

A QUALITY INITIATIVE TO IMPROVE HEALTHCARE PROVIDERS MANAGEMENT
OF OBESITY IN MENOPAUSAL WOMEN

A Doctor of Nursing Practice Project Report

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of

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This Doctor of Nursing Practice Project Report meets the standards for scope and quality of Texas A&M University-Corpus Christi College of Nursing and Health Sciences and is hereby approved.

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August 2021

DEDICATION

I dedicate this quality initiative to all menopausal women who suffer from obesity and to all the health care providers who work closely with their obese patients to find new therapeutic approaches based on clinical evidence.

ACKNOWLEDGEMENTS

I would like to thank my chair, Dr. Tammy McGarity, and my project advisor, Dr. Christina Murphey for their wisdom and guidance as committee members on this project. The feedback they provided was invaluable. I also would like to acknowledge and express my deep gratitude to the health care providers, medical assistants, front office staff, and office manager of Central Texas gynecology clinic. Their support and hard work during the implementation of the project was amazing. Finally, I cannot thank my family enough for their love and support. My family has been always there to support me and help restore my sanity after long hours sitting in the computer working on my project.

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ABSTRACT

Background: Obesity in menopausal women is a growing health care concern. The incidence of obesity among women between the ages of 40 to 60 in 2017-2018 was 45%. Women have a higher prevalence of severe obesity (11.5%) as compared with men (6.9%) (CDC, 2020). Healthcare providers (HCPs) play an important role in managing obesity. However, evidence-based treatments are rarely implemented in primary care. **Purpose:** To improve HCPs obesity management and reduce weight, body mass index, waist circumference, and body fat percentage in menopausal women between the ages of 45 to 65 years old. **Methods:** A before and after design was used to implement an educational intervention for HCPs and a weight management protocol. HCPs attended educational sessions on the implementation of the weight management protocol. **Results:** The weight management protocol was successfully implemented 100 % ($N = 30$) in all eligible patients at baseline, 99% ($N = 25$) at week 4, 93% ($N = 28$) at week 8, and 100 % ($N = 30$) at week 12. Patient outcomes showed a significant reduction in weight ($M = -12.41 \pm SD = 0.48$, 6.0%), BMI ($M = -2.20 \pm SD = 0.05$, 7.0%), WC ($M = -3.74 \pm SD = 0.57$, 9.0%), and BFP ($M = -3.09 \pm 0.01$, 7.0%). **Implications:** The results of this project show that HCPs knowledge after the delivery of an evidence-based educational activity improved and that the implementation of a weight management protocol showed to be an effective strategy in screening and managing obesity in menopausal women.

A Quality Initiative to Improve Healthcare Providers Management of Obesity in Menopausal Women

INTRODUCTION

Obesity has reached epidemic proportions. The Centers for Disease Control and Prevention (CDC, 2020) reported that between 1999-2000 through 2017-2018, the prevalence of obesity in adults increased from 30.5% to 42.4%. Obesity rates continue to increase significantly, with the highest prevalence in women (Sanchez-Ramirez et al., 2018). Between 1988-1994 and 2009-2010, the prevalence of obesity in women increased from 24.9% to 35.4% compared with an increase prevalence from 19.9% to 34.6% in men (Ladabaum et al., 2014). Further, Hales et al. (2020) indicated the incidence of obesity among women between the ages of 40 to 60 was 45% between 2017-2018. Healthcare providers (HCPs) play an important role in preventing and managing obesity (Turner et al., 2018). However, evidence-based, non-pharmacological treatments to manage obesity are rarely implemented in primary care.

Professional organizations committed to obesity management developed clinical guidelines to provide HCPs with evidence-based treatment recommendations and new therapeutic options (Apovian et al., 2015). These professional organizations, such as the American Heart Association (AHA) Task Force, the American College of Cardiology (ACC) on Practice Guidelines, and the Obesity Society (TOS) (AHA/ACC/TOS, 2013), have also acknowledged the need for more education and training to prepare HCPs regarding the comprehensive management of obesity, based on clinical guidelines (Apovian et al., 2015). A collaboratively teamwork committed to support education and implementation of evidence-based guidelines into clinical practice is essential to improve HCPs practice patterns in managing obesity in menopausal women (Choppra et al., 2019). The growing number of obese women

between the ages of 40 to 60, and the limited use of obesity guidelines in clinical practice likely prevent HCPs to successfully manage obesity in menopausal women.

Background

Improving health outcomes for obese individuals is challenging, particularly among menopausal women. Menopause is characterized by the cessation of menses and the decline in estrogen production (Kappor et al., 2017). During menopause, women have the tendency to accumulate adipose tissue within the abdominal cavity and to increase total body weight (Kappor et al., 2017). Ladabum et al. (2014) indicated that the prevalence of abdominal obesity in women increased from 46.0% to 61.5%, between 1988-1994 and 2009-2010, compared with an increase from 29.1% to 42.0% in men. This increase in abdominal fat is associated to low estrogen levels along with high androgen levels (Chopra et al., 2019). Obesity and abdominal fat accumulation are linked to adverse metabolic issues such as dysglycemia, dyslipidemia, hypertension, and cardiovascular disease. In one study, the researchers evaluated 118 Iranian postmenopausal women and found that 30.1% of these women suffered from metabolic syndrome, a serious health issue which increases morbidity and mortality rates among this population (Jouyandeh et al., 2013).

A panel of experts convened to develop the AHA/ACC/TOS obesity guideline recommended to manage obesity as a chronic disease. They highly emphasized the guideline provides general advice regarding safe and proper implementation of up-to-date interventions for the management of obesity in adults (Apovian et al., 2015). This group of professionals indicated that HCPs should rely on evidence-based information that supports clinical application of obesity management (Apovian et al., 2015). Based on the importance of managing obesity based on evidence, the general purpose of this qualitative initiative (QI) was to deliver an evidence-based

educational intervention to improve HCPs management of obesity, implement a weight management protocol, and reduce weight, body mass index (BMI), waist circumference (WC), and body fat percentage (BFP) in menopausal women.

Review of Literature

Studies show that despite the existence of effective tools to facilitate weight loss in obese patients, very little structured obesity management aligned with obesity guidelines (Iwamoto et al., 2018). The AHA/ACC/TOS obesity guideline developed for the management of overweight and obesity in adults, it is intended to assist HCPs in evaluation and treatment decisions for overweight and obese patients (Jensen et al., 2014). However, evidence shows that HCPs lack knowledge and training in implementing these guidelines, therefore, reducing these gaps in providers knowledge will increase the quality of obesity evaluation and management (Ogunleye et al., 2015).

Semlitsch et al. (2019) performed a systematic review of 19 evidence-based guidelines and concluded that a comprehensive lifestyle program including low-calorie intake, an increase in physical activity, and interventions aimed to support behavioral change for at least 6 to 12 months is essential in treating overweight and obese adults. However, in their study, Turner et al. (2018) assessed the knowledge of obesity treatment guidelines among a large, randomly selected group of HCPs. The total sample of 1,003 HCPs, which involves 480 family physicians, 523 internists, 250 obstetrician-gynecologists (OB-GYNs), and 253 nurse practitioners (NP) was surveyed using DocStyles, a web-based survey. In this study, most HCPs (84%) failed to identify practices consistent with evidence-based obesity treatment guidelines for many of the questions (≥ 3 incorrect). It was demonstrated that HCPs' knowledge of the physical activity and dietary guidelines is limited. Only half (49%) of HCPs correctly identified that the minimum level of

physical activity to achieve substantial health benefits recommended in clinical guidelines is 150 minutes of moderate-intensity physical activity per week (Turner et al., 2018). Of the providers who identified an incorrect guideline, 25% selected a higher level of physical activity than the recommended, and 20% selected a level lower than the recommended. Regarding the use of weight loss medication, only 8% of HCPs, correctly identified the guideline recommendations to initiate and continue pharmacotherapy for obesity (Turner et al., 2018). Also, Turner et al. (2018) showed that less than 20% of the providers identified counseling for obese patients as a recommendation consistent with the United States Preventive Services Task Force guidelines.

In another study, Petrin et al. (2017) surveyed 1501 providers, including 465 family practitioners (FPs), 535 internists, 250 (OB-GYNs), and 251 nurse practitioners (NPs), to evaluate differences in beliefs, practice, and knowledge about obesity management between primary care physicians, OB-GYNs, and NPs. In this study, the providers were randomly sampled using the SERMO's Global Medical Panel; they were surveyed using DocStyles, a web-based online survey that contained a total of 131 questions. They found that HCPs (97%) believed they were partly or solely responsible for counseling their patients about obesity. However, few patients received obesity counseling consistent with clinical guidelines despite the significant benefit of such counseling. Petrin et al. (2016) also found that 31% of HCPs did not initiate pharmacotherapy for obesity. In this study, a large percentage of NPs (64%) and a large percentage of OB-GYNs (60%) valued more training in obesity management compared to other specialties. Overall, 53% of HCPs reported that more training in obesity management is needed to improve patients' counseling in obesity (Petrin et al., 2016).

Sanchez-Ramirez et al. (2018) delivered a one-day interprofessional obesity education activity to 198 providers. A pre-, post-event and six-month post-event surveys were used to

assess the effects of the educational activity on professional skills, attitudes, and perceived challenges toward obesity management. This study identified HCPs who felt they needed more guidance in raising obesity issues with their patients and interviewing patients for behavior changes related to obesity. In this study, providers with more years of experience ($r = 0.36$, $n = 122$, $p < 0.01$) reported they did not receive education regarding obesity management before starting practice. Sanchez-Ramirez et al. (2018) also reported that the previously identified practicing physicians were less likely to discuss obesity issues with their patients than other HCPs ($r = 0.21$, $n = 122$, $p = 0.02$). The aforementioned studies demonstrate an important evidence gap suggesting HCPs feel unprepared to address obesity with their patients, lack knowledge about obesity guideline recommendations, and see education and training as value alternatives to improve obesity management.

Improving HCPs' knowledge of obesity clinical practice guidelines through education and training will improve the quality of patient care and health outcomes (Turner et al., 2018). A clinical trial conducted by Dietz and associates (2015) showed that 31% of the patients achieved a weight loss of 5%, and 20% of the patients achieved a weight loss of 7% after HCPs received educational training about the recommended treatment for severe obesity. A meta-analysis including three trials suggested that, compared to no education, educational training on the use of evidence-based interventions directed to HCPs reduced the average weight of patients by 1.2 kg to 2.8 kg in 1 year (Flodgren et al., 2010). In their study, Sanchez-Ramirez et al. (2018) assessed the effects of an interprofessional educational activity on obesity management among different HCPs. At the end of the activity, providers reported an increase in their ability to assess weight status and related risk factors ($r = .25$, $p < .04$), to teach patients to increase physical activity (r

= .46, $p < .001$), to eat healthy ($r = .42$, $p < .001$), and to use behavioral interventions ($r = .47$, $p < .001$).

These studies show that education and guidance regarding evidence-based management of obesity provides HCPs with additional and improved treatment options to reduce morbidity and increase the quality of life for their obese patients (Apovian et al., 2015). Obesity is not only a medical problem but also an economic one. Obese patients incur 46% higher inpatient costs, 27% more physician visits and outpatient costs, and 80% higher spending on prescription drugs when compared with normal-weight patients (Jensen et al., 2014). According to the CDC (2020), the estimated annual medical cost of obesity and obesity health-related complications in the United States (U.S) was \$147 billion in 2008. To reduce healthcare costs and decrease patient morbidity due to obesity, healthcare providers must implement up-to-date evidence-based interventions to promote successful obesity management.

Problem Description in the Setting

Working as an HCP in a Central Texas gynecology clinic, I noticed that menopausal women in a weight loss program were not reaching their target weight loss goals. I expressed my concerns to the physician and owner of the clinic, and he allowed me to conduct an organizational assessment of the obesity management practice. I found that assessment and management of overweight and obesity were not consistent with clinical guideline recommendations. One of the major concerns was that the diagnosis of overweight and obesity was based on total body weight, and not on BMI and WC as recommended in clinical practice guidelines. Practice management data showed that HCPs reviewed the patients' weight, briefly counseled patients about lifestyle modification, prescribed a weight loss medication, and ordered a 4-week follow-up appointment. The counseling sessions were not frequently documented in the

patients' medical record, suggesting HCPs did not counsel the patients. This review acknowledged that the assessment and management of obesity in the clinic did not align with clinical guidelines.

After identifying gaps in practice, I met with the physician and other HCP and discussed the impact of not assessing and managing obese patients according to evidence-based guidelines. The physician agreed to incorporate the AHA/ACC/TOS clinical guideline recommendations to the existing obesity management process. We suggested delivering an educational activity and implementing a weight management protocol, based on evidence, to improve HCPs obesity management and reduce weight, BMI, WC, and BFP in menopausal women.

Project Purpose and Aims

The purpose of this quality initiative (QI) project was to improve HCPs obesity management and reduce weight, BMI, WC, and BFP in menopausal women between the ages of 45 to 65 years old, educating HCPs on evidence-based guidelines and implementing a weight management protocol in a Central Texas gynecology clinic. The clinical question guiding this quality improvement project was: In a Central Texas gynecology clinic, does an educational intervention delivered to HCPs and a weight management protocol implementation, based on the AHA/ACC/TOS guideline, compared with the current standard of care, improve HCPs management of obesity, and reduce weight, BMI, WC, and BFP in menopausal women between the ages of 45 to 65 years old, over three months?

The specific project aims were:

Aim # 1: To improve HCPs obesity management in menopausal women between the ages of 45 to 65 years old. HCPs received an educational intervention on the implementation of the weight management protocol, based on the obesity guideline recommendations. The specific

goals were to increase assessment parameters by measuring and documenting weight, BMI, WC, and BFP; and to improve HCPs obesity management by implementing the full weight management protocol, which included HCPs counseling patients; reviewing the physical activity and dietary logs; and ordering follow up appointments, in 100% of all eligible patients by the end of the intervention.

Aim # 2: To decrease weight, BMI, WC, and BFP in overweight and obese menopausal women between the ages of 45 to 65 years old. All eligible patients received and followed the weight management protocol recommendations. Patients received obesity counseling; completing and submitting physical activity and dietary logs; and returning for their follow-up appointments. The specific goal was to have a 2.5% reduction in weight, BMI, WC, and BFP by the end of the 3-month period. The guideline recommended a 5% - 10% as an initial weight loss goal in a period of 6-month (Jensen et al., 2014).

This project aligns with the DNP essentials III and VII: Clinical Scholarship and Analytical Methods for Evidence-Based Practice and Clinical Prevention and Population Health for Improving the Nation's Health (American Association of Colleges of Nursing [ANCC], 2006); and the Nurse Practitioner Core Competencies (NONPF): Quality Competencies ([NONPF], 2014). This project utilized evidence-based research to improve HCPs management of obesity and implement a weight management protocol aimed at helping menopausal women reach their weight loss goals. The weight management protocol was designed to be a structured and standardized tool, based on evidence, directed to improve obesity management practice and patient outcomes. By fomenting clinical prevention and health promotion HCPs were able to help menopausal women reach their healthy weight and decrease the health-related complications of obesity.

Guiding Frameworks

The Plan-Do-Study-Act (PDSA) framework is a scientific method frequently used in quality improvement projects to generate internal evidence needed to improve clinical practice and patients' health outcomes (Mazunek Melnyk & Fineout-Overholt, 2019). The PDSA developed by Dr. William Edwards Deming in the 1950s consists of steps in which an idea is tested in small trials, observed, and analyzed to learn from, and then the change is refined and repeated (Mazunek Melnyk & Fineout-Overholt, 2019). The PDSA model was used in this project to assess the need to change the obesity management process within the organization and develop a plan to improve the work process, which will then, be implemented and tested using rapid small-step change cycles (Mazunek Melnyk & Fineout-Overholt, 2019).

The Change Theory of Nursing was used as the conceptual framework for this project. This theory was developed by Kurt Lewin, who is considered the father of social psychology (Nursing Theory, 2020). Lewin's change theory has three major concepts: driving forces, restraining forces, and equilibrium. Driving forces cause the change to occur. Restraining forces counter the driving forces. Equilibrium (the last concept) is when driving forces equal restraining forces, and no change occurs (Nursing Theory, 2020). There are three stages in this nursing theory: unfreezing, change, and refreezing. Stage I, also known as unfreezing, is when the need for a change is recognized and current practice and process are challenged (Evans et al., 2016).

The change stage is when a plan is developed and buy-in from stakeholders is needed for the implementation of the change (Evans et al., 2016). The refreezing stage is the final stage, which is when the change is established; it becomes the standard operating procedure (Nursing Theory, 2020). During this stage, it can be easy for the team to go back to old habits, the team needs to receive feedback and encouragement from the project director to keep them from

reverting to previous behaviors (Evans et al., 2016). Lewin's Change Theory is applied to this quality improvement project by using these three stages. Stage I (unfreezing) identified the need for a change in the way HCPs were assessing and treating overweight and obese menopausal women in the clinic. Stage II (Change) consisted of project planning, development of a proposal. Finally, stage III (Refreezing) consisted of implementing the intervention.

The theoretical framework for this project was based on King's Theory of Goal Attainment. The Theory of Goal Attainment developed by Imogene King is based on the relationship between the patient and the healthcare provider and the interactions that take place between them with the intent of achieving specific goals. This QI project is aimed to improve the management of obesity from the HCPs side of the transaction process model, introducing an evidence-based obesity management guideline into clinical practice. The AHA/ACC/TOS guideline provides evidence-based recommendations to guide HCPs assess and treat overweight and obese patients (Jensen et al., 2014).

Obesity is considered a chronic disease that requires a close relationship between the HCPs and the patients. A series of transactions in the form of follow-up visits will sustain this close relationship. According to this theory, HCPs must follow the trend of the nursing process to help patients achieve the desired weight loss goals. These mutual goals between the patient and the provider are based on the identification of the problem, changes in management practice, perceptions of problems, and sharing information to achieve goals (Messmer, 2006).

METHODS

Ethical Considerations

This project plan was reviewed by the Texas A&M University-Corpus Christi Research Compliance office and received determination of "Not Human Subjects Research" and

permission to proceed as a Quality Improvement project (see Appendix A). Personal health information (PHI) was collected for project purposes only following execution by the project director (PD) of a Health Insurance Portability and Accountability (HIPAA) Confidentiality Agreement Form (see Appendix B). A letter of support was provided by the Chief Executive Officer of the clinic, agreeing to fully support the project (see Appendix C). Participants' medical records were labeled with a green sticker and separated in a secured, locked cabinet in the medical record room in the clinic, to assure the protection of PHI.

Project Design

This QI project used a before and after design to implement an educational intervention for HCPs and a weight management protocol, based on clinical guidelines, to improve management of obesity and reduce weight, BMI, WC, and BFP in menopausal women attending a gynecology clinic in Central Texas. Implementing clinical guidelines to assess and treat obese individuals are key elements in the Theory of Goal Attainment which emphasizes the use of evidence-based interventions to assist patients reach their weight loss goals, promote treatment adherence, and improve overall health while helping healthcare providers with the assessment and management of patient care based on the most current treatment recommendations and therapeutic alternatives (Messmer, 2006). During the organizational assessment, we identified that the clinic did not have an obesity screening tool or a weight management protocol, based on clinical practice guidelines, to guide HCPs during the assessment and management of obesity in menopausal women. These findings revealed the need to improve the existing obesity management process and the quality of patient care at the clinic by delivering an educational intervention to HCPs and implementing a standardized weight management protocol based on evidence-based recommendations.

Before implementing the intervention, the potential barriers expected during the implementation of this improvement project included: 1) Inconsistent use among HCPs with the weight management protocol, 2) patients canceled or missed appointments, 3) COVID-19 restrictions, and 4) inclement weather. The project director's open availability, clearly defined weight management protocol, HCPs and ancillary staffs ongoing education and guidance, the assignment of a specific staff member to reach patients, and the implementation of a COVID-19 protocol in the clinic mitigated these factors (see Appendix D).

Intervention

It was estimated that all HCPs who were working and providing care to overweight and obese menopausal women in the Central Texas gynecology clinic participated in the educational activity. Providers were included if they agreed 1) to attend the educational sessions; 2) to follow the weight management protocol; and 2) to meet with PD once a month. Prior the implementation of the project, the clinic had a total of three providers, including one physician and two NPs. The PD is one of the NPs at the clinic, thus she was not included as a participant. It was expected that the physician and the NP would participate in the project.

During the organizational assessment performed from January 2020 to February 2020; we identified 40 menopausal women aged 45 to 65 years old who were in the weight loss program during that period and met inclusion criteria to participate in the project. Participants were included if they agreed 1) to participate in the project; 2) to adhere to HCPs recommendations; and 3) to continue with their prescribed hormone replacement therapy. The PD and medical assistants contacted eligible patients over the phone. A detailed explanation of the project was discussed with the patients, including the interventions and goals. Thirty patients willing to participate were scheduled for a baseline visit.

This QI project consisted of delivering an educational intervention to improve HCPs management of obesity, implementing a weight management protocol, and reducing weight, BMI, WC, and BFP in menopausal women. One week before the project started, all HCPs and staff received education and training on implementing the weight management protocol in the clinic. A PowerPoint presentation was provided to enhance understanding and elicit questions. For one week, 30-minute educational sessions were held during lunch breaks every day. HCPs and staff received a folder with the following information:

- A copy of the weight management algorithm/protocol, including pharmacotherapy recommendations (Jensen et al., 2014; Apovian et al., 2015) (see Appendices E, F, and G).
- A copy of the “Baseline Health Assessment” form (Apovian et al., 2015) (see Appendix H).
- Physical activity and dietary logs (see Appendices I and J).
- Diet and physical activity educational material.

As PD, I trained the medical assistants on how to provide and collect from every participant the “Baseline Health Assessment” form items, and the physical activity and dietary logs. Medical assistants received one-on-one education and training on how to use the Omron® body composition monitor to measure weight, BMI, and BFP. During the baseline visit, MAs obtained patients’ height, weight, BMI, WC, and BFP, and those patients with a BMI >30 or BMI 25-29.9 kg/m² were asked to complete the “Baseline Health Assessment” form. Blood samples were collected via venipuncture to assess and treat cardiovascular risk factors; the laboratory assessment included fasting blood glucose and lipid profile (Jensen et al., 2014). The front office/receptionist scheduled follow-up visits and contacted patients to remind them

regarding scheduled appointments and/or set up additional appointments for those who missed or canceled appointments. During the implementation phase, HPCs evaluated weight loss progress based on patient adherence to physical activity, dietary intake, and reduced weight, BMI, WC, and BFP.

Data Collection

I conducted a medical chart review of all obese menopausal women seen between February 2020 and March 2020, a year prior to the implementation of the project. Thirty patients, who met the inclusion criteria, agreed to participate in the project. Medical Charts were manually reviewed to obtain patient demographics including date of birth, age, ethnicity, height, and weight. Measurement of height, weight, BMI, WC, and BFP was obtained at the baseline visit, weeks 4, 8, and 12, and documented in the patients' medical charts. Patients completed daily physical activity and dietary logs to submit during each follow-up visit. Additional data obtained from patients' charts were collected monthly and included the documentation of HCPs adherence to the obesity guideline, which included whether the HCPs counseled patients, reviewed the physical activity and dietary logs with the patients, and ordered a follow-up appointment. A form named the "Key to Weight Loss Success" (see Appendix K), was developed by the project director, the physician, the NP, and a faculty member and was added to eligible patients' charts. This form was used to organize the documentation of HCPs adherence to the obesity guideline and to facilitate protocol implementation.

A Data Collection sheet was a second tool used to organize patient data, which was developed in Excel by the project director under the guidance of a faculty member. Data collected included the date of participation; age; ethnicity; gender; weight; height; BMI; WC; BFP; whether or not a fasting blood glucose and lipid profile were obtained at baseline, whether

or not patients completed the physical activity and dietary logs every month; whether or not HCPs counseled the patients; and ordered follow-up appointments. This QI project was conducted over three months beginning on February 1, 2021. Data collection was performed through June 1, 2021, and the data analysis was completed by June 4, 2021 (see Appendix L).

Measurement Tools

Anthropometric measurements, such as weight, BMI, WC, and BFP, were measured according to standard procedures. Height was measured with a stadiometer. Weight, BMI, and BFP were calculated using the Omron® body composition monitor, patients were required to wear light clothes and no shoes. The Omron® body composition monitor is a device used to measure the percentage of fat and the total amount of fat mass, of an individual, in kilograms. This device sends a weak electrical current through the body and measures the resistance of the body tissues to signal. Because fat tissues have little to no electrical conductivity, this device can determine the ratio of fat tissue compared to other tissues (Oke & Dada, 2013) (see Appendix M). Waist circumference was measured with a non-extensible tape at the highest point of the iliac crest at minimal respiration. Waist circumference is not recommended as a routine measure to diagnose overweight and obesity; but it is a good indicator of the risk of developing obesity-related health issues (Semlitsch et al., 2019).

Body fat percentage is a good indicator of health-related fitness and was used in this project as a measure of the change in physical activity and diet. To measure body fat percentage, the Omron® body composition monitor with scale was used. Patients were instructed to step barefoot onto the scale and hold the display unit with arms parallel to the floor (Vasold et al., 2019). In their study, Oke & Dada (2013) demonstrated that the Omron® body composition

monitor has high sensitivity and specificities, which indicates that it is a valid tool to measure obesity in adults. The results of this study showed that BMI correlates strongly and positively with both % fat and fat mass ($r = .835$ and $r = .893$ respectively) at a level of significance of $p = .000$ (Oke & Dada, 2013).

Data Analysis

Data was analyzed using IBM SPSS, version 26. Descriptive statistics were used to describe patient demographic information such as age, ethnicity, gender, weight, height, BMI, WC, and BFP (see Table 2). To determine if HCPs management of obesity improved, patients' medical charts were reviewed to determine the percentage of patients who received the full weight management protocol. A Pareto chart was used to show improvements over time for the percentage of patients who received the full protocol pre-intervention, at baseline, and weeks 4, 8, and 12. To determine if menopausal women had a 2.5% reduction in weight, BMI, WC, and BFP, a paired-t-test was used to compare pre-and post-intervention differences between baseline and week 12 for weight, BMI, WC, and BFP. A table was used to demonstrate changes over time. The effect size (Cohen's d) was calculated for any statistically significant t-test analysis.

RESULTS

Course of the Intervention

The project started on February 1, 2021; during this week, all HCPs received education and training on the obesity management protocol. After the educational sessions, all HCPs verbalized increase knowledge and skills on the obesity protocol. I educated and trained the medical assistants to appropriately measure height, weight, BMI, WC, and body fat percentage and document the values in patients' charts. During this week, patient flow was low due to the restrictions implemented in the facility during the peak of the COVID-19 outbreak in the US.

The implementation of a COVID-19 protocol was needed to continue with the clinic's operation. The COVID-19 protocol required patients wait in their car until the front desk/receptionist called them to come into the clinic. Several precautions were taken to avoid COVID-19 infections, including not having more than six patients in the building at a time, patients' temperature was checked before entering the clinic, and patients and personnel always wore a mask.

At two weeks, the project director evaluated process improvements and found that additional training sessions were required due to physician and staff inconsistently implementing the guideline. To ameliorate this issue, I dedicated one day a week to educate and guide HCPs and staff about the proper use of the new protocol and encouraged the physician and staff to be active participants in implementing the project. During the week of February 15 to February 19, 2021, the implementation of the project was greatly impacted due to a winter storm. The clinic was closed for the entire week, and patients' appointments were canceled. At the beginning of the following week, I and MAs called eligible patients to reschedule the missed appointments as soon as possible.

On March 8, 2021, data was collected. We noticed that between February 8 through March 8, all eligible patients received the full weight management protocol. During this week, the physician reminded me to collect only information on those patients who agreed to participate in the project and signed the "Baseline Health Assessment" form ($N = 30$). At two months, on April 8, 2021, charts were reviewed again to identify process improvement and patients' outcomes. Only 25 patients had received the full protocol: three patients did not have WC measurement recorded in the medical chart and providers did not document they reviewed the physical activity and dietary logs in four patients. It was identified that medical assistants did not consistently carry or have access to the measurement tape when triaging patients. This

problem was addressed easily by ensuring there was a tape measure available in every exam room. The lower rates of WC measurement and the missing documentation of the providers also suggested that more education and guidance on the obesity guideline was needed. The project director continued to dedicate one day a week to educate and guide HCPs and staff about the proper weight management protocol implementation.

One of the most significant drawbacks of the intervention was the lack of technological infrastructures, such as an electronic medical record (EMR). The project director manually reviewed paper patient charts and collected the data. To facilitate data collection and to serve as a reminder to providers and staff to use the protocol and document appropriately in the medical charts, the “Keys to Weight Loss Success” form was used at each patient encounter. The identified advantages for the successful implementation of the project were the strong support received from HCPs, staff, and management, as well as patients. Effective leadership and teamwork made all the difference. The culture of the clinic was to deliver quality care to all our patients. HCPs, management, and staff made every effort to deliver the best care our patients deserve. During the project’s implementation, the team’s empowerment to dedicate themselves to work and apply the protocol to eligible patients was maximized. They all collaborated with PD during data collection as well. There were a few patient encounters in which the protocol was not fully implemented, but the continued encouragement by the PD and the NP influenced the implementation and adoption of the protocol within the organization.

Outcomes

Thirty menopausal women aged between 45 to 65 years agreed to participate in the project. Ethnicities included 76.7% Caucasian and 23.3 % Hispanic. The baseline demographic characteristics of the participants included age, ethnicity, height, and weight are shown in Table

1. Based on BMI, 8 (27%) participants were classified as overweight, and 22 (73%) were obese. By design, all participants had either a BMI of 25 to 29.9 kg/m² (overweight category) or 30 kg/m² or more (obese category) at baseline. The baseline pre-intervention weight ranged from 143 pounds to 261 pounds, with a mean BMI of 33.29 (*SD* ± 4.65), mean WC of 41.08 (*SD* ± 3.26), and mean body fat percentage of 45.88 % (*SD* ± 5.33) (see Table 1).

TABLE 1: PARTICIPANT DEMOGRAPHICS AND BASELINE DATA (N = 30)

	Mean (SD) or %
Gender	
Female	100
Ethnicity	
Caucasian	77
Hispanic	23
Mean age	52.93 (5.77)
Mean weight (pounds)	193.97 (31.85)
Mean height (inches)	63.96 (3.13)
Mean BMI (kg/m ²)	33.29 (4.65)
Mean WC (inches)	41.08 (3.26)
Mean body fat percentage	45.88 (5.33)

Note. BMI: Body mass index, WC: Waist circumference.

Project Aim 1 was to improve HCPs management of obesity following a provider educational intervention and a weight management protocol implementation in a 3-month period.

Prior to implementing this intervention, 0% of the practice's patients were assessed or treated according to obesity guidelines. After delivering the educational intervention, the primary goal was to measure, improve, and sustain the implementation of the protocol in 100% of all eligible patients. Provider obesity management change was evaluated by determining the percentage of patients who received the full protocol. During the baseline visit, the weight management protocol was implemented 100 % in all eligible patients however by week 4, the full protocol implementation decreased to 99% ($N = 25$).

The barriers encountered included: missing clinical documentation by providers, and medical assistants' inconsistency with WC measurement and documentation. To address these issues, PD was in the clinic one day a week to offer education and guidance to HCPs and staff as needed. Also, non-extensible tapes were placed in every exam room to facilitate WC measurements. The implementation of the full protocol at week eight decreased to 93% ($N = 28$). The 100% goal at week 8 was not met due to two patients rescheduling appointments. In week 12, the full protocol was implemented in 100% of all eligible patients ($N = 30$) (see Table 2).

TABLE 2: FULL PROTOCOL IMPLEMENTATION ($N = 30$)

	N = 30	N = 25	N = 28	N = 30
	Baseline	Week 4	Week 8	Week 12
	% Yes	% Yes	% Yes	% Yes
Assessment				
Weight	100	100	93	100
BMI	100	100	93	100
WC	100	97	93	100

BFP	100	100	93	100
Management				
Counseling	100	100	93	100
Physical and dietary logs	100	96	93	100
Follow-up appointment	100	100	93	100

Note: *N*: Number of patients, BMI: Body mass index, WC: Waist circumference, BFP: Body fat percentage.

Project Aim 2 was to reduce a 2.5% in weight, BMI, WC, and BFP in all eligible menopausal women following implementation of the weight management protocol during the 3-month of the project. With the implementation of the protocol, there was a significant reduction in weight ($M = -12.41 \pm SD = 0.48, 6.0\%$), $t(29) = 10.49, p < .001, d = 2.71$, among all 30 participants at the end of the intervention. Also, it showed a significant decrease in BMI from baseline score of ($M = -2.20 \pm SD = 0.05, 7.0\%$), $t(29) = 8.92, p = .001, d = 2.30$, and a significant reduction in WC ($M = -3.74 \pm SD = 0.57, 9.0\%$), $t(29) = 7.49, p = .001, d = 1.93$. Finally, a significant decrease was observed in BFP ($M = -3.09 \pm 0.01, 7.0\%$), $t(29) = 4.59, p = .001, d = 1.19$. Thus, the post-intervention means were statistically significantly higher than the pre-intervention means (see Table 3).

TABLE 3: PREINTERVENTION AND POSTINTERVENTION OUTCOMES COMPARISONS (N = 30)

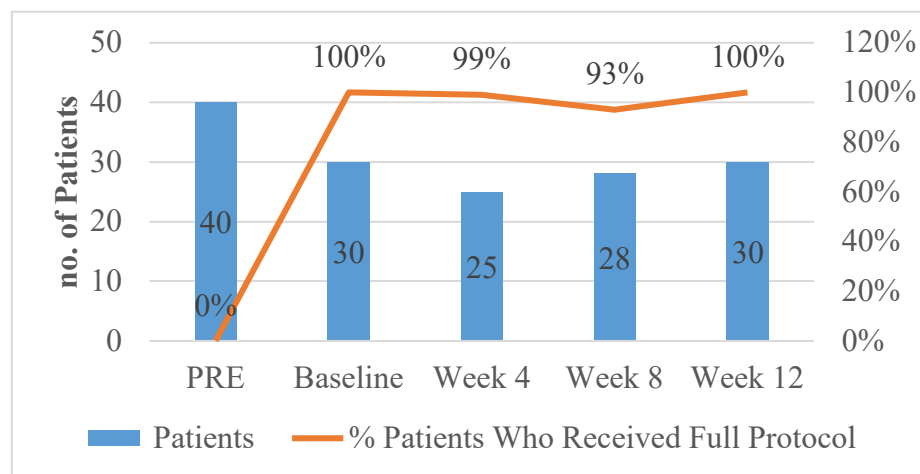
	Range	Mean (<i>SD</i>)	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Weight (pounds)					
Pre-intervention	143 - 261	193.97 (31.85)			
Post-intervention	132 - 250	181.56 (32.33)			
			10.49	< .001	2.71
BMI (kg/m²)					
Pre-intervention	27 - 41	33.29 (4.65)			
Post-intervention	25 - 40	31.10 (4.70)			
			8.92	< .001	2.30
Waist Circumference (inches)					
Pre-intervention	37 - 48	41.08 (3.26)			
Post-intervention	30 - 47	37.34 (3.83)			
			7.49	< .001	1.93
Body Fat Percentage					
Pre-intervention	36 - 56	45.88 (5.33)			
Post-intervention	30 - 51	42.79 (5.32)			
			4.59	< .001	1.19

DISCUSSION

The purpose of this quality improvement (QI) project was to improve HCPs obesity management and reduce weight, BMI, WC, and BFP in menopausal women between the ages of

45 to 65 years, by delivering an educational intervention to HCPs and implementing a weight management protocol at a gynecology clinic in Central Texas. The specific aims were to improve HCPs management of obesity by implementing the weight management protocol in 100% of all eligible patients and to reduce a 2.5% in patients' weight, BMI, WC, and BFP during a 3-month period. Regarding aim 1, findings from this QI project suggested that using an obesity management protocol, based on current clinical practice guidelines, healthcare providers in this clinic improved their obesity management practice, increasing assessment, counseling, education, and follow-up rates (see Figure 1).

Figure 1: Weight Management Protocol Implementation ($N = 30$)



Notably, the process improvement of assessment and documentation of BMI and BFP measurements by medical assistants was sustained through the 3-month project period. Other process changes, such as WC measurements and documentation, proved difficult to maintain. There are many possible explanations as to why rates of WC measurement and documentation were not sustained. One possible reason is that the Omron® body composition monitor electronically computes weight, BMI, and body fat percentage, at once, from the same instrument. WC, on the other hand is measured manually using a non-extensible tape measure.

After placing non-extensible measuring tapes in every examination room, the WC measurement rates increased to 100 % in weeks 8 and 12.

Even though, all participants ($N=30$) received the full protocol at baseline and week 12, we did not meet the goal of implementing the full obesity protocol in 100% of all eligible patients during the entire project timeline. However, the 100% results obtained at the end of the intervention were encouraging given the premise that 0% of patients received treatment based on the evidence-based guideline prior to implementing this intervention. Also, it is notable that the clinic sustained the project despite COVID-19 restrictions, the winter storm, and the HCPs and staff inconsistency with the implementation of the protocol early in the project.

In this QI project, although the improved knowledge of providers and staff was not measured following the educational intervention, they provided unsolicited qualitative feedback indicating they appreciated the knowledge gained from the educational sessions and reminders instituted during the intervention. HCPs and staff expressed increase in knowledge and skills regarding obesity management and demonstrated willingness to continue implementing the protocol in all eligible women. Specific feedback from the HCPs was that the weight management protocol was challenging to implement in a very busy day, but they stated that the “Keys to Weight Loss Success” form was useful and easy to follow since it contained the steps of the obesity protocol in a simplified format.

While not all the specific aims were met, the goal of a 2.5 % reduction in weight, BMI, WC, and BFP in all patients were achieved. This QI project demonstrated that by improving HCPs knowledge on the management of obesity and incorporating a weight management protocol into clinical practice, patients had a significant decrease in weight of 6.0%, BMI of 7.0%, as well as a reduction in WC of 9.0% and BFP of 7.0% at the end of the intervention. This

data showed that patients had clinically important and significant reductions in weight, BMI, WC, and body fat percentage greater than 2.5% post-intervention, which indicated that the secondary aim of this project was met (see Table 4). The results of this project confirm other work which showed that a structured weight management protocol based on evidence can help

TABLE 4: PROVIDER MANAGEMENT OF OBESITY ($N = 30$)

	Pre-intervention	Post-intervention	
	Mean (SD)	Mean (SD)	% changes
Weight (pounds)	193.97 $\pm$ 31.85	181.56 $\pm$ 32.33 (-12.41)*	6%
BMI	33.29 $\pm$ 4.65	31.10 $\pm$ 4.70 (-2.20)*	7%
WC (inches)	41.08 $\pm$ 3.26	37.34 $\pm$ 3.83 (- 3.74)*	9%
Body Fat %	45.88 $\pm$ 5.33	42.79 $\pm$ 5.32 (-3.09)*	7%

Note. *Highly significant, $p = .001$ (Paired t-test), WC: Waist circumference.

menopausal women reach a healthy weight. In a clinical trial among 43 menopausal women, aged 45 or more, the researchers evaluated the contribution of an evidence-based intervention on weight loss. After a 2-month lifestyle treatment for obesity, participants had a decrease in mean weight ($M = -3.7$, $SD = 2.6$).

Also, it showed a significant decrease in BMI of $-0.8 \pm 0.5 \text{ kg/m}^2$, a fat mass of $-2.3 \pm 2.1 \text{ kg}$, a fat free mass of $-0.7 \pm 1.6 \text{ kg}$, and WC of $-3.1 \pm 3.1 \text{ cm}$ (Lombardo et al., 2020). A systematic review by Jull et al. (2014) showed evidence from one study that menopausal women between 44 to 50 years old were randomized to a weight loss intervention protocol, had a mean weight reduction of 0.1 Kg below baseline ($SD = 5.2 \text{ Kg}$), a significant decrease in WC ($M = -2.9 \text{ cm}$, $SD = 5.3$), as well as a reduction in BMI ($M = -0.96$, $SD = 5.7$) and body fat percentage

($M = -4.3$, $SD = 12$) at 54 months of the clinical trial (as cited in Simkin-Silverman et al., 2003). Tandon et al. reported on the effects of life-style management program on postmenopausal overweight and obese women. In a randomized controlled 24 weeks study, a group of thirty women achieved a reduction in weight ($M = -11.9$, $SD = 6.52$), BMI ($M = -4.5$, $SD = 2.61$), and WC ($M = -4.58$, $SD = 2.62$) (2014).

In another study, forty-six postmenopausal women, aged between 50-70, participated in a weight loss program for six months. This program was based on a well-structured weight loss protocol, focused on nutrition education, physical activity and diet monitoring, and counseling of eating behaviors. After six months, there was a significant decrease in weight (-7.7% , $p < .001$) and BMI (-7.6% , $p < .001$). Fat mass decreased after 6 months (-12.5% , $p < .001$) (Silverman et al., 2009). The results of this QI project demonstrated that obese patients who are assessed and treated by HCPs, who relied on evidence-based guidelines, experienced significant improvements in post-intervention weight, BMI, WC, and BFP.

Limitations

The findings of this QI project were limited due to several factors. First, due to the timing of the project, occurring during ongoing COVID-19 restrictions, and inclement weather, the sample size was small. Continued cycles of this project will allow the practice to include more patients and make the findings more robust over time. Second, the project was implemented in one clinical setting, 77% of participants being white, which limits generalizability to similar facilities with more diverse populations. However, it may improve the internal validity of the project by reducing the effects of selection bias from different clinical practices (Ogrinc et al., 2008). Finally, the effects on menopausal symptoms and impact on quality of life resulting from

weight loss were not measured in this project, which are important factors to be considered for future research.

Interpretation

Lewin's Change Theory is applied to this quality improvement project by using three stages. Stage I (unfreezing) project director identified the need for a change in the way HCPs were assessing and treating overweight and obese menopausal women in the clinic; completed an extensive research of the literature; determined the tools to utilize and identified best practice; and ensured there was strong administrative support and leadership to implement the project. During Stage I, PD worked closely with HCPs to assess the current workflow and discussed potential management process changes to ensure the project's success. Stage II (Change) project planning; development of a proposal aimed to improve HCPs management of obesity in the clinic; and presentation of the proposal to HCPs and staff. The primary aim of this project was to improve HCPs management of obesity in the clinic. The project director also developed educational sessions and communicated with HCPs and staff regarding project implementation. Stage III (Refreezing) included completion of the educational sessions, implementation of the guideline in the clinic, and increased HCPs knowledge regarding the utilization of evidence-based guideline recommendations. During this stage, the project director developed ways to sustain the change, such as PD offered support and guidance to HCPs and staff to ensure the project's continuity (see Appendix N).

The PDSA cycle was utilized to implement an educational intervention aimed to increase HCPs knowledge of obesity guidelines (see Appendix O). The goal was to improve HCPs management of obesity in a gynecology clinic. In the "Plan" phase, PD presented the project proposal to HCPs and staff. During this meeting, the weight management protocol was reviewed

and explained. Preliminary plans for project implementation were established, and a process' map was developed. PD prepared educational sessions for HCPs and staff. In the "Do" phase, PD discussed pre-implementation with providers. HCPs and staff received the educational sessions. HCPs and staff verbalized increase knowledge and skills to implement the obesity guideline. The medical assistant demonstrated increased skills to measuring BMI, WC, and body fat percentage and operated the Omron® Body Composition monitor appropriately. During the implementation period which lasted approximately three months, several barriers were encountered including COVID-19 restrictions and a winter storm that impeded the execution of the project as we planned. However, PD, HCPs, and staff worked as a team, and strategies were implemented to ensure the project's sustainability. One solution was the use of a COVID-19 protocol to continue scheduling of patients during the peak of the pandemic. Also, the development of the "Keys to Weight Loss Success" form was needed to facilitate data collection. HCPs and staff also used this form as a quick reference of the protocol. During the "Study" phase, data was collected from patients' medical charts, which included the data recorded in the "Baseline Health Assessment" forms and the "Key to Weight Loss Success" forms. PD evaluated the data collected to determine the percentage of patients who received the full protocol and to identify why the protocol was not fully implemented. In relation to the financial of this QI, the project's total expenses were according to the estimated preliminary budget, except for the cost of buying additional non-extensible tape measures, which were placed in every exam room to ensure measurement of WC.

For future PDSA cycles, I recommended HCPs and staff revise the weight management protocol annually and make modification as needed based on evidence-based practice and guidelines. The AHA/ACC/TOS obesity guideline is lengthy, and it was difficult to use as a

quick reference during an office visit. The development of the “Keys to Weight Loss Success” form facilitated the implementation of the protocol during an office visit and served to organize documentation. Even though we successfully incorporated the weight management protocol into the clinic process, HCPs and staff needed education and guidance weekly during the implementation of the project. Another point to consider for future PDSA cycles is to incorporate a “comprehensive lifestyle intervention.” This section of the guideline was omitted during the intervention because the clinic does not have the resources for behavioral strategies, individual or group sessions, and personalized feedback from a trained nutritionist on site. To ensure the sustainability of the project, PD planned to meet with HCPs and staff monthly to make sure the AHA/ACC/TOS obesity guideline is fully integrated into the daily processes.

Conclusion

This QI project increased awareness among HCPs of the importance of integrating evidence-based interventions into clinical practice. The results of this project showed that the delivery of an evidence-based educational activity and the implementation of a weight management protocol increased HCPs knowledge about the delivery of effective strategies to screen and manage obesity in menopausal women. This project demonstrated that provider implementation of obesity guidelines in clinical practice is a feasible intervention to help patients reached their weight loss goals, promoted treatment adherence, and improved the overall health of the patients. This QI project introduced important changes to practice including the use of a standardized weight management protocol, improving obesity screening (e.g., BMI, WC, and BFP measurements), and adding HCPs accountability of providing obesity counseling to patients and documenting it in patients’ medical records. This QI project suggests that HCPs can

effectively use clinical practice guideline recommendations to improve the quality of obesity management.

For future applications of practice, the HCPs should continue providing the most recent evidence-based practice to assess and manage obese patients. HCPs need to be up-to-date with current clinical obesity guideline recommendations that serve to provide general guidance for the management of obesity. HCPs should work closely with patients to determine approaches that promote successful lifestyle management, incorporating weight loss medications as adjunct therapy to lifestyle modification activities. One of the major lessons I learned from this project was that despite availability of many clinical guidelines for the management of overweight and obesity in adults, increased weight, BMI, WC, and BFP continues to be a growing health care issue among menopausal women. There is a great need to identify best practices and strategies to better assess and manage obesity. Managing obesity during menopause is challenging due to the physical changes that occurs during this transition, including body fat distribution, low estrogen levels, and high testosterone levels (Choppra et al., 2019). Future studies could evaluate the effects of weight loss in menopausal women who are on hormone replacement therapy (HRT) against menopausal women who are not hormone replacement therapy.

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APPENDIX A: Letter of TAMUCC-CC Institutional Review Board

Activities meeting the DHHS definition of research or the FDA definition of clinical investigation and involve human subjects are subject to IRB review and approval.

On 10-06-2020, the Office of Research Compliance reviewed the project below and determined that the proposed activity does not meet the FDA definition of a clinical investigation or DHHS definition of research:

Type of Review:	Not Human Subjects Determination
IRB ID:	TAMU-CC-IRB-2020-09-083
Project Lead:	Tammy McGarity
Title:	Improving Healthcare Provider Assessment and Management to Decrease Body Mass Index and Waist Circumference in Menopausal Women
Rationale:	The project will not develop or contribute generalizable knowledge

Therefore, this project does not require IRB review. You may proceed with this project. Limits to this determination:

1. This determination applies only to the activities described in the documents reviewed. Any planned changes require submission to the IRB to ensure that the research continues to meet the criteria for a non-human subject research determination.
2. This project may NOT be referenced as "IRB approved".

The following statement can be included in the manuscript: "This project was reviewed and determined to not meet the criteria for human subjects research by the Texas A&M University-Corpus Christi Institutional Review Board."

Please do not hesitate to contact the Office of Research Compliance with any questions.

Respectfully,

Germaine Hughes-Waters
Office of Research Compliance

APPENDIX B: HIPAA Confidentiality Agreement Form

Dr. Nabil K. Aboukhair

CONFIDENTIALITY AGREEMENT

As an employee of Nabil K. Aboukhair, M.D., P.A., I acknowledge and agree to abide by the following regulation:

Any and all information given, being written or verbal, by any Patient while in the clinic shall be held in strictest confidence.

Any breach of this confidentiality is grounds for immediate dismissal.


Employee Signature

03/01/2017
Date

10-02-2018

APPENDIX C: Letter of Support from Facility

Dr. Aboukhair Nabil – Gynecologist

08/30/2020

Dr. Sara Baldwin
Associate Dean for Academic Programs
College of Nursing and Health Sciences
Texas A&M University – Corpus Christi
6300 Ocean Drive
Corpus Christi, TX 78412

Dear Dr. Baldwin,

The purpose of this letter is to provide Eduy James, a Doctor of Nursing Practice student at Texas A&M University College of Nursing and Health Sciences, support in conducting a quality improvement project at *Dr. Aboukhair Nabil clinic*. The project, Implementation of a Multicomponent Approach to Manage Obesity in Menopause, entails improving healthcare providers' management of obesity in menopause and patients' health outcomes based on the guideline recommendations of the American College of Cardiology, the American Heart Association Task Force, and the Obesity Society.

The purpose of this project is to determine if the use of evidence-based clinical guidelines for obesity management would help obese menopausal women reach their weight loss goals. Dr. Aboukhair Nabil clinic was selected for this project because this clinic offers a weight loss program to overweight and obese menopausal women, and the healthcare providers are interested in improving the program to help these women reach their weight loss goals. Eduy James, is employed at this institution, *and she has* an interest in improving care at this facility.

I, Dr. Aboukhair Nabil at Dr. Aboukhair Nabil clinic, do hereby fully support Eduy James, APRN, FNP-C in the conduct of this quality improvement project, a multicomponent approach to manage obesity in menopause at Dr. Aboukhair Nabil facility.

I also approve Eduy James, APRN, FNP-C to access protected health information (PHI) for purposes of conducting this quality improvement project. She has signed a HIPAA release form.

Sincerely,

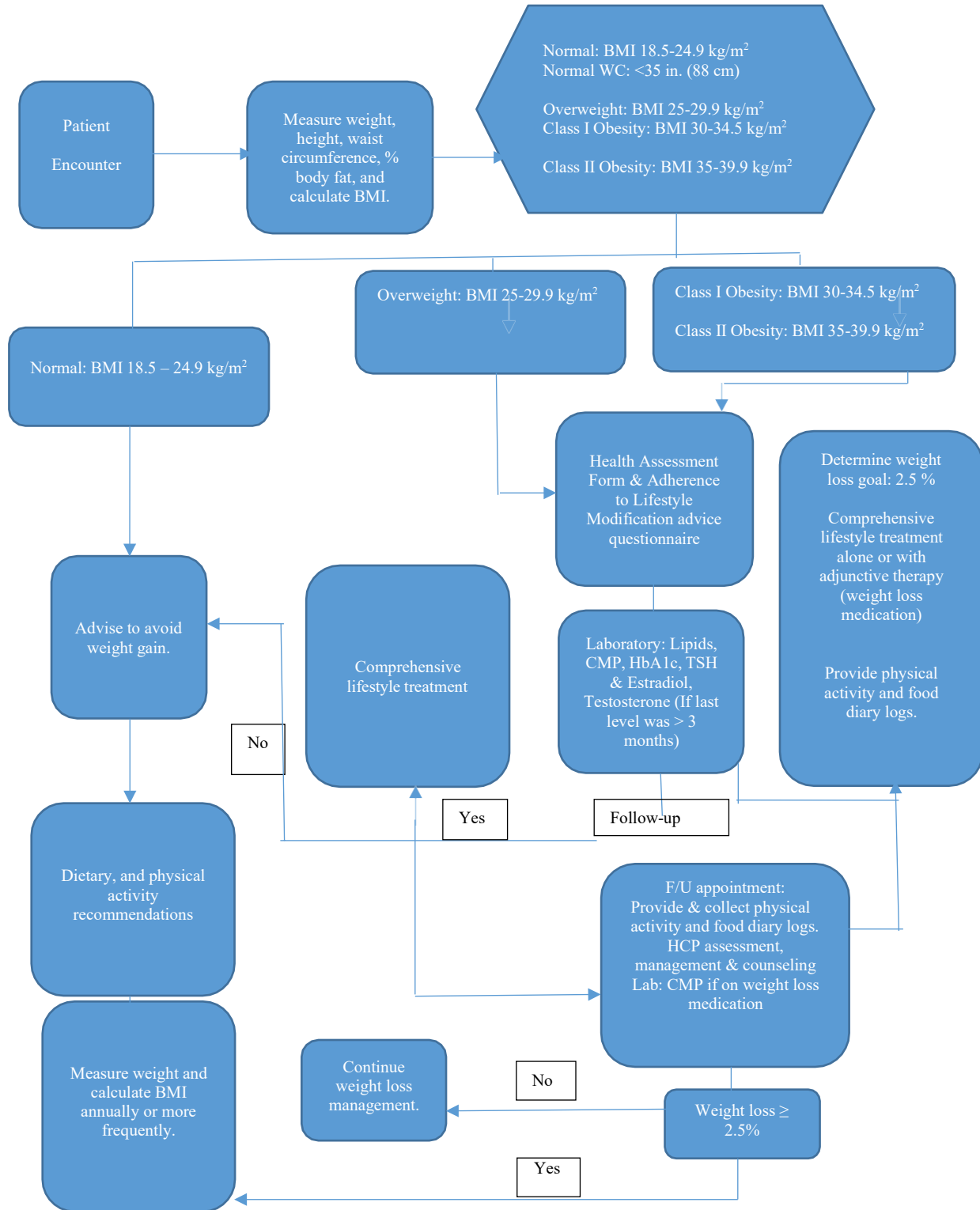


Dr. Aboukhair Nabil, M.D.

APPENDIX D: Risks and Resources

Risks factors considered	Actions taken to mitigate risks
Inconsistency use among HCPs of the weight management protocol	PD open availability to educate and guide the process. Clearly define weight management protocol. Development of a form (i.e., the Keys to Weight Loss Success) to facilitate implementation of the guideline and documentation of the data.
Appointments' cancelation	The assignment of a staff member (i.e., front desk/receptionist) to reach patients who have canceled or missed their appointments.
COVID-19 peak outbreak	Establishment of a COVID-19 protocol.
Inclement weather	The assignment of a staff member (i.e., front desk/receptionist) to reach patients who have canceled or missed their appointments. PD and MAs made phone calls to set up appointments to those patients who were <u>canceled during the winter storm.</u>

APPENDIX E: Weight Loss Management Algorithm for Menopausal Women



APPENDIX F: Weight Loss Management Protocol for Menopausal Women

Assessment

Step I: Medical Assistants (MAs) will measure height, weight, waist circumference (WC), percentage (%) of body fat, and calculate body mass index (BMI).

Step II: MAs evaluate patients according to classification:

- Normal BMI: 18.5 – 24.9 kg/m²
- Normal WC for women < 35 inches (88cm)
- Overweight: BMI 25-29.9 kg/m²
- Class I: BMI 30-34.5 kg/m²
- Class II: BMI 35-39.9 kg/m²
- Class III: BMI ≥40 kg/m² (Extreme obesity)

Step II: Patients classified as overweight or class I to III:

- MAs will provide and collect the baseline patient's assessment form. This form will be placed and kept in the patient's medical record to be reviewed by HCPs.
- Laboratory assessment: Lipid profile, CMP.
- HCP will perform a physical examination and assess the need to lose weight.

Management:

Step III: Need to lose weight assessed by HCPs.

NO:

- Normal BMI 18.5-24.9 (advised to avoid weight gain)
- BMI 25-29.9, no indicators of increased cardiovascular risk (advised to avoid additional weight gain) or
- HCP prescribes comprehensive lifestyle treatment if the patient agrees to follow-up in 4 weeks.

YES:

- BMI ≥30 or
- BMI 25-29.9 with 1 indicator of increased cardiovascular risk (e.g., diabetes, prediabetes, hypertension, dyslipidemia, elevated waist circumference).
- HCP prescribes comprehensive lifestyle treatment.

Comprehensive lifestyle treatment:

- HCP and patients will determine weight loss goals: 2.5% over 3 months.

Dietary advice:

- Balance hypocaloric diet 500 or 750 kcal/day
- Calorie goal (1,200 – 1,500 kcal/day)

- Incorporate 5 servings of fruits and vegetables and high fiber (nuts, oilseeds, whole cereal).

Physical Activity:

- Increase aerobic physical activity (e.g., brisk walking) for ≥ 150 min/week (equal to ≥ 30 min/day most days of the week)
- Resistance training (e.g., bodyweight squats, walking lunges) to preserve lean mass 200-300 min/week.

Behavioral Intervention:

- Face-to-face sessions (4 sessions with HCP over 3 months period)
- Encourage patients to use tools and approaches for weight loss management, such as activity trackers (e.g., pedometers, sports watches) and/or phone applications (e.g., MyFitnessPal).
- Patients will receive educational written material (e.g., cutting calories and physical activity for a healthy weight) (CDC, 2020).

Weight loss medication:

- Add pharmacotherapy at the time of initiation of a lifestyle intervention program for BMI ≥ 30 kg/m², or BMI ≥ 27 kg/m² with comorbidity or patients who report unsuccessful weight loss after multiple lifestyle modification attempts (Jensen et al., 2014).

Step IV: Follow-up in 4 weeks ordered.

- MAs will provide physical activity and food diary logs to patients before discharge.

Step V: Patient schedules follow-up appointment

Follow-up appointments

Step VI: F/U every 4 weeks for 3 months

- See Step I
- See Step II
- MAs will provide new physical activity and food diary logs to patients. They will collect the ones given in the last appointment and place them in the patient's chart to be reviewed by HCPs.
- Additional laboratory: (only for patients on weight loss medication): CMP every 4 weeks, to monitor kidney and liver function, electrolytes, and blood glucose level.
- HCPs will evaluate weight loss progress, review physical activity and food diary logs, reinforce comprehensive lifestyle treatment, counsel the patient, discuss weight loss goals, and self-monitoring strategies.
- HCPs will evaluate the need to prescribe weight loss medication as adjunctive to comprehensive lifestyle treatment strategies at every visit (Jensen et al., 2014).

APPENDIX G: Medications Approved for Weight Management in the United States

Agent	Dosage	Mean weight change (%)	Common adverse effects	Contraindication
Orlistat (Xenical)	120 mg twice a day	-3.0	Oily spotting, fecal urgency, fatty oily stools, increased defecation, fecal incontinence	Pregnancy, cholestasis, malabsorption syndrome
Lorcaserin (Belviq)	10 mg twice a day	-3.3	Headache, fatigue, dizziness, nausea, dry mouth, constipation Diabetic patients: hypoglycemia, cough, back pain, plus above adverse effects	Pregnancy
Phentermine/Topiramate (Qsymia)	7.5 mg/46 mg once a day	-6.6	Paresthesia, dizziness, distorted taste, insomnia, constipation, dry mouth	Pregnancy, glaucoma, hyperthyroidism, taking Monoamine oxidase inhibitors (MAOI)
Naltrexone ER/bupropion ER (Contrave)	8 mg/90 mg two tablets twice a day	-4.1	Nausea, constipation, headache, vomiting, dizziness, insomnia, dry mouth, diarrhea	Pregnancy, uncontrolled hypertension, seizures, benzodiazepines, barbiturates, antiepileptic, opioid, taking MAOI, anorexia nervosa, or bulimia
Liraglutide (Saxenda, Victoza)	3.0 mg once a day	-4.5	Nausea, hypoglycemia, vomiting, diarrhea, constipation, decreased appetite, dyspepsia, fatigue, dizziness, abdominal pain, increase lipase	Pregnancy, personal or family history of multiple endocrine neoplasia type 2 or medullary thyroid carcinoma.

Note. ER, Extended Release. Adapted from “Challenging obesity: Patient, provider, and expert perspective on the roles of available and emerging nonsurgical therapies,” by Apovian, C., Garvey, T., & Ryan, D. (2015), *Obesity*, 23(2), 1-14. doi: 10.1002/oby.21140

APPENDIX H: Baseline Health Assessment Form

Patient Name:		Today's Date:	
DOB:	Age:	Ethnicity:	
Weight:	Height:	BMI:	Waist Circumference:
LMP:	Blood Pressure:	% Body Fat:	
Past Medical History:			
Family History of Obesity:			
Current Medications:			
Diet History: (e.g., eats out of the house, loves to cook, hard time resisting delicious foods)			
Physical Exercise History: (e.g., use to run every day, walk the dog outside, no time to exercise due to multiple obligations, cannot exercise due to medical issues)			
Weight Gain History: (e.g., weight gain beginning in childhood)			
Weight loss History: (e.g., lost 4 lbs. with Weight Watchers 3 years ago)			
F/U in 4 weeks: (e.g., patient agree or disagree)			

APPENDIX I: Physical Activity Log

My Physical Activity Diary

Week: _____ Month: _____

Monday		
Time of Day	Description of Activity (Type and Intensity Level)	Duration

Tuesday		
Time of Day	Description of Activity (Type and Intensity Level)	Duration

Wednesday		
Time of Day	Description of Activity (Type and Intensity Level)	Duration

Thursday		
Time of Day	Description of Activity (Type and Intensity Level)	Duration

Friday		
Time of Day	Description of Activity (Type and Intensity Level)	Duration

Saturday		
Time of Day	Description of Activity (Type and Intensity Level)	Duration

Sunday		
Time of Day	Description of Activity (Type and Intensity Level)	Duration

Notes:
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Learn more at https://www.cdc.gov/healthyweight/losing_weight/eating_habits.html



APPENDIX J: Dietary Log

My Food Diary

Date: _____

Monday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Tuesday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Wednesday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Thursday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Friday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Saturday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Sunday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Notes:

Learn more at https://www.cdc.gov/healthyweight/losing_weight/eating_habits.html



APPENDIX K: The Keys to Weight Loss Success Form

Date: _____

FWG: _____

Patient Name: _____

DOB: _____ Ethnicity: _____

Weight Loss Assessment:

Blood Pressure: _____

Weight: _____ Height: _____

Body Fat Percentage: _____

BMI: _____ Waist Circumference: _____

Body Age: _____

Food log reviewed _____ (Yes) _____ (No) Calories: _____

Physical Activity log reviewed: _____ (Yes) _____ (No) Exercise: _____

Patient Diet/Exercise Educational Material given: _____ (Yes) _____ (No)

Sleep _____ hours per patient _____ Sodas per day / per week

Water Intake: _____ _____ Coffees per day / per week

_____ Alcohol per day / per week

Lifestyle Modification Recommendations:

Calories consume daily: _____

Avoid hidden sugars in drinks:

Exercise daily/weekly: _____

_____ Sodas per day / per week

Meals per day: _____

_____ Coffees per day / per week

Count steps daily: _____

_____ Alcohol per day / per week

Sleep _____ hours minimum

_____ Water Intake

Keep a food and physical activity log daily

High protein-Low carbs <30 %-Low

fat < 30 %

Lose it app

No fruits after 6:00 pm

My fitness pal app

Limit food consumption 4hrs before

bedtime

Supplements:

Medication: _____ Provider: _____

APPENDIX L: Project Timeline

Dates	Project timeline activities
09/2020	Obtained a letter of support
10/2020	IBR reviewed by chair and submitted
11/2020	Pre-intervention chart reviews
12/2020	Continued pre-intervention chart reviews
01/2021	Prepared HCPs educational training
02/2021	Educational training and guidance delivered to HCPs and Staff Weekly chart reviews performed Development of collection data sheet form in Excel.
03/2021	Continued educational training to HCPs and staff, intensified guidance for the implementation of protocol Development of the “Keys to Weight Loss Success” form Continued weekly chart reviews Baseline data collected on 03/08/2021 Acquisition of non-extensible tape for WC measurement
04/2021	Continue educational training and guidance to HCPs and staff Monthly chart reviews performed Week 4 data collection was performed on 04/08/2021
05/2021	Continued educational training and guidance to HCPs and staff Monthly chart reviews performed Week 8 data collection performed on 05/08/2021 Preliminary data results analyzed and discussed with DNP chair and HCPs
06/2021	Week 12 data collection performed on 06/01/2021 The results of the data were analyzed and presented

APPENDIX M: The Omron® Body Composition Monitor

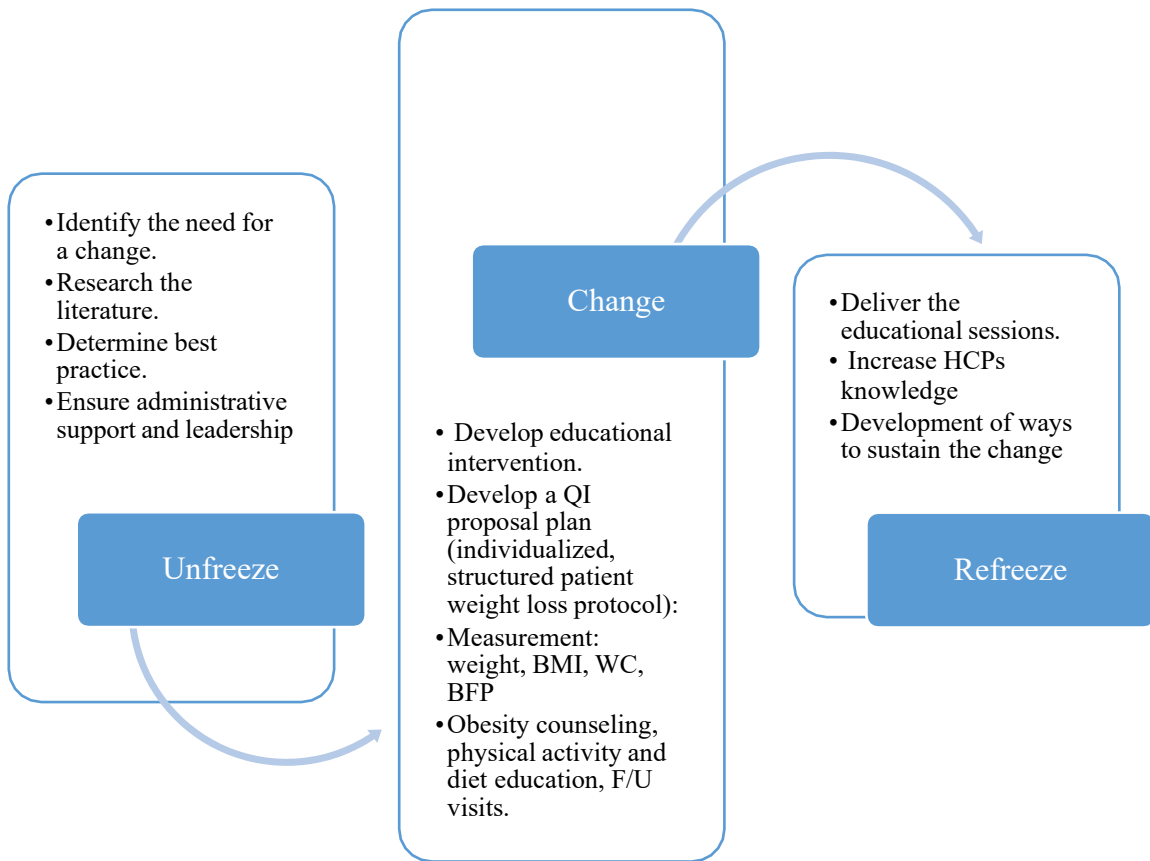


Body Fat Percentage Classification for Adult Females

	Thin	Normal	Overweight	Obese	Extremely Obese
Females	<20%	20-30%	30-35%	35-40%	>40%

Note: Adapted from “The criterion-validity of the Omron BF 302 body fat monitor,” by E. Oke & O. Dada, 2013, *Indian Journal of Physiotherapy & Occupational Therapy*, 7(4), 107-111. doi: 10.5958/j.0973-5674.7.4.131

APPENDIX N: Kurt Lewin's Change Theory



APPENDIX O: Plan-Do-Study-Act (PDSA) Cycle

