the patient, and the main purpose of this conversation is to bring out the client's inner strength to be able to make the desired change. The philosophy of MI is being nonjudgmental, patient based, and focusing on the attributes or motivating behavior change that will make the patient to want to seek further intervention or care (Wagner et al., 2016). According to Barrett et al. (2018), adding MI with cognitive behavioral therapy in the treatment of obesity and overweight will result in modest progress in physical activity and improved body composition for adults in the community setting.

Primary Practice Tools for Obesity and Overweight

There are many different tools used for the management of obesity and overweight. A multidisciplinary support team and the general practitioners play an

important role in assisting patients with achieving a better weight reduction (Bray et al., 2013). The most important practice tool for obesity and overweight management is screening, making a diagnosis and initiating an intervention using motivational interviewing. In a cross-sectional study of 2,458 participants to examine if patients were screened, given a diagnosis of obesity, and received counseling in a primary care office, Bleich et al. (2012) showed that the rate of diagnosis with counseling was low in primary care offices (2012). The goal of care for patients with overweight and obesity in clinical practice settings is to ensure patients are screened, a diagnosis is made, and counseling for behavioral change initiated according to the guideline recommendations.

The application of MI during the evaluation of patients with obesity and overweight problem has been found to improve patient commitment and weight loss. Barnes et al. (2021) showed that the application of MI with psychoeducation on nutrition for a weight loss trial that was carried out in a primary care setting showed a statistically important weight loss 3 months posttreatment.

Another practice tool that can be used for obesity management is diet. Different diet recommendations are used, including the very low-calorie ketogenic diet (VLCKD). Obesity predisposes individuals to developing Type 2 diabetes mellitus and metabolic syndrome. In 2017, about 462 million people were diagnosed with Type 2 diabetes globally (Moriconi et al., 2021). Treatment tools that will improve weight essentially will improve the progression of Type 2 diabetes, especially if obesity was the predisposing factor. In a retrospective study done to assess safety, efficacy, and durability of a 12 months VLCKD treatment on weight reduction and blood sugar control in a selected

group of patients with Type 2 diabetes and obesity, the selected group was compared to another group treated with a standard low-calorie diet. The results showed that VLCKD group lost more weight and achieved a better glycemic control in 12 months.

Practice guidelines for obesity and overweight are formal directions made by approved authorities concerning screening, diagnosis, treatment, and the management of overweight and obesity. The recommendations are carefully crafted to assist practitioners and patients in making decisions concerning the management of obesity and overweight.

The Johns Hopkins Model

The JHNEBP model and guidelines are dedicated to the promotion of evidence-based practice and were the most appropriate model for the current project. Evidence-based practice is one of the essential skills or competencies for every health care provider (IOM, 2003). Nurses account for a major part of the health care team and have an important part to play in health care policy resolutions, safety of care, and quality improvement. According to the JHNEBP model, evidence-based practice helps nurses to improve practice and quality of care as well as add value to the patient experience (Dang & Dearholt, 2017). The IOM (2010) report also suggested that nurses should be full participants in redesigning the health care system and that having a strong base in evidence-based care is important in reaching the goal.

AGREE II

The purpose of AGREE II is to offer a framework to evaluate the quality of a CPG, provide an organized plan for the guideline development, and ensure the information reported and the way it is reported in the guidelines are valid and accurate.

(AGREE Next Steps Consortium, 2009). The AGREE II is a 23-item tool organized into six domains that is followed by two universal rating items. To achieve better reliability of the assessment in this project, I had four panel appraisers, including two physicians and two NPs, who evaluated the CPG using the AGREE II instrument.

Relevance to Nursing Practice

Obesity and overweight have potentially been noted as a serious noncommunicable disease facing the present era, that has negative effects on the future management of chronic diseases (Newland et al., 2021). This is because, research has shown that obesity is linked to a wide range of diseases, such as Type 2 diabetes, hypertension, cardiovascular disease, and stroke (Newland et al., 2021). Nurses are very involved in disease prevention, management of chronic diseases and health promotion in the population. Some of the health promotion activities, nurses encourage are physical activity, nutrition management and weight counseling. Because nurses are in contact with patients' majority of the time, they are in a better position to teach and promote healthy lifestyle modifications that will impact obesity and overweight. The International Counsel of Nurses (2009), noted that nurses have the right opportunity to improve health promotion activities that will reduce the risk of obesity and overweight.

A qualitative study conducted in **United Kingdom**, by Phillips et al. (2014), showed that nurse's participation in obesity and overweight management helped increase the awareness of the interventions that will help patients achieve healthy weights early in life will reduce cost of care, improve overall quality of life by reducing co-morbid conditions. Although an effective overweight and obesity intervention requires

collaboration amongst other healthcare team, nurses being good patient advocates can help rally the healthcare team for a holistic care and an improved patient outcome.

Although obesity has reached epidemic levels, studies have shown that screening and counseling for obesity is not prevalent in primary care settings, especially for those without weight-related comorbid conditions (Rust & Prior, 2020). Because obesity have been shown to increase the risk of comorbid conditions like hypertension, hyperlipidemia, Type 2, cardiovascular diseases, osteoarthritis, and certain types of cancer, it is important that screening and management are taken seriously and initiated early in primary care office.

Local Background and Context

Obesity epidemic has continued to increase to public health concern of global importance (Weiss et al., 2020). According to CDC, (2021), in 2017 – 2018, the prevalence of obesity in United States was 42.4%. There is an increase in United States obesity trend from 1999 – 2000 and 2017 – 2018 from 30.5% - 42.4% (CDC, 2021). CDC (2021), further reported that severe obesity was also found to be elevated too during the same period from 4.7% to 9.2%. And obesity disproportionately affects Blacks more than other races (Liao et al., 2016). In Prince George's County, that is my county of residence, the adult obesity and overweight rate is 67.6% and 15.4% for adolescents (Prince Georges' County Health Department, 2016).

The above data justifies the need for a primary care intervention strategy that can address the obesity epidemic. My practice setting as noted above is in Maryland, United States. The goal of the DNP project was to develop a CPG that can assist primary care

providers in screening patients and providing clinical advice for obesity and overweight management. The practice strategy will be to ensure every patient is screened by obtaining weight and height during triage and accurately plotted in the system for BMI calculation. And all abnormal BMIs are triggered and addressed by the practitioner.

The practice settings include NP, and medical assistance. My practicum setting is a DNP practice but there are three other primary care settings that were added. All the primary care settings are NP owned and managed. The patient demographics in these four practice settings are Blacks, Whites and Hispanics, although most of the patient population are Blacks of African descent. More than a third of these patient population are either obese or overweight.

During the pandemic, there was an increase in obesity and overweight problem because, schools were closed, companies too were closed, and many people were forced to remain at home reducing the amount of physical activity that people can get, according to Lange et al., (2021). A longitudinal cohort of 432,302 persons aged 2-19 years of age showed that BMIs of the individuals in the study almost doubled on the monthly basis during the era of COVID-19 pandemic as opposed to the prepandemic era (Lange et al., 2021). This has worsened the existing obesity and overweight problem, necessitating the greater need for obesity management.

Role of the DNP Student

The DNP student has an important role to play in teaching, research, and translation of evidence into practice. White et al. (2016) noted that the DNP graduate is an expert in evidence translation into practice. Furthermore, the DNP Essential Number

1, Scientific Underpinnings for Practice, describes this function of the DNP even clearer. It states that the DNP graduate is equipped with the knowledge that is gotten from sciences and can translate this knowledge successfully and systematically into practice for improved patient outcome (AACN, 2006).

The DNP student has scholarship and research as the hallmark of the graduate program, and these prepare him/her to analyze the existing evidence thoroughly and apply the best applicable evidence into practice (AACN, 2006). The best available evidence can be used to create the CPG that will be used to guide obesity and overweight management in primary care office setting. I have no inherent biases about obesity and overweight. Contrariwise overweight is typically viewed as a positive outcome and a show of affluence in my culture. Although, having seen the negative outcomes of obesity and overweight since my nursing carrier, I decided to explore this topic further through my DNP project.

Summary

In Section II, I discussed my intended method of addressing the obesity problem in primary care by using a CPG. This CPG was evaluated using the set attributes by Conference on Guideline Standardization called AGREE II that helps to show validity and reliability of CPG (Dang & Deraholt, 2017). Over two thirds of adults in United States are considered overweight or obese, and with obesity being associated to many medical conditions, the need for treatment becomes more paramount (Flegal et al., 2012). The use of JHNEBP model with the combination of other different tools helped in weight

loss management. In **Section III**, collection, and the analysis of evidence for this DNP project were addressed. I also addressed the sources used for the evidences collected.

Section 3: Collection and Analysis of Evidence

Introduction

Obesity remains a significant, growing, public health problem. Obese people have an increased risk of developing a variety of comorbid disorders, including cardiovascular diseases, Type 2 diabetes, and malignancies (Fruh, 2017). Obesity has also been linked to joint and muscular disorders, psychological issues, and respiratory problems as well as negatively affecting quality of life and a significant increase in overall mortality (Fruh, 2017). Despite the growing problem of obesity, the diagnosis and management of obesity remain suboptimal in many practices (Schwenke et al., 2020). However, an early diagnosis and management of overweight and obesity are of paramount to reduce sequelae (Schwenke et al., 2020).

This DNP project took place in a primary care office setting in the state of Maryland. The goal of the DNP project was to develop a CPG that will help primary care providers efficiently diagnose and manage overweight and obesity using MI as well as to reduce or prevent the morbidity and mortality associated with overweight and obesity in the adult patients. The CPG serves as the best tool that utilizes current evidence in the management of obesity. This will help primary care office staff and providers evaluate and manage patients with overweight and obesity using a simple algorithm. In this section, I discussed the method used for the project, explained the data collection and analysis processes, and provided an overview of the process used to develop the CPG and received feedback from the expert panel.

Practice-Focused Question

The identified practice-focused problem was adult overweight and obesity. I used current evidence to create the CPG algorithm. The practice-focused question was: Will a practice guideline that is implemented at a primary care office facilitate the early detection and intervention for overweight and obesity in the primary care patient population? The practice-focused question addressed the gap in practice that overweight and obesity are a global problem that increases the risk of developing several comorbid conditions, are poorly evaluated and managed in primary care, and there is a need to create guidelines that will improve early detection and management. To measure the potential for CPG implementation in the primary care project site, I used the AGREE II tool with an expert panel. The CPG was operationalized when the 23-item instrument was summarized, and there was agreement amongst the four-member expert panel.

Sources of Evidence

The management of obesity and overweight is relevant to nursing practice because literature has shown the continued rise in the rate of obesity, making it a public health concern (CDC, 2021). According to the CDC (2021), the health implications of the comorbid conditions, psychological problems, and financial burden to the country associated with obesity and overweight are significant. The gap in practice is supported by the growing problem of obesity and its suboptimal diagnosis and management (Swenke et al., 2020). In the current project, the expert panel reviewed the CPG using the AGREE II instrument, and the outcome of this review showed that all four expert panel members rated the CPG highly and agreed to implement the CPG in their own practice.

This finding predicts that there will be the successful implementation of the CPG in other primary care practices.

Published Outcomes and Research

I retrieved the evidence used for this DNP project from literature searches of online databases and search engines, including Medline with Full Text, Allied Health Literature Plus with Full Text, the Cumulative Index to nursing, and Google Scholar. The searches were conducted using the following key words and phrases: *obesity, obesity and overweight, obesity and overweight in adult, and obesity management in primary care*. The Boolean operators, AND and OR, were used to combine the key words into search phrases that included *policies AND obesity management*. The sources of evidence for this DNP project were current, evidence-based practice guidelines to manage obesity from peer-reviewed articles and respected organizations, like the American Diabetes Association, CDC, American Medical Association, United States Preventive Services Task Force (USPSTF), American Obesity Society, American Association of Clinical Endocrinology, and American College of Cardiology. Additional resources included books, encyclopedias, and handbooks for clinical research for the DNP, translation of evidence into nursing and health care practice, and theories in nursing. I also reviewed other resources for generating and assessing evidence in nursing practice, synthesis with appraisal, generation of evidence, and program design and management.

Evidence Generated for the Doctoral Project

This doctoral project was focused on putting together a step-by-step, approved, evidence-based guide for the management of obesity in primary care setting in the form

of a CPG. This CPG will help practitioners ensure that every patient with overweight and obesity is screened and evaluated, and when required, referred for further specialist care. Excess body weight is a major contributor to morbidity and mortality as well as a threat for developing other illnesses and death (Griauzde et al., 2022). A moderate weight loss of equal or greater than 5% body weight can help people with overweight or obesity to avoid, manage, or even overturn weight-related chronic medical conditions (Rothberg et al., 2017).

Participants

The participants in this DNP project were four DNP-credentialed NPs. These NPs all work in busy practices in the state of Maryland. The first NP has had a busy internal medicine/obesity practice for over 10 years. The second NP provider also has a busy practice and has been in practice for more than 10 years. The third participant is another NP who has been in practice for over 5 years. The fourth participant is a NP with about 3 years of clinical experience.

Procedures

I developed the CPG (see Appendices A and B) to provide step-by-step instructions that will help primary care office staff with screening every patient to ensure that no patients with overweight and obesity are missed. The primary goal of the project was to ensure all patients with overweight and obesity are properly screened with the help of a CPG and evaluated for treatment using MI. CPGs play a significant role in the formation of health policy and care, with extension to limitless health care topics, like screening, diagnosis, and health promotion (AGREE Next Steps Consortium, 2017). The

possible benefit of guidelines are attributed to the potential quality of the guidelines. A rigorously developed guideline is important for the implementation of the guideline recommendations. The AGREE was established to analyze the problems of variability in relation to guideline quality (AGREE Next Step Consortium, 2017).

I used the AGREE II instrument in the current project to assess the quality, methodological rigor, and transparency of the CPG. The Walden University (2019) *Clinical Practice Guideline Manual* also stipulated that guidelines should be formulated in a health care organization to offer providers with the required evidence and knowledge needed for delivering safe, efficient, and effective care for special populations and that the evidence be systematically evaluated using the AGREE II instrument for quality and reliability. The participants in the project rated the CPG using the AGREE II instrument to answer 23 questions in six different domains (see Appendix C).

Protections

The Walden University Institutional Review Board offers students guidelines for shielding human subjects. Based on the Institutional Review Board's guidelines, I did not identify the participants in this project or their practices. There will be no personal identifiers used in the project. Every participant was notified of what they were expected to do and how they would be represented in the project.

Analysis and Synthesis

To arrive at the findings in this project, I analyzed the participants' responses to the 23 questions and six domains of the AGREE II tool. The AGREE items are rated using a 7-point, Likert scale, with 1 = *strongly disagree* and 7 = *strongly agree*. A score

of 7 means that the quality of the reporting is exceptional based on the AGREE II user's manual. According to AGREE II, a quality score for each of the domains is independently calculated and must not be aggregated into a lone score. The goal is to have scores greater than 70% for each domain based on consensus for the guidelines to be considered good quality.

Summary

The practice-focused question for this DNP project was: Will a CPG that is implemented at a primary care office facilitate the early detection and intervention of overweight and obesity in the primary care patient population? An expert panel reviewed the CPG and completed the AGREE II survey instrument to evaluate the CPG. The consensus of the expert panel was that each of them was willing to implement the CPG in their individual practice.

Section 4: Findings and Recommendations

Introduction

Obesity has become a public health problem with significant medical, psychological, and economic impacts. Because overweight and obesity problems have been noted across all gender, age, nationality, and economic statuses, it has been described as an epidemic (Temple, 2022). Empirical evidence has shown that overweight and obesity are linked to numerous health, psychological, physical, economic, and emotional challenges (Hecker et al., 2022). The global burden of obesity has been shown to have doubled since the past 10 years (Gregg & Shaw, 2017); hence, there is a great need to solve this problem. In the United States, researchers have indicated that physical inactivity and the consumption of unhealthy foods have resulted in the high prevalence of obesity and overweight (Wyatt et al., 2015). The CDC (2015), the American Heart Association (2016), and the World Health Organization (2016) have suggested that individuals engage in moderate to intense physical activity combined with a healthy diet as the main strategy to obtain and maintain a healthy weight.

Some studies have shown that the rate of diagnosing patients with overweight and obesity in primary care is low (Gregg & Shaw, 2017). Hence, there was need for a CPG to be developed to assist providers in the consistent diagnosis of overweight and obesity. Consequently, the practice-focused question of this project was: Will a CPG that is implemented at a primary care office facilitate the early detection and intervention of overweight and obesity in the primary care patient population?

Findings and Implications

There were four members of the expert panel, and all four were NPs practicing in primary care. These NPs all had in excess of 28 years of experience in primary care and practice in Maryland in a suburban and affluent community. I presented the CPG over a 2-week period using the table of evidence in Appendix A, the recommendations for primary care practice in Appendix B, and the algorithm presented in Appendix C. The AGREE II instrument was provided to the panel, and their results were sent to me via email on the survey with comments.

All four participants strongly agreed with each of the AGREE II survey items, resulting in a score of 100% across all six domains. When answering the question about whether the NPs planned to use the CPG, all four stated that they would use the CPG in their practice. NP1 and NP2 have both implemented the CPG use in their practices already.

Table 1*Expert Panel Comments on AGREE II Domains*

Participant	Overall Comments on Obesity/Overweight CPG
NP1	<p>“As one of the mentors that guided this student through this project, also owner of an outpatient primary care practice, I understood from the onset the importance of this project. The clinical practice guideline (CPM) used was described fully. The guideline offered an evaluation of the quality of the relevant scientific literature, and an assessment of the likely benefits and harms of a particular treatment. Its purpose was well described, which was to provide physicians, nurses, other clinical specialties, and members of the healthcare community with up-to-date clinical practices to advance safe and effective patient care”</p>
NP2	<p>“The clinical guideline was very well created. The major components of the guideline as presented were: ask and assess, advise patients about health benefits, assist the patient and arrange and monitor. In clinical practice, these components translate to patient assessment, patient education based on data collected during assessment, guiding the patients to identify their readiness towards the needed change in behavior for their lifestyle modification such as (dietary intake, exercise routines etc.), and plans for follow up and weight maintenance. We plan to implement the use of this clinical guideline for our patients whose BMI are 30 for the simple fact that this is a simple tool/guideline which the staff and the patient can easily understand and work with. The tool allows patient involvement in their healthcare decision towards weight loss”</p>
NP3	<p>“The project exhibited a high degree of professionalism and articulation, with a clear focus on developing a clinical practice guideline (CPG) to assist primary care physicians (PCPs) in screening and treating patients with overweight and obesity. The incorporation of motivational interviewing aims to enhance patient engagement in the intervention. The author effectively addressed a significant societal and clinical practice concern, namely, obesity. This project was thoroughly researched and well-supported with ample evidence. I intend to introduce this guideline to my colleagues for potential implementation”</p>
NP4	<p>“Excellent project and instrument. This project is well needed in primary care”</p>

Recommendations

The DNP project findings showed that the CPG clearly addresses the gap in practice. My recommendations include the use of the CPG in primary care office settings by the providers to address the gap in practice. Despite the obesity epidemic, the diagnosis of obesity and overweight in primary care is suboptimal, and the CPG can be an important assist towards the management of obesity and overweight.

According to the participants in this project, the CPG offered a clear process that can be used by providers to diagnose and manage patients with overweight and obesity. Having a good understanding of the target population's perceived barriers will help the providers with the implementation of the proposed interventions.

Considering the findings from the literature review that overweight and obesity are approaching epidemic levels (Gregg & Shaw 2017), it was important to explore in depth why this problem is rapidly rising and why many providers are not actively addressing it in practice.

Strengths and Limitations of the Project

The major strength of this project was that the information used was recent and evidence based. The participants all strongly agreed that the CPG is very useful, and all four participants rated it very highly and are willing to introduce the CPG into their practice. However, this project was not without limitations. The number of participants that reviewed the guideline was small. The participants also may not have critically reviewed all the AGREE II questions before grading the guideline.

Section 5: Dissemination Plan

I developed this doctoral project to guide primary care providers with evaluating every patient's BMI and weight trends during each visit to identify those with overweight and obesity and initiate counseling using a CPG. Primary care providers play an essential role in obesity management. The practice goal was to ensure all patients with overweight and obesity are identified and advised at every patient visit.

Dissemination of the doctoral scholarly project is a fundamental role of the DNP scholar (Bradley et al., 2009). DNP-prepared nurses engage in evidence-based practice to foster a positive change in practice and improve patient outcomes. To achieve this goal, it is essential that I collaborate with other primary care providers through sharing the evidence from this doctoral project.

According to Melnyk and Fineout-Overholt (2011), disseminating the doctoral project findings is required for gathering the new evidence needed to improve practice. The CPG has step-by-step instructions for providers comprising evidence-based knowledge to guide their practice on diagnosing and managing patients with overweight and obesity. Dissemination of the CPG will increase the awareness, understanding, and most importantly the acceptance of the guideline by primary care providers. Although dissemination alone might not be an adequate way of changing practice, it is essential for implementation of the guideline.

I will share information from this project through handing out a printed version of the CPG; attending targeted seminars; and making presentations to provider groups, like the Association of Nigerian Nurse Practitioners in North America and the Maryland

Academy of Advanced Practice Clinicians. Another method that I plan to adopt for dissemination is publication in professional journals and direct mailing to primary care providers.

Analysis of Self

For 6 years, I have worked as a NP in a busy primary care office that is located in the second-most populous county in Maryland and have seen the effects of untreated and misdiagnosed overweight and obesity and have come to the realization that primary care providers must be encouraged to improve overweight and obesity diagnosis and management. Overweight and obesity is a complex chronic medical condition and, therefore, should be taken seriously. Every provider-patient encounter should include BMI assessment. Studies have shown that many primary care providers underdiagnose overweight and obesity (Swenke et al., 2020). While conducting this DNP project, I was able to identify the gap in practice from the numerous research articles, systematic reviews, and journals searched and read to develop the CPG. As a DNP scholar, I believe the application of CPG will help improve patient diagnosis and management as well as patients' overall outcomes.

The Walden DNP curriculum emphasizes the impact of social change, and by virtue of my terminal degree as a DNP scholar, I am essentially a positive change agent. My goal as a change agent is to be fully involved in policy making and institutional change that will help improve the overall delivery of health care and patient outcomes.

Summary

According to World Health Organization (2022), overweight and obesity is a serious chronic medical condition that affects all genders and socioeconomic groups. In U.S. adults, obesity prevalence is over 39% (i.e., over 93.3 million individuals) and continues to increase (CDC, 2018). As a result of the increasing prevalence, overweight and obesity has been termed an epidemic. Obesity has been shown to be a major risk factor for many other medical conditions, like hypertension, dyslipidemia, Type 2 diabetes, coronary heart disease, sleep apnea, osteoarthritis, and certain types of cancers (CDC, 2022). Considering the increased prevalence rate, it is important to improve obesity diagnosis and management. Therefore, the development of the CPG in this project was necessary to improve the diagnosis of overweight and obesity, which will result in an overall improvement in patient outcomes.

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Appendix A: Table of Evidence

Practice-Focused Question:

Article #	Author & Date	Evidence Type	Sample, Sample Size, Setting	Findings that help answer the clinical question	Observable Measures	Limitations	Evidence Level Evidence Quality
1	Sherson, et al., (2014).	A review of the literature.	15 articles met the inclusion criteria.	The review showed that patients will like their physicians to arrange, advise, agree and assist them with their obesity management.	BMI, age, sex, and ethnicity.	The researcher think they may have been limited because of the use of Medline/PubMed database only in their search. They found limited studies that examined 5-A-related practices.	Level 1
2	Yue et al., (2022).	This is an analysis of eight NHANES cross-sectional studies. This study was to find the prevalence and	N – 19,537 participants, ages 20 years and older. These were from	The findings showed that the overall prevalence of central obesity increased from	Waist circumference was measured. Demographic and sociodemographic data were collected. Other data measured	The researchers reports that analytical inferences cannot be established with	Level 4

		trends of different obesity phenotypes in a nationally representative sample of US adult population.	eight survey cycles done between 1999 to 2014 (1999 – 2000, 2001-2002, 2003-2004, 2005-2006, 2007-2008, 2009-2010, 2011-2012, 2013-2014) by the National Health and Nutritional Examination Survey (NHANES)	45.1% in 1999-2000 to 56.7% in 2013-2014. And about 15% of the US centrally obese people are metabolically healthy. The study further showed that although, there is a higher prevalence of central obesity, those with	are BP, HDL-C and Triglycerides.	cross-sectional studies, therefore further research is recommended. There is no standardized definition of metabolically healthy obesity (MHO), and prevalence estimates are subject to change depending on the	
3	Yates et al., (2012).	A cross-sectional evaluation of the NHANES III 1988-1994 and the continuous NHANES 1999-2008 of US adults. The study evaluated the	The sample size is N=31,039 of nonpregnant US adults aged 20-90 years.	The findings show obesity and overweight continues to increase, that about 70% of the respondents were classified as overweight or	The observable measures include, BMI, age, sex, ethnicity, education, smoking history, diagnosed hypertension and hypercholesterolemia	The use of multiple surveys over time may introduce potential inconsistencies because of different survey protocols. Self-	Level 4

		secular trends in the diagnosis and treatment of obesity among US adults in primary care setting	NHANES III of 1988-1994, and continuous NHANES of 1999-2008.	obese. Although the physician diagnosed cases have gone up over the years, the prevalence of self-diagnosed overweight was more than the physician diagnosis for each survey year.		reported data can also become a limitation, due to possible misrepresentation of data.	
4	Barnes et al., (2015).	This is a clinical change project, a three-phase evaluation project implemented in a primary care center.	N=100 Medical records that were randomly selected using a random number chart that was drawn from the total number of arrived population of patients for the	The randomly selected charts had no documentation of BMI prior to the intervention. After the intervention, there was a change, showing BMI documentation. Although the number of obese patients isolated during the evaluation at the phase 3 was not	The observable measures are BMI, blood pressure, fasting glucose and high-density lipoprotein	One of the limitations is that this project was conducted in a single site and therefore may not be applicable in other primary care settings. Also, the population in that site is predominantly Caucasians, which limits the generalization of the results.	Level 4

			designated data collection day. A primary care center operated by the School of Medicine in Western Virginia.	statistically significant, but the number of charts with documented BMI improved.		There is no control group and the cross-sectional sample of the project may not allow for causal relationship to be created.	
5	Ghai et al., (2021).	A systematic review to evaluate the standard of the national and international guidelines in order to build a list of CPG recommendations for management of chronic pelvic pain.	A total of 6 guidelines from 6 articles were included in the review. These guidelines were published between 2002 and 2020.	The study concluded that although guidelines are important in managing chronic pelvic pain, but that there were variations in guideline recommendations .	The level of evidence supporting each guideline. Reliability, relevance and transferability of the recommendations.	The researcher noted that the use of AGREE II instrument in assessment of rigor of the guideline development instead of quality of the guideline content is a limitation. The also noted that the review was done by people from the same specialty.	Level 1

6	Keramat, et al., (2021).	This is a longitudinal study that examined the between-person differences in the association between obesity and chronic diseases using three waves spanning nine years of a nationally representative longitudinal survey.	The authors used a data set that includes 20,538 person-year observations by linking de-identified records of 9,822 unique adults. The study examined three distinct waves (waves 9, 13, and 17) of the household income and labor dynamics in Australia.	Their findings indicated that obesity is associated with higher prevalence of chronic diseases among Australian middle-aged and older adults. They noted that obese adults with body mass index (BMI) >30 were at higher risks having type 2 diabetes, heart disease, asthma, depression and arthritis when compared with healthy weight counterparts.	The observable measures are BMI. Other variables of the study are chronic diseases (Asthma, diabetes, heart disease, cancer, arthritis, and depression). There were covariates that were also considered, like age, gender, civil status, education, household yearly income, labor force status, smoking, alcohol intake and physical activity.	The study has limitations in the estimation of the relationships between obesity and chronic diseases. The study used self-reported data on BMI, chronic diseases and lifestyle characteristics. The authors noted that the study formed an unbalanced panel data for the subsample analysis, therefore it is difficult to draw causality from the study. Also, the study did not consider genetic factors.	Level 4
7	Lutfiyya et al., (2008).	A cross-sectional analysis of the 2003 behavioral	244,496 unweighted BRFSS	The survey showed that a small segment of	The measures are Height, weight and BMI	The limitations include the fact that data is self-	Level 4

		risk factor surveillance survey (BRFSS) data. The goal was to collect uniform state specific data on noninstitutionalized adult's preventive health practices and risk behaviors.	respondents reported height and weight data that was used to calculate BMI. This was a random telephone survey.	the U.S adults that have healthy weights were offered primary prevention. And considering the prevalence and health complications of obesity, the authors noted that it shows that health care providers are missing the chance for dealing with the obesity epidemic.		reported and is subject to bias. Also, counseling is primary care is usually brief and responders may have difficulty remembering the encounters, leading to an underestimation.	
8	Mestral et al., (2020).	A cross-sectional, nationwide population-based study that used data from the Swiss Health Survey from 2012 to assess barriers to healthy eating and adherence to Swiss dietary guidelines.	N = 21,597 participants, aged 16 years and older.	The study showed that barriers like price and availability were associated to higher adherence to dietary guidelines, while barriers like taste, time, daily habits and lack of will	The observable measures are BMI, Sex, Age and Education.	This is a cross sectional study and data is self-reported.	Level 4

				power were associated with lower adherence.			
9	Banerjee et al., (2018).	This study is a mixed method design, called a positive deviance study of low-income African American women.	N – 1200 Low-income African American that were called positive deviance group because they lost 10% of their weight and maintained it for 6 months.	The study showed that PCP counseling offered in primary care setting helped promote weight loss in low-income African American.	The observable measures are height, weight and BMI.	It is a mixed method study. There was no randomization.	Level 5
10	Barrett et al., (2018).	A systematic review and meta-analysis.	1436 articles were yielded by the search and 1241 studies were excluded.	The review showed that integrated motivational interviewing – cognitive behavioral therapy leads to modest	The outcome measures were patient’s weight (BMI), physical activity and body composition.	There was limitation on the extraction of sufficient data. Secondly self-reported tools were used to measure changes in physical	Level 1

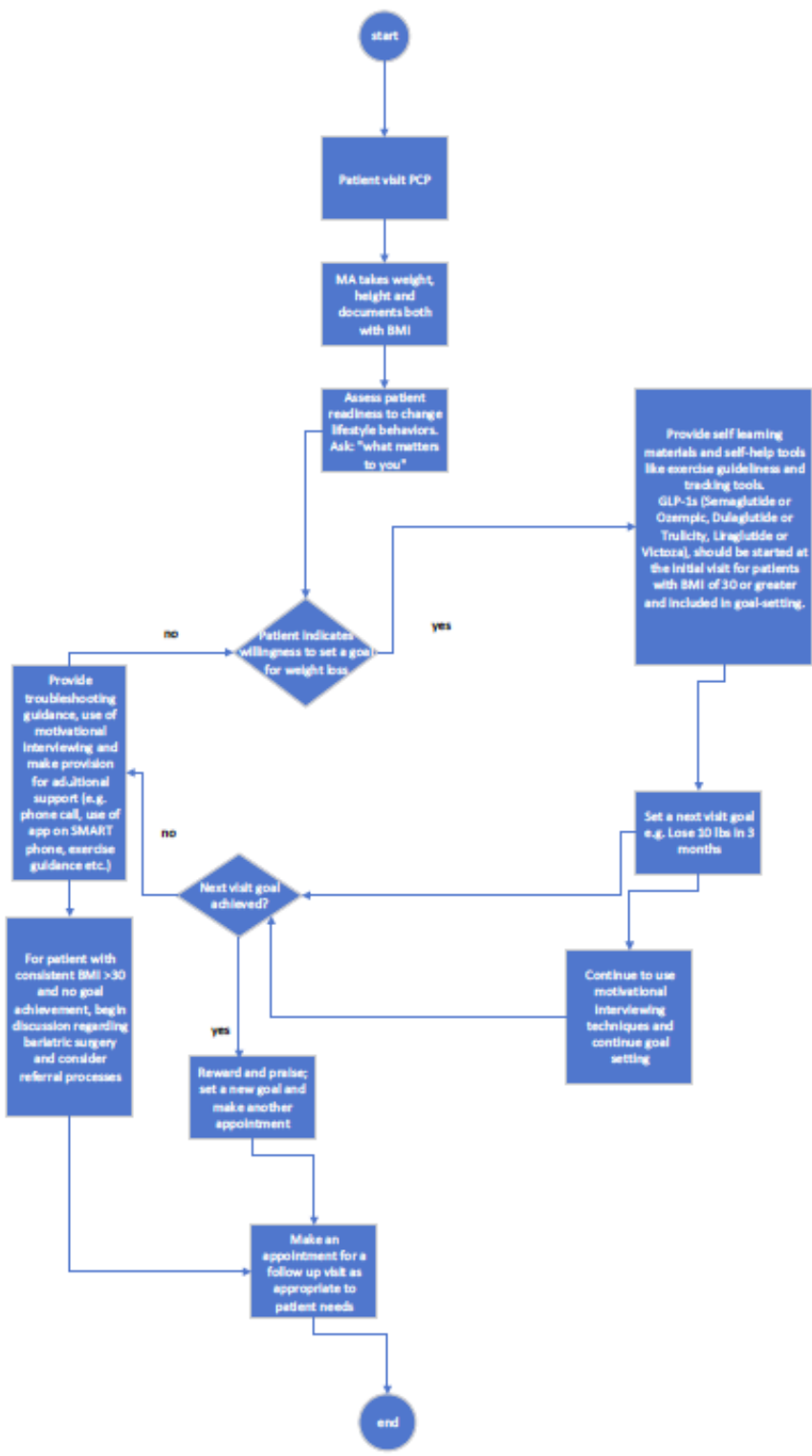
			195 studies underwent full review and only 10 studies were selected for inclusion.	improvement in physical activity and body composition changes amongst community-dwelling adults.		activity and the researchers noted that some of the studies were small studies.	
11	Rust et al., (2020).	The implementation of best practice guidelines by Registered Nurses Association of Ontario called Toolkit	N = N/A This study in by Registered Nurses Association of Ontario.	This study called Toolkit, provided the step-by-step method of incorporating CPGs into practice, and it showed providers offered care that was consistent with CPGs especially in patients with obesity and overweight.	The outcome measures were divided in phases. Phase 1, identifying a problem, reviewing and selecting knowledge. Phase 2, adoption of knowledge appropriate for the problem. Phase 3, assessment of facilitators and barriers. Phase 4 is selection, 5 and 6 are monitoring and evaluation of the knowledge selected and 7 is sustaining the knowledge use.	The limitation is that the CPG was not incorporated into their electronic health record (EHR). Incorporating it into the EHR will prompt providers to have readiness discussions with patients.	Level 4

Appendix B: Clinical Practice Guideline for Managing Obesity in Primary Care

	RECOMMENDATIONS	Reference
	ASK AND ASSESS	
1	Obtain patients weight, height, and BMI. Obtain waist circumference to refine assessment of obesity-related comorbidities. (Normal weight BMI 18.5 – 24.9kg/m ²), (Overweight 25 – 29.9kg/m ²), (Obese Class I, 30 – 34.9), (Obese Class II 35 – 39.9), (Extreme obesity, Class III).	U.S Preventive Service Task Force (2018).
2	Find out from the patients using motivational interviewing their readiness to change lifestyle behaviors. Ask: What matters to you? Set goals as appropriate to patient's readiness.	IHI.org, 2023
	ADVISE PATIENTS ABOUT HEALTH BENEFITS	
3	Practitioner informs the patient that modest weight loss lowers the threat of cardiovascular risk factors.	U.S Preventive Service Task Force (2018).
4	Patients with prediabetes or diabetes should be counseled that modest weight loss results in prevention, delayed progression as well as improved control of type 2 diabetes.	Australian Government National Health and Medical Research Council Department of Health, 2013).
5	The goal of patient advice is to promote healthy lifestyle. A 5% weight loss has been shown to significantly improve renal complication, sleep apnea, musculoskeletal problems, gastro-esophageal reflux or even incontinence of urine.	U.S Preventive Service Task Force (2018), and Australian Government National Health and Medical Research Council Department of Health, (2013).
	ASSIST THE PATIENT	
6	Recommend lifestyle modification. This includes reduced calorie intake, improved physical activities, and measures that will assist behavioral change. Provide weight loss tools: e.g. tracking intake/nutrition as well as exercise	American Association of Clinical Endocrinology/American Association of Endocrinology (AAACE/AAE) (2016).

7	Find out patient's readiness to engage in weight loss programs using motivational interviewing. Consider recommending comprehensive lifestyle interventions (behavioral, dietary, and physical activity change), in order for the patient to achieve negative energy balance.	Mayer et al., (2021).
8	Providers can assist patients with BMI of >30kg/m ² without any comorbid conditions, or BMI of >27kg/m ² with associated comorbid conditions in choosing any of the FDA approved agents for long-term treatment of obesity. These medications include Naltrexone/Bupropion, Orlistat, Phentermine/Topiramate, and the GLP-1 agonists. The GLP-1 agonists are the latest medications and seem to work very well.	American Association of Clinical Endocrinology/American Association of Endocrinology (AAACE/AAE) (2016).
	ARRANGE AND MONITOR	
9	The practitioner will monitor patient closely. Check height, weight, and BMI with every visit. Discuss goals at every visit. Discuss patient progress and the need for further referral like in extreme obesity for either bariatric surgery or other forms of intervention. Referral is done for bariatric surgery for patients with BMI of >40kg/m ² , or >35kg/m ² with an obesity-associated comorbid condition.	American College of Cardiology, American Heart Association and The Obesity Society, (ACC/AHA/TOS) (Cornie, 2022).

Weight Loss Management Algorithm



CPG Algorithm Explanation

During the initial patient visit, the medical assistant (MA), obtains patient height, weight, waist circumference and BMI is automatically calculated by the EMR. The PCP determines if the patient has overweight or obesity and if the patient is ready for weight loss or not. The PCP should assess patient's readiness for change. It is important to ask the patient what is important to him/her.

If the patient shows willingness for change, the PCP should provide the patient with educational materials, self-learning tools and exercise materials. GLP-1s (Semaglutide or Ozempic, Dulaglutide or Trulicity, Liraglutide or Victoza), should be started at the initial visit for patients with BMI of 30 or greater and included in goal setting.

For patients who are not ready for change, the PCP should continue to use motivational interviewing (MI) until patient understands the need for intervention.

The patients that are willing to participate in the weight loss intervention, should be helped to set reasonable weight loss goals. A weight loss goal of 10lbs in three months should be recommended. There should be re-evaluation in 3 months.

If the patient meets the set goal, the PCP will continue to monitor closely. It is important to praise and appreciate patients that met their goals because that motivates them. For patients that did not meet set goals, the PCP should help them re-evaluate their goals and make it more achievable. Set up another appointment to reassess progress.

The patients with BMI of 30 or greater who are not able to meet set goals, the PCP should assess for potential benefit from bariatric surgery.

Appendix C: Agree II Data Collection

DOMAIN 1. SCOPE AND PURPOSE

1. The overall objective(s) of the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

2. The health question(s) covered by the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

Domain 2. Stakeholder Involvement

4. The guideline development group includes individuals from all relevant professional groups

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

5. The views and preferences of target population (patients, public etc.) have been sought.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

6. The target users of the guideline are clearly defined.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

Domain 3. Rigor of development.

7. Systematic methods were used to search for evidence.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

8. The criteria for selecting the evidence is clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

9. The strength and limitations of the body of evidence are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

10. The methods for formulating the recommendations are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

11. The health benefits, side effects, and risks have been considered in formulating the recommendations.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

12. There is an explicit link between the recommendations and the supporting evidence.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

13. The guideline has been externally reviewed by experts prior to its publication.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

14. A procedure for obtaining the guideline is provided.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

Domain 4. Clarity of presentation.

15. The recommendations are specific and unambiguous.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

16. The different options for management of the condition or health issue are clearly presented.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

17. Key recommendations are easily identifiable.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

Domain 5. Applicability.

18. The guideline describes facilitators and barriers to its application.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

19. The guideline provides advice and/or tools on how the recommendations have been considered.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

20. The potential resource implications of applying the recommendations have been considered.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

21. The guideline presents monitoring

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

Domain 6. Editorial Independence.

22. The views of the funding body have not influenced the content of the guideline.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

23. Competing interests of guideline development group members have been recorded and addressed.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments:

OVERALL GUIDELINE ASSESSMENT.

For each question, please choose the response which best characterizes the guideline assessed:

1. Rate the overall quality of this guideline.

1 Lowest Possible Quality	2	3	4	5	6	7 Highest Possible Quality
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2. I would recommend this guideline for use.

Yes	
Yes, with modifications	
No	

Notes

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