Female Obesity and an Evidence-Based Program for WIC Participants

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Abstract

Obesity is one of the biggest health concerns in the United States. Obesity contributes to the high cost of healthcare in the United States. It is estimated that the cost of obesity related disease is around 147 billion. Furthermore there is a great disparity between low socio-economic status (SES) women and women that are more affluent. Women at the lower end of the income range have more than double the rates of obesity (Zuehkle, 2010). Therefore it is imperative to find ways that reduce disparities and improve the health of low SES women. Through the literature review there was significant evidence showing that group interventions and motivational interviewing have shown promising results in the promotion of weight loss and the adoption of healthy eating habits. The development of the Healthy Mom's Initiative was an attempt to combat obesity with evidence-based practices. The project was based on Bandura's self-efficacy theory. WIC staff were instructed on how to implement the Healthy Mom's Initiative during 2 training sessions. The staff facilitated the 4 weekly educational sessions on diet and exercise. WIC staff were evaluated on knowledge of physical activity through scores obtained from International Physical Activity Questionnaire and WIC users were evaluated pre-intervention with the Weight Loss Readiness Test II. BMI of WIC users were evaluated pre and post intervention. Project data demonstrated that staff that had lower BMI had increased knowledge of physical activity requirements. Furthermore due to low participation in the intervention there was not a significant reduction in BMI. Anecdotally, the one woman that lost weight scored high on the Weight Lose Test. Due to the nature of how WIC operates, ongoing efforts and training would require additional governmental funding to sustain. However, WIC staff now understand the importance of encouraging women to be active and reported increased knowledge on exercise requirements.

Keywords: obesity, poverty, female, Texas, WIC, exercise, stress, depression, and postpartum

Female Obesity and an Evidence-Based Program for WIC Participants

Obesity is a condition affecting many individuals in the United States. At present, there is a relationship linking lower household income with a higher rate of obesity in women. Women with an income under $10,000 a year have an obesity rate of 35.6%, as opposed to a rate of 15% for women with an income above $75,000 per year (Zuehlke, 2010). Obesity is a more pressing issue for poor and minority women. Additionally, weight gain during pregnancy is a significant problem for these young women. Excessive weight gain during pregnancy is linked to diabetes, high blood pressure, stillbirth, and increased chance of a cesarean birth (Chang et al., 2017). According to Seigi-Riz (2014), 60% of women of childbearing age, 20 to 39 years old, are overweight. Minority and low-income women experience difficulty losing their pregnancy weight gain after delivery. Moreover, these women also have increased rates of pregnancy (Chang et al., 2017) and often have fewer opportunities for exercise, face barriers in regards to proper eating habits, and are unaware of recommended daily calorie requirements (Chism, 2016).

The Women, Infants, and Children (WIC) program recipients come from impoverished backgrounds. In 2014, 75% of participants were living below the poverty line (U.S. Department of Agriculture [USDA], 2014). WIC also provides low-income pregnant and postpartum women and their young children information and counseling on proper nutrition. Their clinics provide vouchers for milk, cheese, infant formula, and other healthy food items. There is no data to indicate or suggest that women using the WIC program have a greater BMI than women of the same socioeconomic group not using the WIC program; however, there is information related to the BMI of the children that are using WIC. One WIC program demonstrated a steady decline in childhood obesity from 30.5% in 2010 to 27.1% in 2015 (State of Childhood Obesity in San

Diego County, 2016). This decrease in obesity may have correlated to the increased amounts of fresh fruits and vegetables provided to participants or to improved provider to client ratios.

Background

There seems to be a universal relationship between obesity and poverty among women regardless of their ethnicity. The obesity problem for girls starts in their teen years, and teenage girls that come from economically disadvantaged backgrounds are more likely to be overweight as adults, whether they are African-American, Caucasian, or Hispanic. For example, in San Antonio, Texas, the majority of disenfranchised and impoverished community is Hispanic. (Moreno, 2016). Accordingly, the users of the WIC clinic on the east side of San Antonio are over 80% Hispanic (Moreno, 2016).

San Antonio is a city with over one million inhabitants and Hispanics make up more than 63.8% of the population (American Community Survey, 2014). According to a study by Wallet Hub San Antonio is now the 14th fattest city in the United States (Bernardo, 2017). The American Heart Association suggests that individuals should strive for 150 minutes of moderate exercise weekly (American Heart Association, 2017). Most Hispanic women do not engage in regular exercise, and more Hispanics than Caucasians do not meet the minimum requirement for physical activity. For example, 49.6% of Caucasian women meet the exercise requirement as opposed to 40.9 % of Hispanic women (Bertz et al., 2011). This lack of activity is attributed to a significant proportion of the population is living in low-walkability neighborhoods (Sallis, 2009). In these disadvantaged areas, there are no places to exercise, an abundance of high-fat fast foods, and dangerous environments that contribute to conditions that are not conducive to outside activity.

There is a need for interventions to reverse obesity trends among low-income women. Programs need to be developed that are accessible to disadvantaged women. These programs should be focused upon reasonable weight loss strategies that emphasize slow weight loss of a few pounds per week and gradually adding exercise to daily activities. These weight loss programs should also include education on making healthy food choices, cooking tips, and how to access to fresh produce. One study of postpartum weight loss among 371 WIC recipients who participated in an online weight loss program in addition to the standard WIC services had significantly greater weight loss than other WIC recipients who had not (Phelan, 2017).

Women of a lower socioeconomic status have higher BMIs than affluent college educated women (National Health and Nutrition Examination Survey, 2005–2008). Poorer women often live in the more dangerous parts of cities where they are not safe outdoors and do not have access to parks or fresh fruits and vegetables. To combat these issues, WIC provides nutrition and breastfeeding education to low-income mothers before conception, during pregnancy, and after delivery (USDA, 2011). Nurses need to promote health education plans (Chism, 2016) and work in collaboration with other agencies to ensure the health of mothers and their children.

The healthier and more active a mother is, the healthier her children and her future will be. Adopting behavioral changes that provide greater health and fitness benefits may help to start a decrease in the obesity of lower income women.

Significance

There are significant health risks facing overweight women, including diabetes, hypertension, and heart disease. Diseases related to obesity account for 70% of all health care costs (Levine, 2011). Another overlooked issue is that overweight, low-income women are less

likely to seek out educational opportunities and have fewer prospects for economic success (Pudrovska et al., 2014). This same situation does not seem to be an issue for low-income men. This correlates to societal factors that place a higher value on a woman's appearance and weight. Therefore, heavier women suffer discrimination in the job market, and there are no laws that protect against discrimination for obesity (Alexander, 2017). Additionally, the economic disparities that continue on during adulthood further compound the obesity problems facing these young women. Moreover, poorer women are less likely to seek preventative care, such as yearly physicals that include health screenings like pap smears and breast exams.

Problem Statement

Will implementing a standard care model and program for obese women at WIC centers improve their BMI? It is important to provide educational classes on nutrition and exercise for participants with a BMI over 35%. It is also important for participants to keep a daily food and activity diary. Does providing low-income women information on diet and exercise encourage weight loss and improve diet? The time frame for this project is two months.

Purpose Statement

The purpose of this project is to create an evidence-based weight loss protocol to produce a postpartum weight loss of 5% for women in the WIC program with a BMI over 35%.

Objectives

Project objectives include:

1. Implement healthy eating protocols among women with a BMI over 35% to promote the loss of five pounds over a five-week period.
2. Develop a WIC exercise regimen protocol for women with a BMI over 35%.
3. Create a new obesity program to present to WIC healthcare providers by March 2018.
4. Educate WIC staff on new exercise program and evaluate success of the program.

Search Terms

For this topic of interest, the following key search terms were used: obesity, poverty, female, Texas, WIC, exercise, stress, depression, and postpartum. The two libraries utilized for the search were the Jay Sextor Library and the Brooke Army Medical Library in San Antonio, Texas. The search engines used were EBSCO, OVID, PubMed, and the Cochrane Database. Research was limited to studies conducted in the United States within the last five years. Inclusion criteria were studies of women between the ages of 18-45, women with a BMI over 35%, and women living below the poverty level. Exclusion criteria were studies of women with a BMI over 35% and over 45 years of age and of obese women earning over $75,000 per year. Filters utilized in the search were American publications of the last five years. Text availability was for both abstracts and full texts, and trending articles were used in the evaluation of the literature. The City of San Antonio website was also utilized for information concerning the WIC program and the demographics of the population. However, the research also revealed some earlier findings from 2010 to 2011 that contained some reassuring findings concerning WIC programs.

Review of Literature

The postpartum period is a critical phase in women's lives, but engaging them during this busy time remains a challenge. DNP nurses need to develop and implement programs that will be successful for women suffering from poverty who are preoccupied with pregnancy and a new baby. The postpartum population as a whole has a risk of postpartum depression of from about 7% to 20%. The situation is worse for low-income mothers. They often have limited support systems, unplanned pregnancies, and relationship issues that increase their risk for postpartum depression (Mayo Clinic, 2015). The chance for postpartum depression increases if the woman has a history of a bipolar disorder or other mental health issues. Pregnancy and postpartum periods are known as periods of decreased activity for most women. If a woman is suffering from depression, it is less likely that the woman will be motivated to exercise and diet, which may also contribute to obesity

Female Obesity

There has been a significant rise in female obesity. During 2013-2014, female obesity surpassed 40%, up 5% since a similar study was performed during 2005-2006. The rates for male obesity have remained consistent over the same period. This is related to an increase in female teen obesity. A summary of the evidence from the United States Preventative Task Force in 2005 found that the probability for adult obesity increases if one or more of the parents are obese. Also, teen obesity has been correlated with early onset of puberty. Some efforts have managed to reduce female teen obesity. For example, a school-based curriculum called Planet Health educates teens on decreasing fat intake, increasing fruits and vegetables, encouraging exercise, and limiting screen time. The program has had success in causing a decline in obesity among schools participating in the program. The Kearney, Nebraska school system implemented a program based

on healthy eating and encouraging physical activity. They had similar results with a reduction in obesity from 16.4% to 13.9% (Heelen et al., 2015).

Weight Gain During Pregnancy

Many women gain excessive weight during pregnancy. As soon as they find out that they are pregnant, they start eating more, which is not necessary, as there are no additional caloric requirements for the first trimester of the pregnancy (Wolfram, 2017). If a woman starts pregnancy with a BMI over 30, her recommended weight gain is 11-20 pounds. If a woman gains excessive weight during pregnancy, it is harder to lose the weight once the baby has been delivered. Women often have misconceptions when it comes to exercise during pregnancy, and many believe that it is dangerous. However, for most women, it is recommended that they exercise for 150 minutes weekly (Centers for Disease Control [CDC], 2017). Excessive weight gain has also been associated with poor maternal and neonatal outcomes, such as gestational diabetes, hypertension, cesarean section, macrosomia, and stillbirth (Muktabhant, 2017). A Cochrane Database of Systematic Review of high-quality evidence indicated that a routine of exercise and diet during pregnancy prevents excessive maternal weight gain. Exercise is a critical component for controlling weight gain.

Postpartum Weight Loss

Women lose about 10 to 12 pounds immediately after giving birth. The average weight gain during pregnancy is 25 to 30 pounds; therefore, most women have an additional 15 pounds to lose. If the mother breastfeeds, she will burn an extra 500 calories per day. Women who gain excessive weight during pregnancy will take more time and effort to shed those excess pounds. Women sometimes need increased assistance when it comes to weight loss. A low-intensity diet treatment administered by a dietitian in a primary care clinic has been shown to be efficient in

assisting with significant weight loss in postpartum obese women (Huseinovic, 2016). Another factor that is related to postpartum weight loss is a healthy pre-pregnancy BMI. Women with normal pre-pregnancy weight have fewer difficulties losing their pregnancy weight regardless of whether they breastfeed (Elliot et al., 2016).

Group Based Therapy

Exercise during the postpartum period can improve weight loss and enhance mood. Introducing a weekly behavior modification program based on dietary changes and the promotion of physical activity may be useful. Formal programs promoting diet and exercise have been proven to be effective (O'Toole et al., 2003). One such weight loss program is Weight Watchers, where participants have weekly group meetings, weigh-ins, and follow a point system for tracking food consumption.

The Journal of Obesity found that obese patients using a group based system that tracked calories and activities were nine times more likely to lose weight and keep it off than patients that received only written materials (Finkelstein & Kruger, 2014).

Motivational Interviewing

Motivational interviewing can be an effective adjunct to basic weight loss programs. This interviewing technique attempts to guide the participant away from indecision and towards making positive choices and establishing goals. Low-income women often have insecurities related to poverty and obesity and may benefit from motivational interviewing. One study added motivational interviewing to a weight loss intervention and found participants enrolled decreased weight, increased activity, and improved their diet by reducing fat intake and calories (Barnes & Ivezaj, 2015).

Health coaching counsels patients with chronic conditions to improve their knowledge and skills to manage their conditions better. The effectiveness of health coaching has been well documented by evidence-based studies in the primary care setting in regards to diabetic education, and health coaching has been very successful in helping patients manage their diabetes. While coaching has been useful in the primary care setting, few efforts have been attempted to use health coaching in the community setting. There is one program currently in the pilot stage, which is called STAR (support via telephone advice and resources) MAMA. In this program, health information technology participants receive weekly phone calls on various diabetes preventive topics from an automated telemedicine self-support system and are matched to a health coach for follow-up. The health coach performs weekly follow-ups based on the responses given earlier in the week by the participants. The topics covered are exercise, diet, life stressors, healthy eating tips, and baby care (Athavale et al., 2016). The health coaches at STAR MAMA act as a bridge between the member and the primary care team to promote continued health and wellness among low-income women.

Barriers

There have been studies that have evaluated programs aimed at decreasing obesity in low-income women of child-bearing age that have shown that not all of the interventions have been effective in producing long term results. Techniques that work with a more affluent population may not be as successful when utilized with a lower socioeconomic level.

Poverty

Economically disadvantaged women often have transportation issues preventing them from attending group sessions. They may not have a car and must rely on public transportation or friends to participate in the meetings. Exercising outside may not be possible if they are living in a

dangerous environment. Financial constraints can also prevent them from paying for a weight loss program or purchasing healthy food.

The exercise initiative Mothers in Motion (MIM) attempted to modify the diet and exercise habits of women of lower socioeconomic status. It aimed at promoting weight loss, a healthy life style, and exercise. Participants were from six different WIC programs, 64% of who were considered obese, and studied over a 16-week period. The participants dialed into teleconferences and watched DVDs on healthy habits. The results were evaluated three months after the intervention, and there was no statistically significant difference between the experiment and control groups (Chang et al., 2017). The program seemed to be ineffective in weight loss or preventing further weight gain, but the results should be evaluated more thoroughly. An analysis of the participants should be included in future studies detailing the motivations, feelings, and lifestyles of the women involved. The women that stayed with the program lost weight and reported feeling better about themselves; however, there was a high dropout rate among the mothers enrolled in the program (Chang et al., 2017).

Behavior Modification of Low-Income Women

One study evaluated obese postpartum women from 14 counties in South Carolina. Researchers used the Kids and Adults Now Defeat Obesity (KANDO) program, which was a two-pronged approach. The program began by utilizing a 10-month behavioral approach to decrease childhood obesity and concluded by improving the diet and exercise habits of the postpartum mothers. The process did not enhance the quality of diet or decrease the calories consumed, and there was no significant weight loss between the experiment and control groups (Wiltheiss et al., 2012).

Evidence suggests that there is a pattern of failure among weight loss programs for low-income women (Gilmore et al., 2017). In one WIC study, a randomly selected group of 40 postpartum WIC participants received standard WIC care and another group of 40 received personalized health information via smartphone. The results were not statistically significant as a whole, but they were affected by the frequency that participants used the application. Women that used the app frequently had a significant reduction in body weight (-3.6 ± 1.6 vs. 1.8 ± 0.9 kg; $p = 0.005$) (Gilmore et al., 2017).

Gaps

Health information is often given to women, but ultimately it does not cause a long-term change in behavior. The following areas need to be explored more intensively to obtain better compliance: diet plans, contact frequency, and intervention length. Once these factors are designed successfully for women, there will, ideally, be a decrease in postpartum weight retention. Prior evaluations of weight gain during pregnancy have focused on the success of lifestyle interventions as a whole for weight management in pregnant and postpartum women (Spencer et al., 2015). The Fresh Start postpartum weight loss program tested the effectiveness of a group- weight loss intervention that involved videos of peers who have achieved weight loss (Rosal et al, 2016). The protocol incorporated essential components of evidence-based weight loss strategies geared towards low-income women enrolled in WIC. However, the implementation of these strategies in a systematic way has not been successful in obese women of a lower socioeconomic status generally due to poor compliance with programs and an inability to exercise (Krummel et al., 2010). Currently, there are no systematically translated evidence-based

interventions that are available for sustaining weight loss in low-income young women (Milagros et al., 2016).

There have been no recommendations for improving compliance with weight loss neither programs for this low-income population nor has there been a discussion on truly improving outcomes. Much of the discussion in the past has been concerned with the disparities of the population not what motivates the low-income community to change behaviors.

Summary of Findings

The data collected concerning obesity and poverty among this literature has recognized postpartum obesity in low socioeconomic status women as a significant problem (Zuehlke, 2011). The stress for women raising children while living in poverty makes it difficult to adhere to an exercise and weight loss plan. The following project will address these stressors and devise a plan that addresses the special needs of this population. If possible, the weight loss plan needs to be individualized for each woman or developed for groups of women who can gather once a week and share their stories of success and failure. Patients who participate in weight loss programs report feeling they need ongoing support and when that support ceases, the women feel isolated and motivation declines (Texiera et al., 2012). The standardization of care based on well-validated outcomes will improve the weight loss efforts of participants. There have been a number of studies implementing weight loss programs for WIC participants, and each of the interventions used different methods. One involved a video presentation followed by group teleconferences, (Chang et al., 2010) another used a peer-led group intervention that was compared to a self-guided intervention (Krummel et al., 2010), a different program used trained Hispanic women to led group sessions intended to encourage exercising (Keller et al., 2014), and yet another used an

Internet based therapy (Phelen et al., 2017). The Internet based therapy accompanied by standard WIC treatment had the most significant outcomes in regard to weight loss for low-income women. The Internet intervention included a website with weekly lessons, web diary, instructional videos, computerized feedback, text messages, and monthly face-to-face groups at WIC clinics (Phelen et al., 2017). The success of these weight loss and exercise interventions was related to compliance. The participants that stayed in the study lost weight.

Theory Identification

Albert Bandura's theory of self-efficacy or confidence is a model of positive psychology. Bandura stresses the power of positive thinking and that all people can strengthen their own self-efficacy. Self-efficacy is a person's belief in how well they can perform certain tasks or function in life. People who have high self-efficacy see themselves as successful and approach challenges in life as tasks they have mastered. They are more able to overcome depression, setbacks, and rejections. This optimistic outlook produces success and decreases stress. Those who follow this outlook believe that they have control over their own destiny, and when a failure occurs, the belief is that they simply need to try harder (Bandura, 1994). People with low self-efficacy are less likely to engage in difficult tasks and will claim that they are unable to accomplish a task or goal due to personal inadequacies. When the situation they encounter is difficult, they are more likely to give up. They are also slow to recover from failures and are more apt to suffer from depression (Bandura, 1994).

Discussion of the Historical Development of this Theory

The history of self-efficacy theory began in 1977 with Bandura's publication of Self-Efficacy: Toward a Unifying Theory of Behavioral Change. Albert Bandura is one of the most

famous living psychologists, and his theory of self-efficacy is a part of social cognitive theory. Bandura was born in Canada and was the son of Polish farmers. He has done much research on learning and motivation during his long career, and he believes that individuals collect behaviors by observing others and then they mimic those actions. One of his most famous studies was his bobo doll study where children watched different films of violent scenes of a doll getting abused. However, there were three distinct endings. One end showed the adult being rewarded for beating up the doll, another showing the adult being punished, and the last film that showed nothing as a result. The children who watched the film where the adult was rewarded for beating the Bobo doll imitated that behavior more often than those who watched the other two films. This experiment supported his hypothesis that people learn by observing other humans (Bandura, 1963).

In 1986, Bandura published Social Foundations of Thought and Action, which offered a framework for his social cognitive theory. Today, Dr. Bandura is a professor at Stanford University, where he continues to refine his theories.

Applicability of Theory to Current Practice

Nurses and doctors attempt to use their academic backgrounds to effect a change in their patients' behavior. Lecturing patients may not be the correct approach for obtaining the desired results. Health behavior theorists claim that patient adherence is related to their commitment to treatment protocols. Behavior modification emphasizes the remediation of skill deficits or using positive and negative reinforcement to modify performance. Social learning theory suggests that perceptions of expertise and support may more directly determine behavior (Compeau et al., 1999). In a situation where one is attempting to alter a patient's behavior, such as changing diet and exercise habits, it cannot be from the perspective of "I am the healthcare provider, and you

should do as I say," which is similar to a parent telling a teen "I am the parent, and you should do as I say." This technique of lecturing the patient can be ineffective. Involving the patient in their healthcare decisions and discussing what potential barriers to achieving their goals exist is a more effective method. Adopting the principles outlined in the self-efficacy model gives individuals the tools that are needed to improve performance by boosting confidence so they can be successful.

Major Themes

Motivation. Self-efficacy values motivation to reach one's goals. Obstacles are events that need to be hurdled. The individual has the skills and the capability to intervene in order to influence the outcome of events (Bandura, 2008).

Emotional. When people learn to control their emotions, they become less likely to become victims of their own emotions. It is important to recognize that failures are a regular part of life and that they are a transient situation (Bandura, 2008). As the Terminator would say, "I'll be back" is a more confident and resilient outlook. Perhaps success is not happening today, but success will occur in the future.

Decisional. People can make their own choices based on what is best suited for their situation. By adapting positive self-efficacy, individuals can select the best environment to improve their destiny by making thoughtful, wise choices.

Major Tenets of the Theory

According to Bandura, people can improve self-efficacy regardless of the environment they come from. Bandura discusses four techniques to enhance self-efficacy.

Mastery experiences. It is important to experience failure to develop resiliency. Failure should not be dealt with as an inadequacy of the individual, but as an opportunity to learn. Life

should be approached with effort and realistic aspirations. Success with minimal effort can make us disheartened by failure (Bandura, 2008).

Social modeling. Observing individuals that are successful in life and have achieved their goals can offer great motivation for people who may be struggling. This modeling can come from parents, teachers, public figures, or spiritual leaders.

Social persuasion. Individuals need to find a good mentor, not someone who has had an easy road to success. This guide needs to be similar to the individual for maximum modeling effect. The greater the similarity, the more likely the individual will be influenced by their success or failure (Bandura, 1994). If you are a poor inner city high school student struggling with gang violence and drugs, you are more likely to take advice from someone from that same environment who has overcome barriers and gone on to have a successful career. The modeling can work in the reverse manner, as many role models in impoverished communities are drug dealers who encourage young people to take the path of easy money and a life of crime. Being persuaded by parents or coaches who are successful is also an important factor in improving self-efficacy.

States of physiology. Positive and negative emotions can fuel our sense of self-efficacy. If we are depressed or anxious, this can affect how we perform. Stress and anxiety are considered negative attributes by society. The cycle of life has ups and downs, and it is sometimes normal to have periods of stress and depression. It is essential to learn how to cope with physical and mental challenges. Increasing strength and changing negative responses to affective states can improve self-efficacy (Bandura, 2008).

Imagined experiences. Another technique is to visualize you being successful in different circumstances. The patient may envision himself or herself as being successful in losing weight or running a five-kilometer race.

Application of Theory to DNP Project

DNP students select methods based on the individual patient or situation under evaluation. The following project will appraise and apply principles with an all-encompassing objective of improving patient health in the community. The nursing theory reflects a broad range of ideas because of the many different disciplines that form the basis of practice. Graduates of DNP programs have a duty not only to understand nursing theory, but also to successfully apply theory to health care issues to help close the practice gap. Theory selection and evaluation may be one of the most important decisions for a DNP project.

The self-efficacy theory has been successful in patient education and as a framework for the development of community-based education programs. High self-efficacy is a factor in the adoption of healthy habits and the discarding of behaviors that may be harmful to the individual. High self-efficacy can lead to the preservation of improved health behaviors over time. Self-efficacy has been theorized to be an interceding variable between health literacy and outcome variables, such as participating in care regimens and understanding the presentation of health information (Cardwell, 2013).

Enhancing the self-efficacy of low socioeconomic class women may improve their adherence to a diet and exercise program. Evidence supports a correlation between high self-efficacy and an improvement in healthy behaviors (Holloway & Watson, 2012). The self-efficacy model affords the DNP nurse a platform to use when implementing health promotion strategies.

Project Design

The following DNP project will use the focus, analyze, develop, and execute (FADE) model to improve the quality of the project design. The FADE model is a quality improvement method. The project objectives include:

1. The implementation of healthy eating protocols among women with a BMI over 25% to promote the loss of five pounds over a five-week period.

2. The institution of exercise protocols for women with a BMI over 25%.

3. The implementation of a new obesity program to present to WIC providers by August 2018.

4. The education of dieticians on the WIC staff about new techniques for the development of strategies that counteract barriers so that these women will be successful in meeting their health objectives.

Focus

Focus (F) refers to the process needing improvement. In this case, the project aim is to improve the health, exercise, and diet habits of women enrolled in the WIC program. The MIM program, which was initially a pilot program with very prescribed parameters, had intervention subjects watch DVDs according to a calendar, complete worksheets, and discuss the contents of the DVDs in support groups (Chang et al, 2017). The women that were compliant with MIM program experienced weight loss; however, it was not statistically significant (Chang et al., 2017). The MIM program was a pilot program and has never been implemented on a national basis for WIC.

Analyze

Analyze (A) describes the collection and analysis of data to establish baselines, identify root causes, and point towards potential solutions (Leansixsigma, 2018). The MIM Program was very labor intensive to implement because the WIC participants had to watch the DVDs and were placed into support groups (Chang et al, 2017). Reducing the complexities of the MIM program may make it easier for participants to be compliant. The new project, called the Healthy Moms

Intervention (HMI), will encourage mothers to keep a daily food dairy and exercise for 30 minutes per day. The WIC participants that agreed to participate in the HMI were given the Readiness to Weight loss Questionnaire, which will identified how motivated the individual women were to actually want to lose weight. Women utilizing WIC services currently receive a nutritional assessment during their initial evaluation. Since the women are only seen every three months, they are not obtaining significant education on weight loss, diet, or exercise initiatives to improve the quality of their health. A majority of the women only come to WIC to obtain the food vouchers and are uninterested in the education efforts, which are provided by the WIC staff. The WIC staff needs to find ways to motivate their clients in order to improve their health through diet and exercise. However, this can be problematic even among a more affluent and better-educated population. People in general do not understand basic principles of weight loss. As the CDC points out, weight gain and loss are primarily a formula of total calories consumed versus total calories used (Healthy Weight, 2016).

Develop

Develop (D) indicates the development of an action plan based on the data with a goal of improving implementation and measurement. The nurse leader will develop a lifestyle health action plan that will be delivered in a group session. A curriculum will be developed to provide weekly education sessions on healthy eating and exercise over a five-week time frame for the WIC staff to facilitate.

Execute

Execute (E) shows the required method for executing the action plan. The WIC staff will hand out a weight loss readiness test (Appendix B) prior to the start of the project and a food diary and fitness log to ensure the continuing success of the intervention (Duke University, 2016).

There will be two measures used, one to evaluate readiness to lose weight and the other to measure the decrease in BMI over the intervention period. The project lead will conduct group-training sessions with the staff. In a role-playing exercise, the WIC staff will act as WIC participants and the DNP candidate will act as the leader to facilitate the discussion and the later fitness activity.

The WIC dieticians will provide education and classes to the WIC participants. In a group setting, participants will talk about their successes and barriers concerning weight loss and exercise. The group will then engage in an exercise activity. The WIC staff will be given a script to follow in order to engage the women in discussing their trials and tribulations with weight loss and exercise. The staff will be asking the participants questions, such as "What changes are you interested in making, if any to your daily routine?" "Do you have any health concerns?" and "What barriers do you have in starting an exercise program?" The emphasis of the group sessions is to get the women to talk about their concerns.

Population of Interest, Setting, and Recruitment Methods

Population of Interest

The employees of the WIC clinic are the population of interest, since they will be responsible for direct implementation and training of the HMI. The employees involved in the project are nurses and dieticians. A group of 10 employees will attend the training sessions for the project and learn how to encourage women to participate in the HMI. The women will be users of WIC clinic, and they will be given a brochure by the WIC staff that details the project.

Setting

The clinic is located in downtown San Antonio, Texas, which is over 80% Hispanic. There are over 200 women enrolled at the clinic. The women need to return to the clinic every three months to receive new vouchers. However, the WIC clinic also offers additional classes to encourage breastfeeding and proper nutrition. The primary purpose of WIC is to provide nutritional benefits for pregnant women, postpartum breastfeeding up to one year, postpartum non-breastfeeding for six months, and children up to the age of five. WIC allowed foods are selected for their high nutritional value. WIC foods include: fruit, vegetables, whole grain breads, milk, eggs, cheese, beans, baby food, formula, and peanut butter. The WIC staff helps women understand the importance of healthy food, including preparation. The WIC office also offers classes on breastfeeding.

Recruitment Methods

WIC employees. Since the following project is a practice change initiative, all WIC nurses and dietitians working at the practice site received an in-service on this new program. Inclusion criteria include: all WIC dieticians. Exclusion criteria include: WIC clerks.

Chart audits. Chart audits will be conducted prior to the start of the intervention, during the intervention, and month after the intervention. The WIC staff will collect data, which will include the following: the weight of the WIC participants before implementation and then at the conclusion of the intervention.

Data was collected from the women who chose to partake in the project and the WIC staff. The participants were a convenience sample of WIC mothers. Inclusion criteria are mothers ages 18 to 40 with a BMI over 25%. Exclusion criteria were women under 18 and women with a BMI

under 25%. The data analyzed was the pre and post weight, scores on the Readiness to Lose Weight questionnaire, age, race, and compliance with the program.

Tools/Instrumentation

The WIC staff had four training sessions prior to implementation of the Healthy Mom's Initiative to help standardize delivery of the program. Daily food diaries and exercise logs were reviewed weekly (Appendix D). The diary that will be utilized for the participants in the project is the daily food and physical activity diary (U.S. Department of Veteran Affairs, 2016). The WIC staff met every Friday afternoon with the WIC participants that volunteered to take part in the HMI. A four-week calendar detailing weekly exercise and health promotion activities was presented to the participants prior to the start of the project.

The International Physical Activity Questionnaire (IPAQ) was developed by Booth, in Geneva, in 1998, and was followed by extensive reliability and validity testing undertaken across 12 countries (14 sites) during 2000. The IPAQ has rational measurement properties for evaluating levels of physical activity among 18- to 65-yr-old adults in diverse settings (Craig et al., 2003). The IPAQ is publically available and does not require permission. It will be used to assess the physical activity of the WIC staff. There will be two additional questions added to the survey. To assess awareness of the physical activity requirements, staff members will be asked "Do you know what the international recommendations are for the number of minutes per week for taking part in moderate to vigorous activity?" Staff members that respond "no" will be labeled as "don't know." Staff members that respond yes were prompted to answer the following question: "What are the physical activity recommendations?" The answer of 150 minutes per week is the correct answer (Abula et al., 2016). There is not a reliable tool for assessing knowledge related to

physical activity therefore the addition of two questions is required. Physical activity is documented by METs. The MET is multiple of estimated resting energy expenditure. One MET is what is expended when at rest. Therefore 2 METS is twice what is expended at rest. To get a continuous variable score from the IPAQ (MET minutes a week) walking to be 3.3 METS, moderate physical activity to be 4 METS and vigorous physical activity to be 8 METS.

Data Collection Procedures

The WIC staff collected data on pre and post intervention weights, distributed and collected the Readiness to Lose Weight Loss Questionnaire. The DNP candidate evaluated the knowledge levels of the WIC staff pre intervention through the use of the IPAQ.

Chart Audits

Observational data collection allows for the changing nature of a situation, in this case, targeting the weight loss and exercise habits of the WIC participants. This method can take into account the frequency counts for target behaviors. This process can evaluate both qualitative and quantitative data (frequency, length of visits, and time in group sessions). At the end of four weeks, the data will be evaluated and presented in the final DNP project. Pre and post changes in BMI will be recorded for each time period (initial and at four weeks). The covariates are age and race. Compliance with the program will be evaluated by rating program compliance for each week during the four-week intervention by using a compliance score (CS) ranging from 0 to 1. A rating of 0 indicates little or no participation in the weekly sessions. A rating of 1 indicates the woman participated in the sessions. Average CS across the 4-week intervention will be used to assess the compliance with outcomes (Peyer, 2017).

The goal was to review 20 charts of women that agree to participate in the HMI. The charts will be numbered one through twenty to ensure the privacy of the WIC participants. However only five women agreed to participate in the intervention so only 5 charts were reviewed.

Knowledge Levels

The majorities of WIC employees are dieticians and have a minimum of a bachelor's degree. WIC nutritionists assess nutritional needs and provide dietary solutions based on those needs. They evaluate if children are growing properly by obtaining their height and weight at each visit. WIC staff may offer suggestions on meals, teach healthy cooking methods, and suggest foods that will help fill any dietary deficiencies. For mothers of infants, the nutritionist offers breastfeeding guidance, as well diet and nutrition education for the different stages of a baby's growth. Other duties include helping clients maintain immunization schedules, teaching group nutritional classes, and fulfilling other duties in the WIC office (Thompson, 2016).

WIC staff members were given the international physical activity questionnaire to assess their activity level by the project lead. Healthcare providers that are more active are likely to provide better, more believable and motivating counseling to their patients (Lobelo, & Quevedo, 2014). The project lead distributed the questionnaires to the WIC staff. The questionnaires were numbered one through six to ensure the anonymity of the staff. The project lead compiled the data received from questionnaires and analyzed the information.

Intervention/Project Timeline

Week One

The training of WIC staff began on July 20, 2018. The WIC staff were given packets that included the brochure, the readiness to exercise questionnaire, and food and exercise diaries. The WIC staff received pedometers provided by the project lead. The staff had training on how to facilitate the weekly sessions to include the incorporation of the walking sessions. The staff was given a PowerPoint presentation prepared by the DNP candidate that can be utilized for reference during the implementation process.

Week Two

A second training of WIC staff occurred on July 27, 2018. The remaining staff had the same training as the week one group. The goal was to recruit 20 women to take part in the Healthy Moms Intervention by August 3, 2018. The HMI started on the August 10, 2018 and ended on August 31, 2018.

Week Three

The WIC staff weighed the 5 participants prior to the beginning of the session. The staff had all participants sitting in a circle and passed out the pedometers and explained how they are used. A brochure on pedometer usage was given out at the meeting (Appendix C). The staff discussed the importance of taking 10,000 steps per day and how to accomplish this feat. Then, facilitated a question answer session with participants. The staff took the group out on a 30-minute walk. When the group returned to the WIC office, WIC staff members passed out the food and exercise diaries (Appendix D) and explained how to fill the diaries out. The diaries will be reviewed at each training session. The project lead met with WIC staff after the intervention to discuss positives and negatives of the program. Discussions were focused on how to overcome

problems and provide solutions. The WIC participants consumed a healthy snack of assorted fruits with a low-fat yogurt dip.

Week Four

The WIC staff facilitated a group discussion. Each of the four participants shared stories of success and barriers to exercise and healthy eating. One women of the original group failed to appear for the intervention. Staff members went over the FITT flyer (frequency, intensity and type) of activity (Appendix E). The staff passed out resistance exercise bands, and the group performed strengthening activities (Appendix F). Staff and participants went on a 20-minute walk. The comments made by participants that it is “too hot to exercise” and “ I am too tired”. The participants enjoyed a fruit and vegetable tray after the session was complete.

Week Five

The staff facilitated the group discussion. Each participant shared stories of success and barriers to exercise and healthy eating. The staff discussed the importance of stretching after walking or running. The group performed basic stretches (Appendix G) led by the WIC staff. The group went on a 20-minute walk. The participants sampled zucchini muffins and fresh fruit.

Week Six

The staff weighed WIC participants and facilitated the group discussion. Each participant shared stories of success and barriers to exercise and healthy eating. Participants were asked how they are doing with the pedometers and if they where able to achieve the 10,000 steps per day. The staff went over other ways to fit exercise into the day. Exercise does not have to be planned. It can be taking the stairs or parking farther from the door (Appendix H). Group went on a 30-minute walk. The staff will ask the participants if they enjoyed the program and if they have any suggestions for future interventions. The group had veggies and yogurt dip provided by the DNP

candidate. The WIC staff and the DNP candidate met prior to the beginning of the week four of the intervention to discuss the attrition of the women from the group. In order not to lose any more subjects it was decided to weigh the women at the beginning of week four and that would be the last session.

Ethics/Human Subjects Protection

Institutional Review Boards (IRBs) are made up of individuals who evaluate proposals and ensure that studies meet ethical standards (Ethics in Research, n.d.). IRBs protect organizations and researchers against the legal implications for failing to address the ethical treatment of subjects (Ethics in Research, n.d.). The following project will not require IRB approval. It is not a federally funded project; if federal funds were to be utilized, then an IRB would be required. The purpose of this project is to improve a current, on-going public health program and the knowledge obtained will benefit the WIC participants. The project may be considered non-research and not requiring an IRB (CDC, 2015).

Federal regulations provide no clear guidance on the amount of compensation that should be given to participants. However, rules require that the amount must not be excessive related to undue influence (45 CFR 46.116). The DNP candidate will also pay for the pedometers and exercise bands for all WIC participants regardless of whether they complete the intervention.

The project lead will provide WIC staff tools to develop an exercise program for WIC participants to supplement the information they are already providing on diet. The exercise program may result in the improved well-being and weight loss for the WIC participants. There are no adherent risks to participation in the project. The participants will be assigned a number to use in the gathering of data to protect their privacy and confidentiality. Each participant willing to

take part will sign an informed consent form, which gives details regarding the project so they can make an educated decision on whether to participate or not. This is a requirement for the San Antonio Department of Public Health WIC program.

Plan for Analysis/Evaluation

Chart Audits

Prior to the intervention, chart audits were conducted of the 5 women who have agreed to participate in the intervention to assess if the women had ever been counseled on daily exercise requirements and if overweight or obesity were documented in the chart. There was no patient identifiable data obtained. The women were weighed at the beginning of the intervention and at the end of the intervention. Moreover, the weight at the first weigh in will be compared to the final weight of the participants. The statistical testing method that will be utilized is the Wilcoxon signed-rank test.

Evaluation of the project was accomplished by comparing the median weight at the start of the intervention to the median weight at the end of four-week intervention. Only the women that participated in all four weeks were included in the data analysis. The WIC staff distributed brochures concerning the project and asked women if they had a desire to participate. Each woman was assigned a number. The statistical analysis chosen for the analysis of the data was Wilcoxon signed-rank test. This method evaluates the same people on two different occasions. Is there a change in weight from the initiation of project (Time 1) as compared to the culmination of the project (Time 2)? The assumption is based on that a commitment to reduce caloric intake and participation in daily exercise will cause a decrease in BMI. All women completed the to Weight Loss Readiness Test (Appendix B) to evaluate if a higher commitment score correlates to

increased weight loss. The responses on the Readiness to Lose Weight Test results were numbered to match the number on the client record.

Significance/Implications for Nursing

Obesity is one of the most visible and neglected public healthcare problems. It is directly related to conditions such as: diabetes mellitus, cardiovascular disease, hypertension and stroke, and some types of cancer. Individuals who are obese have an increased risk of premature death due to chronic health conditions (World Health Organization, 2017). Pregnancy creates further challenges for women who are obese. Literature suggests that women who were overweight prior to pregnancy have increased difficulties in losing weight in the postpartum period (Gunderson, 2009). In addition, postpartum women tend to experience decreased activity due to both infant needs and activity restrictions placed by their OB/GYNs, which leads to further barriers in losing pregnancy weight (Demisse et al., 2013). Weight loss among low socioeconomic level women is further compounded by geography, as most live in areas that are dangerous and not conducive to exercising outside (Baruth et al., 2014). The national data collected concerning obesity and poverty has recognized that postpartum obesity in low socioeconomic status women is a significant problem (Zuehlke, 2011). Obesity rates have tripled from 9% to 29% over the last twenty years. Women who are living below the poverty line are twice as likely to be obese as compared to women living above the poverty line (Davis et al., 2012).

Due to their low SES, women who are enrolled in WIC are more likely to be obese. According to Thorn et al. (2015), the rate of women who were obese before becoming pregnant and participating in the WIC program has dramatically increased over the past 20 years, increasing 86% from 19.2% in 1994 to almost 36% in 2014 (Thorn et al., 2015). Group weight

loss programs where women gather once a week and share their stories of success and failure, such as Weight Watchers, have a history of success. Furthermore, it is within the scope of nursing to conduct health education plans (Chism, 2016) and works in collaboration with other agencies to ensure the health of mothers and their children (Kulbock et al., 2012).

Reducing caloric intake and increasing activity is suggested because it produces weight loss that may also cause a reduction in abdominal fat and enhance in cardiac fitness. This is an Evidence Category A. recommendation (Swift et al., 2014). If maintained will lead to improved health as well as weight loss for the women in the WIC program. Current recommendations are if an individual walks less then 5,000 steps per day he or she is considered sedentary. Walking 10,000 steps per day is an indicator of a more active life style (Bravata et al., 2007). The use of a pedometer for the WIC participants is a way to gauge their physical activity. However, there is little evidence that walking without calorie reduction will produce weight loss. Although, asking a participant to walk a certain amount of steps can decrease cardio-vascular risk factors and may provide minimal weight loss, little empirical evidence exists that a pedometer-based program alone without caloric restriction can promote clinically significant weight loss (Swift et al., 2014).

The potential significance of the Healthy Moms Intervention is that it may result in healthier eating habits, increased activity, and ultimately, a reduction in BMI for the women participating in the project. The intent is that the women who participate in the Healthy Moms Intervention will incorporate the techniques they have learned during the four-week project and develop an ongoing commitment to healthier habits. Nurses are advocates for promoting health, whether it is in the community or in the hospital

The implications of these results should be focused on motivational and educational techniques to improve compliance with healthy eating behaviors and exercise regimens. During

the literature review, it was determined that women who had higher compliance scores, no matter what program was implemented, had a more significant reduction in weight (Janda et al., 2013). Enhancing the self-efficacy of low socioeconomic level women may improve their adherence to a diet and exercise program. Evidence supports a correlation between high self-efficacy and an improvement in healthy behaviors (Holloway & Watson, 2012). The self-efficacy model affords the DNP nurse a platform to use when implementing health promotion strategies.

Analysis of Data

The data analysis used a combination of statistical methods. The project participants (WIC staff) implemented the Healthy Mom's program. The IPAQ questionnaire was administered to WIC staff by the project lead during the pre implementation phase. The IPAQ tool assessed the exercise habits and BMI of the participants (WIC staff) prior to the implementation of the Healthy Mom's Initiative. A Pearson's product-moment correlation was run to assess the relationship between (the independent variable/BMI) and (the dependent variable/METS).

The data analyses showed the relationship to be linear and normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$), and there were no extreme outliers (+/- 3 box lengths). The correlation between (the independent variable) and (the dependent variable) was statistically significant, $r(6) = -.95$, $p < .01$, with the independent variable explaining 90% of the variation in the dependent variable/METS. This is demonstrated in Chart A and Chart B.

Chart A

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BMI	.247	6	.200*	.842	6	.135
Mets	.244	6	.200*	.924	6	.538

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Chart B

Correlations

		Mets	BMI
Mets	Pearson Correlation	1	-.950**
	Sig. (2-tailed)		.004
	N	6	6
BMI	Pearson Correlation	-.950**	1
	Sig. (2-tailed)	.004	
	N	6	6

**. Correlation is significant at the 0.01 level (2-tailed).

A linear regression was run to assess if the independent variable predicted the dependent variable. The model was statistically significant, $F(1, 4) = 37.25$, $p < .01$ with the independent variable/BMI explaining 90% of the variation in the dependent variable/METS. The standardized regression equation was: predicted METS = 6906.96 - .95 x (BMI score). This is demonstrated in Chart C, D, and E.

Chart C

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.950[a]	.903	.879	222.38875

a. Predictors: (Constant), BMI

Chart D

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1842138.975	1	1842138.975	37.247	.004[b]
	Residual	197827.025	4	49456.756		
	Total	2039966.000	5			

a. Dependent Variable: Mets

b. Predictors: (Constant), BMI

Chart E

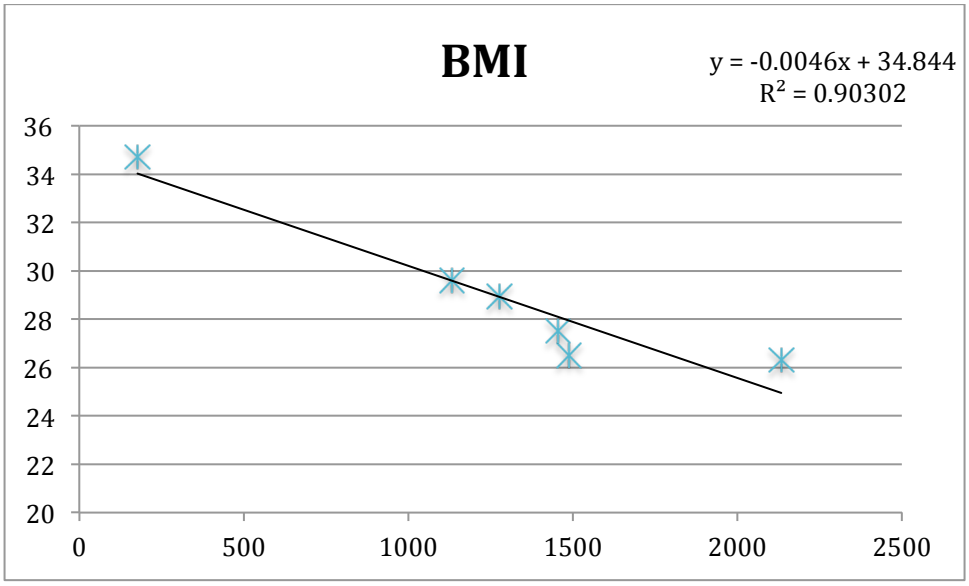
Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	6906.964	926.938		7.451	.002
	BMI	-194.674	31.898	-.950	-6.103	.004

a. Dependent Variable: Mets

In the Chart F below it demonstrates a downward sloping linear association between BMI and knowledge of physical activity with one outlier using descriptive statistics. -Participants (WIC staff) that had a lower BMI had an increased knowledge of physical activity requirements, which is demonstrated by a confidence level of 0.0036.

Chart F



In the Chart G the -nonparametric Wilcoxon Signed-Rank t-test was used to determine whether there is a significant difference between group A, initial weight (Md = 165) and group B, final weight post -intervention (Md = 203). Results showed no significant median differences, z = -1.07, p > .05. The following indicates that the intervention did not produce a significant reduction in BMI. The significance is .285 therefore the null hypothesis is retained.

Chart G

Report

Median

PreWeight	Post Weight	Difference
165.0000	203.0000	2.0000

During the pre-intervention phase, the WIC users completed the Weight Loss Readiness Test II, which assessed motivation, expectations, confidence, hunger and eating cues and binge-

eating and purging habits. A Pearson's product-moment correlation was run to assess the relationship between BMI and motivation. Preliminary analyses showed the relationship to be linear and normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). However, the motivation variable had two extreme outliers (+/- 3 box lengths). The correlation between motivation and BMI was not statistically significant, $r(5) = .82$, $p < .05$. This is demonstrated in Chart H and Chart I.

Chart H
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BMI	.336	5	.067	.823	5	.122
Motivation	.300	5	.161	.920	5	.530

a. Lilliefors Significance Correction

Chart I
Correlations

		BMI	Motivation
BMI	Pearson Correlation	1	.824
	Sig. (2-tailed)		.086
	N	5	5
Motivation	Pearson Correlation	.824	1
	Sig. (2-tailed)	.086	
	N	5	5

Discussion of Findings and Significance

The objective of this project was to develop an exercise protocol for WIC users with a BMI of over 25%. The HMI was developed and presented to WIC staff. WIC staff that received education on the exercise program by the project leader conducted the implementation of the protocol. The four-week program provided a template that staff could utilize for future initiatives. The staff members that aided in the intervention gained valuable information on how to encourage clients in incorporating exercise into daily life with out a gym membership. As a result of the project findings, the WIC leadership have expressed interest in incorporating online exercise modules and monthly exercise classes to encourage fitness in WIC users.

Another objective of the project was to implement healthy eating protocols in conjunction with exercise among women with a BMI over 25% to promote a weight loss of five pounds in a four-week period. -. The participation in the intervention was low; only five women agreed to enroll and two of the original five were unable to complete the intervention. Given the small sample size of three, there was a low probability that any findings would detect a significant statistical difference from pre and post interventions in BMI, $z = -1.07$, $p > .05$. The WIC users with lower BMIs had higher levels of reported physical activity $r(6) = -.95$, $p < .01$. An additional project goal was to implement healthy eating protocols by filling out daily food dairies to foster a weight loss of five pounds over a four-week period. Only one woman achieved a weight loss of over 5 pounds. According to WIC users they found the food and exercise diaries burdensome to fill out. The participants did not fill out all components of the diaries. Some days, the diaries were filled out and some days they were not completed. The daily steps were documented in less than 50% of the journals. According to Burk et al. (2011), self-monitoring through recording exercise and diet is a central to behavioral weight loss programs.

The chart review revealed that there was no documentation that WIC users were encouraged to exercise if the BMI was considered overweight or obese. Currently, there is not a protocol for the documentation of counseling on exercise habits. However, the BMI for each WIC user was documented and diet counseling was also reported. Much of WIC education occurs online, and WIC users complete certain modules on nutritional education. Perhaps the development of an exercise module with telephone follow up may encourage and educate women in the importance of daily exercise. One study that focused on a web-based intervention assisted women in achieving 6-month weight loss (Hageman et al., 2017). In primary care settings, only 50% of obese patients are counseled by a provider on incorporating exercise into their daily routine (Halbert et al., 2017).

Although the intervention did not produce significant results, assessing participants' readiness to lose weight as indicated by a higher score on the readiness to lose weight questionnaire accompanied by a greater number of study participants, may have produced significant results. Even though this is anecdotal the one woman that lost 7 pounds did have a high score of the readiness to lose weight questionnaire. Assessing motivation to change behavior in weight-management can have an important impact on the outcome of efficient weight-control treatment interventions (Ceccarini et al., 2015).

Implications for Nursing

The focus of the WIC program is to initially provide nutrition assessments in order to evaluate nutritional status and potential risk areas for pregnant and postpartum women (Krummel et al., 2010). The American Academy of Nutrition recommends that all obese postpartum women receive education concerning diet and physical activity requirements. Educating women on

behavioral modifications may reduce weight in the postpartum period and decrease obesity-related problems in future pregnancies (Stang & Huffman, 2016). Currently, it is reported that 2/3rds of women over 20 are considered overweight or obese (The Journal of the Academy of Nutrition and Dietetics, 2016). Healthcare providers are often reluctant to recommend weight loss interventions such as exercise to overweight postpartum women (Brad, 2014). Providers are more comfortable discussing exercise and weight loss when a patient is concerned by excessive weight. Whether it is WIC staff or a primary care clinic the discussion on exercise and weight loss should begin in the postpartum period. Women that have an uncomplicated labor may return to moderate exercise in 4-6 weeks after the birth of the baby (Brad, 2014).

Currently, low SES women have a multitude of barriers that discourage adequate exercise and nutrition. There is an exercise gap between low SES women and their more affluent counterparts. Lack of economic resources is related to decreased physical activity. Women that live in poor neighborhoods are often concerned about the safety when walking outdoors and have inadequate resources to join a gym (Schulz et al., 2015). The HMI is an affordable option to give low SES women the tools needed to exercise in their homes and communities. The HMI could partner with a local community health clinic or center to provide monthly exercise and diet classes. Many community health centers offer wellness programs that include yoga, zumba and walking groups (Castaneda, 2017).

Significance of Findings

The WIC users identified several barriers, which influenced the participation in the intervention. Two of the WIC users that dropped out of the intervention stated that transportation was an issue. One WIC user utilized the City of San Antonio bus system and had difficulties

making the journey to the office. The second WIC user had to rely on family/friends for transportation to the project site. The established ride was unable to continue this service once school started. The WIC users made a number of ancillary comments to the WIC staff. The comments included: “that it was too hot to exercise, the time was not good for them, it was hard to get to the clinic”. Previous studies involving WIC clients had similar problems with high attrition rates and interventions that resulted in minimal or non-significant weight loss (Rosal et al., 2016). The WIC staff did not query women on exercise habits and if counseling occurred it was not documented in the chart review. The focus of the WIC program is to initially provide nutrition assessments in order to evaluate nutritional status and potential risk areas for pregnant and postpartum women (Krummel et al, 2010). The American Academy of Nutrition recommends that all obese postpartum women receive education concerning diet and physical activity requirements. Educating women on behavioral modifications may reduce weight in the postpartum period and decrease obesity-related problems in future pregnancies (Stang & Huffman, 2016). Currently it is reported that 2/3rds of women over 20 are considered overweight or obese (The Journal of the Academy of Nutrition and Dietetics, 2016). Healthcare providers are often reluctant to recommend weight loss interventions such as exercise to overweight postpartum women (Brad, 2014). Providers are more comfortable discussing exercise and weight loss when a patient is concerned by excessive weight. Whether it is WIC staff or a primary care clinic the discussion on exercise and weight loss should begin in the postpartum period. Women that have an uncomplicated labor may return to moderate exercise in 4-6 weeks after the birth of the baby (Brad, 2014).

Although the intervention did not produce significant results, assessing participants’ readiness to lose weight as indicated by a higher score on the readiness to lose weight

questionnaire accompanied by a greater number of study participants, may have produced significant results. Even though it is anecdotal the one woman that lost 7 pounds did have a high score of the readiness to lose weight questionnaire. Assessing motivation to change behavior in weight-management can have an important impact on the outcome of efficient weight-control treatment interventions (Ceccarini et al., 2015).

Currently, low SES women have a multitude of barriers that discourage adequate exercise and nutrition. There is an exercise gap between low SES women and their more affluent counterparts. Lack of economic resources is related to the decreased physical activity. Women that live in poor neighborhoods are often concerned about the safety when walking outdoors and have inadequate resources to join a gym (Schulz et al., 2015). By providing low SES women different options for exercise as the HMI proposes affords women the tools needed to exercise in their homes. The HMI could partner with a local community health clinic or center to provide monthly exercise and diet classes. Many community health centers offer wellness programs that include yoga, Zumba and walking groups (Castaneda, 2017).

Limitations

There were several limitations of the project. One - limitation of the HMI was low participation by WIC users. The summer temperatures in San Antonio exceeded 100 degrees for much of August. High temperatures have been shown to be a barrier for starting an exercise program. The weather has been identified as an apparent obstacle to participation in physical activity (Chan & Ryan, 2009). One study of women participating in exercise classes found when temperatures were above 90 degrees attendance declined (Tu et al, 2004). The intervention may

have had a greater number of individuals enrolled if conducted in the fall when the climate is more favorable to exercise outdoors.

The WIC users identified other barriers, which influenced participation in the HMI. Two of the WIC users that dropped out of the intervention stated that transportation was an issue. One WIC user utilized the City of San Antonio bus system and had difficulties making the journey to the office. The second WIC user had to rely on family for transportation to the project site. The established ride was unable to continue this service once school started.

Another limitation of the project was that individuals enrolled in the WIC program often have challenges with transportation and childcare that may have prevented participation in an exercise program. Perhaps offering more incentives to the WIC users might increase participation in the future, such as vouchers for the bus, or a visa gift card. According to Grady (2005), using incentives for project participation in- the US is a common practice that has been documented for well over 100 years. A gift card as an incentive may enhance recruitment (Grady, 2005).

In addition, another shortcoming were the participants (WIC staff) had lower knowledge levels in promoting physical activity. The participants demonstrated a decreased knowledge of exercise requirements, which is verified by a confidence level of 0.0036. Perhaps the participants with less knowledge on exercise requirements were not as successful in implementing the intervention. The participants were dieticians who are skilled in counseling clients on food and nutrition plans and promoting healthy eating habits to prevent and treat illness not on exercise.

Another project limitation was the intervention site. The HMI may have been more successful if conducted in a community health clinic serving low SES women. The health professional could recommend the program when mothers come to the clinic for the postpartum checkup; especially for –individuals that are identified as obese. The postpartum women may be

more confident discussing the benefits of exercise in the postpartum period with a healthcare provider as opposed to a WIC dietician (Temme, 2015).

The final limitation of this project was the burdensome aspect of completing the food and exercise logs. The WIC users did not fully complete all portions of the diaries every day. However, the WIC users claimed the use of a food and exercise log increased awareness of food selections even though logging on the diary was not always consistent. According to Condeiro et al. (2015), although food diaries are important tools for tracking calories consumed the tool is often considered difficult to maintain. According to studies there is improved compliance among individuals when using programs such as MyFitnessPal, because of the social support aspect (Condeiro et al., 2015). The three WIC users that completed the Healthy Mom's intervention commented it was easier to chart the daily steps compared to the food log, but they did not always document the daily steps either.

Individuals enrolled in the WIC program have increased levels of stress due to economic situations. Increased levels of stress, due to living in dangerous neighborhood, can lead to overeating and the inability to adhere to a diet plan (Rosal et al., 2016). According to Sominski and Spencer (2014) chronic stress, can influence the types of foods selected. Stress eaters find comfort in calorie dense food items. Stress may also influence the propensity to become obese (Sominski & Spencer, 2014). Studies have shown that eating triggers dopamine, opioid, benzodiazepine and GABA neurotransmitters that lead to improved mood and alleviate stress (Berridge & Robinson, 1998). Healthcare providers and dieticians that counsel obese economically disadvantaged women must understand the difficulties of living and develop workable solutions to promote weight loss in this population (Gudzune et al., 2013)

The WIC users made a number of ancillary comments to the WIC staff. The comments included: “that it was too hot to exercise, the time was not good for them, it was hard to get to the clinic”. Previous studies involving WIC clients had similar problems with high attrition rates and interventions that resulted in minimal or non-significant weight loss (Rosal et al., 2016).

Dissemination of Findings

The dissemination of the Healthy Mom’s Initiative will be presented in several different venues. The project findings of the HMI will be disseminated to the WIC staff at a scheduled meeting and include an overview of the program and the findings using a PowerPoint presentation. The project findings will also be disseminated at a meeting presented to the City of San Antonio Department of Public Health. Recommendations will be proposed at the potential of incorporating a version of the HMI at the cities low cost health clinics in both Spanish and English for better access to the system.

An abstract will be submitted to the National WIC Association on 2 November 2018 for a poster proposal on the HMI at a conference in Baltimore, Maryland to occur April 2019. The poster presentation will focus on tips for improving exercise interventions and the possible development of an application for WIC participants to utilize, which can easily documents food and exercise activities.

The final DNP project will be presented to the DNP project team, nursing faculty and DNP students in a 30-minute online Zoom presentation. The presentation will include a discussion of the project intervention, statistical analysis, significance and limitations of the project. The presentation will be followed by a brief question and answer period. Once the project

is validated by the DNP project team the paper will be submitted to the Touro University digital repository.

Project Sustainability

There is a need for the DNP nurse leader to find successful avenues for the continuing efforts to combat obesity and encourage exercise in low SES women. For the HMI to be successful in the future, modifications to the intervention need to be considered. The use of a survey, which would be completed by WIC users post intervention, may be helpful in future projects. The survey questions could address motivation, exercise and diet change. Future funding and staff might be needed to sustain this project. The use of an online exercise application, such as Gympact may be helpful in future projects. Gympact is a software program which tracks fitness and provides the individual participants with a cash payment if the exercise goals are adhered to (Kedmay, 2015).

In addition there are plans to implement the project at the OB clinic in a local military medical center. The nurse midwives are interested in the HMI and it may have greater success in the military post-partum population as the active duty mother's return to week four months after delivering and must successfully complete a physical fitness test. Sustainability indicates the securing and improving progress of a practice initiative (Moran, Burson, & Conrad, 2017)

Conclusion

Encouraging physical activity and promoting healthy eating habits should be a priority for nurse leaders, educators and other healthcare professionals. The economic impact of obesity on

the U.S. healthcare system is staggering. The development of the HMI was a step in the right direction to change the habits of low SES women, but so much more needs to be accomplished.

The project was implemented over a six week time period. There were two staff training sessions and four sessions with the WIC users. The data analyzed was pre and post BMI of the WIC users and the scores on the Readiness to Lose Weight II. To assess knowledge of physical activity, and the relationship of that knowledge to the staff BMI, –the staff filled out the IPAQ. Staff that had lower BMIs had increased knowledge on physical activity requirements. Even though the weight loss among WIC users was not significant, the knowledge obtained for those that participated in the HMI cannot be underestimated.

As DNP leaders need to be the change agents in promoting healthy life styles in all settings, whether it be at the WIC offices, community health clinics or speaking at a national conference.

References

AACN Essentials. (2006). Retrieved from https://www.aacnnursing.org/Education-Resources/AACN-Essentials

Abula, D., K., Grope, P., Chen, K., & Beckmann, J. (2016). Does knowledge of physical activity recommendations increase physical activity among Chinese college students? Empirical investigations based on the transtheoretical model. *Journal of Sport and Health Science*. doi:10.1016/j.jshs.2016.10.010

Ahmad, W., Taggart, F., Shafique, M. S., Muzafar, Y., Abidi, S., Ghani, N., . . . Ghaffar, N. (2015). Diet, exercise and mental-wellbeing of healthcare professionals (doctors, dentists and nurses) in Pakistan. *PeerJ, 3*. doi:10.7717/peerj.1250

Athavale, P., Thomas, M., Delgadillo-Duenas, A. T., Leong, K., Najmabadi, A., Harleman, E., . . . Handley, M. A. (2016). Linking high-risk postpartum women with a technology enabled health-coaching program to reduce diabetes risk and improve wellbeing: Program description, case studies, and recommendations for community health coaching programs. *Journal of Diabetes Research, 2016,* 1-16. doi:10.1155/2016/4353956

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. http://dx.doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman (Ed.), *Encyclopedia of mental health*. San Diego: Academic Press, 1998).

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman & Company.

Barnes, R. D., & Ivezaj, V. (2015). A systematic review of motivational interviewing for weight loss among adults in primary care. *Obesity Reviews, 16*(4), 304-318. doi:10.1111/obr.12264

Baruth, M., Sharpe, P. A., Parra-Medina, D., & Wilcox, S. (2014). Perceived barriers to exercise and healthy eating among women from disadvantaged neighborhoods: Results from a focus groups assessment. *Women & Health, 54*(4), 336-353. doi:10.1080/03630242.2014.896443

Bautista, L., Reininger, B., Gay, J. L., Barroso, C. S., & McCormick, J. B. (2011). Perceived barriers to exercise in Hispanic adults by level of activity. *Journal of Physical Activity and Health, 8*(7), 916-925. doi: 10.1123/jpah.8.7.916

Benjamin, R. M. (2011). The National Prevention Strategy: Shifting the Nations Health-Care System. *Public Health Reports, 126*(6), 774-776. doi:10.1177/003335491112600602

Bernardo, R. C. (2018.). 2017s Fattest Cities in America. Retrieved February 14, 2018, from https://wallethub.com/edu/fattest-cities-in-america/10532/

Berridge, K. C., & Robinson, T. E. (1998). What is the role of dopamine in reward: Hedonic impact, reward learning, or incentive salience? *Brain Research Reviews, 28*(3), 309-369. doi:10.1016/s0165-0173(98)00019-8

Bertz, F., Sparud-Lundin, C., & Winkvist, A. (2015). Transformative lifestyle change: Key to sustainable weight loss among women in a post-partum diet and exercise intervention. *Maternal and Child Nutrition, 11*(4), 631-645. doi: 10.1111/mcn.12103

Booth, M. L. (2000). Assessment of physical activity: An international perspective. *Research Quarterly for Exercise and Sport, 71*(2), 114-20.

Bravata, D. M., Smith-Spangler, C., Sundaram, V., et al. (2007). Using pedometers to increase physical activity and improve health. JAMA: *The Journal of the American Medical Association*, 298:2296–304.

Cardwell, M. S. (2013). Improving medical adherence in women with gestational diabetes through self-efficacy. *Clinical Diabetes, 31*(3), 110-115

Ceccarini, M., Borrello, M., Pietrabissa, G., Manzoni, G. M., & Castelnuovo, G. (2015). Assessing motivation and readiness to change for weight management and control: An in-depth evaluation of three sets of instruments. *Frontiers in Psychology, 6*. doi:10.3389/fpsyg.2015.00511

Centers for Disease Control. (2015, April). Human participation in CDC research. Retrieved on December17, 2017, from https://www.cdc.gov/od/science/integrity/hrpo/index.htm

Chang, M., Brown, R., & Nitzke, S. (2017). Results and lessons learned from a prevention of weight gain program for low-income overweight and obese young mothers: Mothers In motion. *BMC Public Health, 17*(1). doi: 10.1186/s12889-017-4109-y

Chism, L. A. (2016). The doctor of nursing practice (3rd Ed.). Detroit, MI: Jones & Bartlett Learning.

Compeau, D., Higgins, A., & Huff S. (1999). Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quarterly. 23*(2). Retrieved September 6, 2017, from http://dl.acm.org/citation.cfm?id=325878

Cordeiro, F., Epstein, D. A., Thomaz, E., Bales, E., Jagannathan, A. K., Abowd, G. D., & Fogarty, J. (2015). Barriers and Negative Nudges. *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems - CHI 15*. doi:10.1145/2702123.2702155

Craig, C. L., Marshall, A. L., Sojostrom, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., . . . Oja, P. (2003). International Physical Activity Questionnaire: 12-Country Reliability and Validity. *Medicine & Science in Sports & Exercise, 35*(8), 1381-1395. doi:10.1249/01.mss.0000078924.61453.fb

Demissie, Z., Siega-Riz, A. M., Evenson, K. R., Herring, A. H., Dole, N., & Gaynes, B. N. (2013). Physical activity during pregnancy and postpartum depressive symptoms. *Midwifery, 29*(2), 139-147. doi:10.1016/j.midw.2011.12.006

Doctor of Nursing Practice (DNP). (2015) Retrieved July 29, 2017, from http://www.aacn.nche.edu/dnp-home

Dlugonski, D., & Motl, R.W. (2016). Physical activity experiences and beliefs among single mothers, *A Qualitative Study Research Quarterly for Exercise and Sport, 87*(3), 311-317: doi: 10.1080/02701367.2016.1187705

Drewnowski, A., Darmon, N. & Briend, A. (2004). Replacing fats and sweets with vegetables and fruits-- A question of cost. *American Journal of Public Health, 94*(9), 1555-1559. http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.94.9.1555

Ethics in Research. (N.d.). Retrieved December16, 2017, from http://www.socialresearchmethods.net/kb/ethics.php

Finkelstein, E. A., & Kruger, E. (2014). Meta-and cost-effectiveness analysis of commercial weight loss strategies. *Obesity, 22*(9), 1942-1951. doi: 10.1002/oby.20824

Fit City SA. (2017). Síclovía- Play in the streets! Retrieved August 27, 2017, from https://www.fitcitysa.com/be-active/siclovia-play-in-the-streets/

Gilmore, L. A., Klempel, M. C., Martin, C. K., Myers, C.A., Burton, J. H., Sutton, E. F., & Redman, L. M. (2017). Personalized mobile health intervention for health and weight loss

in postpartum women receiving women, infants, and children benefit: A randomized controlled pilot study. *Journal of Women's Health, 26*(7): 719-727. https://doi.org/10.1089/jwh.2016.5947

Goleansixsigma. (2018). DMAIC - The 5 Phases of Lean Six Sigma. Retrieved from https://goleansixsigma.com/dmaic-five-basic-phases-of-lean-six-sigma/

Grady, C. (2005). Payment of clinical research subjects. *Journal of Clinical Investigation, 115*(7), 1681-1687. doi:10.1172/jci25694

Gunderson, E. P. (2009). Childbearing and obesity in women: Weight before, during, and after Pregnancy. *Obstetrics and Gynecology Clinics of North America, 36*(2), 317-332. doi:10.1016/j.ogc.2009.04.001

Hageman, P., Pullen, C., Hertzog, M., Pozehl, B., Eisenhauer, C., & Boeckner, L. (2017). Comparison Of Web-Based Interventions For Weight Loss And Weight Maintenance In Rural Women. *Innovation in Aging, 1*(Suppl_1), 217-217. doi:10.1093/geroni/igx004.815

Halbert, C. H., Jefferson, M., Melvin, C. L., Rice, L., & Chukwuka, K. M. (2017). Provider Advice About Weight Loss in a Primary Care Sample of Obese and Overweight Patients. *Journal of Primary Care & Community Health, 8*(4), 239-246. doi:10.1177/2150131917715336

Heelan, K. A., Bartee, R. T., Nihiser, A., & Sherry, B. (2015). Healthier school environment leads to decreases in childhood obesity: The Kearney Nebraska Story. *Childhood Obesity, 11*(5), 600-607. doi:10.1089/chi.2015.0005

Herring, S. J., Cruice, J. F., Bennett, G. G., Davey, A., & Foster, G. D. (2014). Using technology to promote postpartum weight loss in urban, low-income mothers: A pilot randomized controlled trial. *Journal of Nutrition Education and Behavior 46*(6), 610–5.

Huseinovic, E., Bertz, F., Agelii, M. L., Johansson, E. H., Winkvist, A., & Brekke, H. K. (2016). Effectiveness of a weight loss intervention in postpartum women: Results from a randomized controlled trial in primary health care. *American Journal of Clinical Nutrition, 104*(2), 362-370. doi:10.3945/ajcn.116.135673

Janda, M., Zeidler, D., Böhm, G., & Schoberberger, R. (2013). An instrument to measure adherence to weight loss programs: The compliance praxis survey-diet (COMPASS-Diet). *Nutrients, 5*(10), 3828-3838. doi:10.3390/nu5103828

Kirkpatrick, J. (2013). The doctor of nursing practice capstone project: Consensus or confusion? *Journal of Nursing Education, 52*(8), 435-441.

Krummel, D., Semmens, E, MacBride, A. M. & Fisher, B. (2010). Lessons learned from the mothers' overweight management study in four West Virginia WIC offices. *Journal of Nutrition Education and Behavior, 42*(3 Suppl), S52–8.

Laz, T. H., Rahman, M., & Berenson, A. B. (2015). Association of frequent use of food labels with weight loss behaviors among low-income reproductive-age women, *Journal of the American College of Nutrition*, 34 (1), 73-79. doi: 10.1080/07315724.2014.891957

Levine, J. A. (2011). Poverty and Obesity in the U.S. *Diabetes, 60*(11), 2667-2668. doi:10.2337/db11-1118

Lobelo, F., & Quevedo, I. G. (2014). The evidence in support of physicians and health care providers as physical activity role models. *American Journal of Lifestyle Medicine, 10*(1), 36-52. doi:10.1177/1559827613520120

Maddux, J. E. (2005). Self-efficacy: The power of believing you can. In C.R Snyder & S.J. Lopez, (Eds.), *Handbook of positive psychology* (pp. 227-287). New York: Oxford University Press.

Moredich, C. A. (2012). Implementation of an Evidence-Based Weight Loss Intervention Among Low-Income, Overweight Women. *Journal of Obstetric, Gynecologic & Neonatal Nursing, 41*. doi:10.1111/j.1552-6909.2012.01358_1.x

Moreno, E. (2016). San Antonio clinic brings healthcare to the underserved. Retrieved August 01, 2017 from https://www.communitycommons.org/groups/salud-america/heroes/san-antonio-clinic-brings-healthcare-to-the-underserved

Muktabhant, B., Lawrie, T. A., Lumbiganon, P., & Laopaiboon, M. (2015). What are the benefits and harms of diet or exercise, or both, for preventing excessive weight gain in pregnancy? *Cochrane Clinical Answers*. doi:10.1002/cca.925

National Heart, Lung, and Blood Institute. (1998). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: The evidence report. Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases.

Office of Disease Prevention and Health Promotion. (2008). Physical activity guidelines for Americans. Retrieved July 23, 2017, from https://health.gov/paguidelines/guidelines/

Ogden, C. L., Lamb, M., Carroll, M. D., & Flegal, K. M. (2010, November 30). Obesity and Socioeconomic Status in Children and Adolescents: United States, 2005-2008. NCHS Data Brief. Number 51. Retrieved July 23, 2017, from https://eric.ed.gov/?id=ED530165

Otoole, M. L., Sawicki, M. A., & Artal, R. (2003). Structured diet and physical activity prevent postpartum weight retention. *Journal of Women's Health, 12*(10), 991-998. doi: 10.1089/154099903322643910

Peyer, K. L., Ellingson, L. D., Bus, K., Walsh, S. A., Franke, W. D., & Welk, G. J. (2017). Comparative effectiveness of guided weight loss and physical activity monitoring for

weight loss and metabolic risks: A pilot study. *Preventive Medicine Reports, 6*, 271-277. doi:10.1016/j.pmedr.2017.03.002

Phelan, S., Hagobian, T., Brannen, A., Hatley, K. E., Schaffner, A., Muñoz-Christian, K., & Tate, D. F. (2017). Effect of an internet-based program on weight loss for low-income postpartum women: A randomized clinical trial. *JAMA: The Journal of the American Medical Association, 317*(23), 2381-2391.doi:10.1001/jama.2017.7119

Pudrovska, T., Reither, E. N., Logan, E. S., & Sherman-Wilkins, K. J. (2014). Gender and reinforcing associations between socioeconomic disadvantage and body mass over the life course. *Journal of Health and Social Behavior, 55*(3), 283-301. doi: 10.1177/0022146514544525

Rogers, L. Q., Gutin, B., Humphries, M. C., Lemmon, C. R., Waller, J. L., Baranowski, T., & Saunders, R. (2006). Evaluation of Internal Medicine Residents as Exercise Role Models and Associations With Self-Reported Counseling Behavior, Confidence, and Perceived Success. *Teaching and Learning in Medicine, 18*(3), 215-221. doi:10.1207/s15328015tlm1803_5

Rosal, M. C., Haughton, C. F., Estabrook, B. B., Wang, M. L., Chiriboga, G., Nguyen, O. H., & Lemon, S. C. (2016). Fresh Start, a postpartum weight loss intervention for diverse low-income women: Design and methods for a randomized clinical trial. *BMC Public Health, 16*(1). doi:10.1186/s12889-016-3520-0

Sallis, J. F. (2009). Measuring physical activity environments: A brief history. *American Journal of Preventive Medicine, 36*, S86-S92.

Siega-Riz, A. M. (2012). Pre-pregnancy obesity: Determinants, consequences, and solutions. *Advances in Nutrition: An International Review Journal, 3*(1), 105-107. doi:10.3945/an.111.001081

Stang, J., & Huffman, L. G. (2016). Position of the Academy of Nutrition and Dietetics: Obesity, Reproduction, and Pregnancy Outcomes. *Journal of the Academy of Nutrition and Dietetics, 116*(4), 677-691. doi:10.1016/j.jand.2016.01.008

Swift, D. L., Johannsen, N. M., Lavie, C. J., Earnest, C. P., & Church, T. S. (2014). The role of exercise and physical activity in weight loss and maintenance. *Progress in Cardiovascular Diseases, 56*(4), 441-447. doi:10.1016/j.pcad.2013.09.012

Temme, K. E. (2015). Exercise in Pregnancy and Postpartum. *Musculoskeletal Health in Pregnancy and Postpartum,* 243-273. doi:10.1007/978-3-319-14319-4_15Thorn, B. , Tadler, C. & Huret, C. (2015). Study of WIC participant and program characteristics, 2014. *U.S. Department of Agriculture, Food and Nutrition Service,* Alexandria, VA.

U.S. Department of Agriculture. (2011). *USDA's Nutrition assistance programs,* Retrieved July 15, 2017, from WIC website: http:// www.fns.usda.gov/wic/

U.S. Department of Veterans Affairs, Veterans Health Administration. (2016, March 24). MOVE! Weight Management Program. Retrieved January 21, 2018, from https://www.move.va.gov/handouts.asp

Utah Department of Health. (2017). Health indicator report of overweight WIC. Retrieved August 08, 2017, from https://ibis.health.utah.gov/indicator/view/OveWICChi.html

Wiltheiss, G. A., Lovelady, C. A., West, D. G., Brouwer, R. J., Krause, K. M., & Østbye, T. (2013). Diet quality and weight change among overweight and obese postpartum women

enrolled in a behavioral intervention program. *Journal of the Academy of Nutrition and Dietetics, 113*(1), 54-62. doi: 10.1016/j.jand.2012.08.012

Wolfram, T. (2017). Healthy weight during pregnancy. Retrieved September 19, 2017, from http://www.eatright.org/resource/health/pregnancy/prenatal-wellness/healthy-weight-during-pregnancy

World Health Organization. (2017). Controlling the global obesity epidemic. Retrieved December 17, 2017, from http://www.who.int/nutrition/topics/obesity/en/

Zanardo, V. (2016). Comments on early breastfeeding problems mediate the negative association between maternal obesity and exclusive breastfeeding at 1 and 2 months postpartum. *Journal of Nutrition, 146*(5), 1143–1144. doi:10.3945/jn.116.230318.

Zuehlke, E. (2010). For women in the U.S., obesity links to socioeconomic status and poor diet. Retrieved from, http://www.prb.org/Publications/Articles/2010/usobesity.aspx

Appendix A

Timeline

Table 1

Task	Jul	Aug	Sep	Oct
Recruitment of eligible participants	X			
Train WIC STAFF	X			
Exercise Intervention		X	X	
Gathering of Data			X	X
Analysis of outcomes				X
Results presented to WIC/Univeristy				X

Appendix B

The Weight Loss Readiness Test II

NAME:

Answer the questions below to see how well your attitudes and current behaviors equip you for a weight loss program. For each question, circle the number that best describes your attitude, then write the number of your answer on the line before each question number. As you compete each of the six categories, add the numbers of your answers and compare them with the scoring guide at the end of this test.

Category 1: Motivation

_____ 1. Compared to previous attempts, how motivated are you to lose weight this time?

0 Not at all motivated
1 Slightly motivated
2 Somewhat motivated
3 Quite motivated
4 Extremely motivated

_____ 2. Compared to previous attempts, how motivated are you to change your eating habits this time?

0 Not at all motivated
1 Slightly motivated
2 Somewhat motivated
3 Quite motivated
4 Extremely motivated

_____ 3. Compared to previous attempts, how motivated are you to increase your physical activity this time?

0 Not at all motivated
1 Slightly motivated
2 Somewhat motivated
3 Quite motivated
4 Extremely motivated

_____ 4. How motivated are you to stay committed to a weight loss program for the time it will take to reach your weight loss goal?

0 Not at all motivated
1 Slightly motivated
2 Somewhat motivated
3 Quite motivated
4 Extremely motivated

_____ 5. How motivated are you to try new strategies/techniques for changing your eating, exercise, and other behaviors?

0 Not at all motivated
1 Slightly motivated
2 Somewhat motivated
3 Quite motivated
4 Extremely motivated

_____ **Category 1 TOTAL Score**

Category 2: Expectations

_____ 6. Think honestly about how much weight you hope to lose and how quickly you hope to lose it. Figuring a weight loss of one to two pounds per week, how realistic is your expectation?

0 Very unrealistic
1 Somewhat unrealistic
2 Moderately unrealistic
3 Somewhat realistic
4 Very realistic

_____ 7. How satisfied would you be if you achieved a 10% weight loss?

0 Not at all satisfied
1 Slightly satisfied
2 Somewhat satisfied
3 Quite satisfied
4 Extremely satisfied

_____ 8. If you achieved a 10% weight loss that significantly improved your health, how satisfied would you be?

0 Not at all satisfied
1 Slightly satisfied
2 Somewhat satisfied
3 Quite satisfied
4 Extremely satisfied

_____ 9. If you achieved a 10% weight loss that significantly improved your quality of life, how satisfied would you be?

0 Not at all satisfied
1 Slightly satisfied
2 Somewhat satisfied
3 Quite satisfied
4 Extremely satisfied

_____ **Category 2 TOTAL Score**

Category 3: Confidence

When answering questions 10 through 17, consider all outside factors at this time in your life (the stress you're feeling at work and/or home, your obligations, etc.).

_____10. People who want to achieve long-term weight control need to spend time every day trying to change their eating, exercise, and thinking habits. You probably know the time and commitment necessary for you to be successful. How confident are you that you can devote this amount of effort, both now and over the next few months?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____11. How confident are you that you will be able to attend program meetings regularly or (if you're not in a formal program) follow your own program regularly?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____12. How confident are you that you will be able to record everything you eat and drink, and your exercise, most days of the week?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____13. How confident are you that you will be able to change your eating habits?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____14. How confident are you that you will be able to work regular physical activity into your daily schedule?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____15. How confident are you that you will be able to exercise at least five days per week, most weeks?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____16. How confident are you that you will be able to maintain your healthy eating habits for one year or longer?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____17. How confident are you that you will be able to continue exercising regularly (at least five days per week) for one year or longer?

0 Not at all confident
1 Slightly confident
2 Somewhat confident
3 Quite confident
4 Extremely confident

_____ **Category 3 TOTAL Score**

Category 4: Hunger and Eating Cues

_____18. When food comes up in conversations or in something you read, do you want to eat even if you are not hungry?

0 Never
1 Rarely
2 Occasionally
3 Frequently
4 Always

_____19. How often do you eat because of physical hunger?

0 Always
1 Frequently
2 Occasionally
3 Rarely
4 Never

_____20. Do you have trouble controlling your eating when your favorite foods are around the house?

0 Never
1 Rarely
2 Occasionally
3 Frequently
4 Always

_____ **Category 4 TOTAL Score**

Category 5: Binge Eating and Purging

_____21. Aside from holiday feasts, have you ever eaten a large amount of food rapidly and felt afterward that this eating incident was excessive and out of control?

2 Yes
0 No

_____22. If you answered yes to question 21 above, how often have you engaged in this behavior during the last year?

0 Less than once a month
1 About once a month
2 A few times a month
3 About once a week
4 About three times a week
5 Daily

_____23. Have you ever purged (used laxatives, diuretics, or induced vomiting) to control your weight?

3 Yes
0 No

_____24. If you answered yes to question 23, how often have you engaged in this behavior during the last year?

0 Less than once a month
1 About once a month
2 A few times a month
3 About once a week
4 About three times a week
5 Daily

_____ **Category 5 TOTAL Score**

Appendix C

S03

MOVE!® Weight Management Program for Veterans

A Guide to Using Your Pedometer

Walking is a great way to help you lose weight, keep the weight off, and improve your health.

Use a Pedometer to:

- Measure how many steps you take.
- Get feedback about your activity.
- Plan, track, and reach your physical activity goals.

How to wear your Pedometer:

- Clip it to your clothing, or place it in a pocket or a bag that you carry or wear.
- Use the leash and clip to keep from dropping or losing your pedometer.
- Do not get the pedometer wet.

Pedometers do not measure:

- Walking for less than 10 steps or 10 seconds at a time.
- Cycling, swimming, some dancing, basketball, and tennis.
- Distances covered while using a manual wheelchair—this requires an odometer/cyclometer.

Getting Started:

- Wear your pedometer every day for 1 week.
- The pedometer will count your steps in a 24-hour period beginning and ending at midnight.
- Record your steps in your *Daily Food and Physical Activity Diary.*
- At the end of 1 week, add up your daily steps.
- Determine your daily average by dividing total steps by the number of days.

10,000 steps per day *(about 5 miles) meets the Physical Activity Guidelines for Americans.*

MOVE!

A Guide to Using Your Pedometer

Increasing your Steps:

- Starting with the second week, set a goal to increase your steps. (**Example:** If you average 3,000 steps per day in the first week, then set a goal to increase to 3,500 steps per day.)
- Start at a comfortable level and gradually increase steps.
- Create a weekly walking plan/schedule.
- Record your steps every day.
- Set goals that you can reach.
- Update your goals every week.
- Start where you are and build up.
- Choose an activity and a setting that you enjoy: outside, at a mall, at a gym, etc.

Ways to add walking to your lifestyle:

- Take a 10-minute walk whenever you can.
- Take the stairs (up or down) instead of the elevator.
- Take 10-minute walks during lunch and breaks at work.
- Park farther away and walk.
- Get off the bus one stop early and walk the rest of the way.
- Step in place while watching television.
- Walk your dog (or borrow a friend's dog).

- Mow your lawn with a push mower or do other yard work.
- For short distances, walk instead of driving your car.
- Take the long way when walking to meetings.
- Find a regular walking partner.

Other important facts:

- For health benefits and weight maintenance, aim for walking or other physical activity for 150 minutes (2 1/2 hours) per week, in periods of at least 10 minutes.
- To help you lose weight, walk or be physically active **more than 2 ½ hours per week.** Weight loss may be achieved with 300 minutes (5 hours) per week of physical activity.
- Walking and wheeling are easy, inexpensive, and you can do them almost anywhere.

Appendix D

MOVE! Weight Management Program for Veterans

Daily Food and Physical Activity Diary

Instructions for Completing the Daily Food and Physical Activity Diary

MOVE! is all about helping you manage your weight. This diary is designed to help you monitor your weight, physical activity, and dietary intake. This will be one of your most valuable tools to reach your goals because it will increase your awareness and help you change. Complete the diary as frequently as possible. It is worth the effort!

FOOD and BEVERAGES

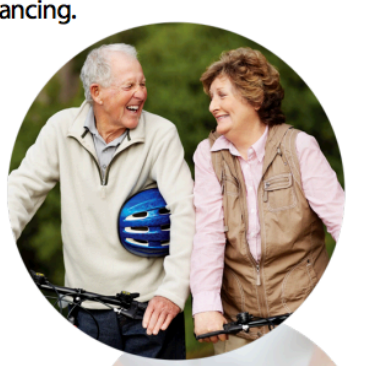
1. In the top section of the diary:
   - Write your name and the date.
   - Fill in your daily calorie goal. Use this chart to select your calories.
   - Set a weekly food goal to improve your diet. **Example:** *"I will cut down on calories by eliminating snacking while watching TV in the evenings this week," or "I will drink water or sugar-free beverages in place of regular soda this week."*

Current Weight	*Daily Calorie Goal*
Under 200 pounds	1,200 – 1,500 calories/day
200 – 225 pounds	1,500 – 1,800 calories/day
226 – 250 pounds	1,800 – 2,000 calories/day
251 – 300 pounds	2,000 – 2,500 calories/day
301 – 350 pounds	2,500 – 3,000 calories/day
Over 350 pounds	See a MOVE! Dietitian

2. Weigh yourself daily and record your weight in the header row, next to the day.
3. Write down **everything** you eat and drink, and the amount. If you know the measured amount, list it. If you don't know the exact amount then estimate the size (2" x 1" x 1"), the volume (1/2 cup), the weight (2 ounces), and/or the number of items (12) of that type of food. Include **as much detail as possible.**
4. Complete the line that has **"M PC H"** listed:
   - Circle **M** if you were **mindful** (aware of what & how much you ate).
   - Circle **PC** if the meal was **portion-controlled** (see Handout *S06, Making Healthy Food Choices with a Healthy Plate*).
   - Circle **H** if the meal was **healthy** (see Handout *S06*)
   - Mark the numbers on 1–10 Hunger/Fullness rating scale (1=starving, 5=neither hungry nor full, 10=uncomfortably full)
     - Place an **X** over the number that represents the **Pre-meal** hunger/fullness level.
     - Draw a **circle** around the number that represents the **Post-meal** hunger/fullness level.
5. Fill in a word to describe your **mood** (happy, content, sad, angry, lonely, excited, exhausted, bored, anxious, fearful, or any other emotion).
6. Use a calorie counter to enter total calories for the day. Purchase a booklet, use a Web site or a Smartphone App to count calories easily.
7. At the end of the day, circle whether you met your goal for the day:
   - If you met your goal, circle **"I did it!"**
   - If you almost met your goal, circle **"Almost."**
   - If you didn't achieve your goal, circle **"Try again."**

Physical Activity

1. **Write your weekly physical activity goal** on the top line. **Example:** *"I want to walk 15 to 30 minutes per day for 4 out of 7 days this week and do strength training twice a week. I will also look for additional ways to be active throughout the day, like taking the stairs instead of the elevator, three times a day."* Refer to Handout *S02, Set Your Weight Loss Goals,* for an explanation of how to set a SMART goal.
   NOTE: You do not need to do all four types of activity each day. See below for descriptions and guidance for recommended amounts of physical activity. Refer to the sample plan to see how to spread out the types of activities over the week.
2. **Aerobic activity** is when the body's large muscles move together and your heart beats faster than usual. **Examples** include aerobics, swimming, running, walking, kickboxing, dancing, and cycling. This type of activity burns the most calories and promotes weight loss. **In this box,** write down what you did, how long you did it, and/or the number of steps/wheelchair revolutions.
3. **Strengthening activity** is when is when the body's muscles work against a force or weight. **Examples** include elastic bands, weights, or body weight. **In this box,** write down the type of strength training and how many repetitions and sets of each exercise you performed.
4. **Flexibility (stretching)** lengthens a muscle. This makes a muscle feel loose while increasing range of motion. **Examples** include self-stretch, yoga, Pilates, and chair stretching routines. **In this box,** write down the type of stretch you participated in.
5. **Lifestyle activity** occurs during normal, everyday activity such as vacuuming, walking the dog, mowing the lawn, participating in a walking meeting at work, or dancing.
6. **Recommended Amounts of Physical Activity**
   - **Aerobic:**
     - Weight Loss: 300 minutes (5 hours) per week. Start with what you can do and build to 300 minutes over time.
     - Health/Weight Maintenance: 150 minutes (21⁄2 hours) per week, in periods of at least 10 minutes.
   - **Strength:** Do strength training 2–3 times/week. Each exercise should be repeated, completing 8–12 repetitions.
   - **Flexibility/Stretching:** Be sure to stretch after each workout, whether it's aerobic or strength.
   - **Lifestyle Activity:** Get as much as you can.



7. **At the end of the day,** circle whether you met your goal for the day:
   - If you met your goal, circle *"I did it!"*
   - If you almost met your goal, circle *"Almost."*
   - If you didn't achieve your goal, circle *"Try again."*
8. **At the end of each day,** total your aerobic activity (in minutes). **At the end of each week,** add your daily aerobic totals together to determine your weekly aerobic time.

Daily Food and Physical Activity Diary

Name: John H. Hero Date: April 1 **Daily Calorie Goal:** 2000 (see instructions or Standard Handout S01 for guida

Weekly Food Goal: I will drink water or diet colas instead of regular sodas this week. NOTE: Include everything you eat and drink in your d

Day/Weight	Sunday/ 267	Monday/ 266.5	Tuesday/ 266.5	Wednesday/ 266	Thursday/ 266.3	Friday/ 266.2	Saturday/ 26
Breakfast (6 am – 10am) M = Mindful PC = Portion Control H = Healthy **Hunger/Fullness Scale** X = Pre-meal O = Post-meal	8 oz orange juice 1 cup raisin bran 1/2 cup 2% milk 1 tsp sugar sub. 2 slices wheat toast 1 cup coffee M (PC) H 1 2 X 4 5 6 (7) 8 9 10 Mood: excited	1 cup oatmeal 1/2 cup 2% milk 1 tsp sugar sub. 1 English muffin 2 tbsp no sugar jam 1 cup coffee (M) (PC) (H) 1 2 3 4 5 6 7 8 9 10 Mood: content	1 hard-boiled egg 3 oz ham 2 slice toast 1 tsp no sugar jam 8 oz tomato juice M (PC) H 1 2 X 4 5 (6) 7 8 9 10 Mood: neutral	2 biscuits and 1/2 cup gravy 2 scrambled eggs 1 cup Cantaloupe 8 oz orange juice M PC H 1 X 3 4 5 6 7 (8) 9 10 Mood: sad	1 cup oatmeal 1/2 cup 1% milk 1 cup coffee 1 orange (M) (PC) (H) 1 2 X 4 5 6 7 8 9 10 Mood: okay	3 pieces French Toast 3 Tbsp lite maple syrup 1 Tbsp margarine 1 cup 1% milk (M) PC H 1 X 3 4 5 (6) 7 8 9 10 Mood: relaxed	1 1/2 cups raisin b 1 plum 1 cup coffee 1/2 cup 1% milk (M) (PC) (1 2 X 4 5 6 7 8 Mood: happy
Lunch (11 am – 2pm)	Large salad (4 oz grilled chicken) 2 tbsp ranch 1 cup green beans 1/2 banana water w/lemon (M) (PC) H 1 2 X 4 5 (6) 7 8 9 10 Mood: happy	Large garden salad 4 oz tuna in water 2 tbsp low-fat blue cheese 1 small dinner roll no butter M (PC) H 1 2 3 X 5 6 (7) 8 9 10 Mood: anxious	2 large slices mushroom & onion thin crust pizza side salad 2 tbsp Italian dressing M PC H X 2 3 4 5 (6) 7 8 9 10 Mood: worried	1 protein shake 1 pear 8 oz water M PC H 1 X 3 4 5 6 (7) 8 9 10 Mood: bored	Grilled Chicken on wheat bun 1 small order fries 1 small diet coke (M) (PC) (H) 1 X 3 4 5 6 (7) 8 9 10 Mood: happy	Tuna Salad Sub 1 bag of chips 1 pickle 1 diet coke 1 small cookie M (PC) H 1 2 X 4 5 6 7 (8) 9 10 Mood: neutral	Vegetable Salad 1 cup Greek yogurt 2 tbsp Oil and vinegar dressing 8 oz water (M) (PC) (1 2 X 4 5 6 7 8 Mood: happy
Dinner (5 pm – 8pm)	Turkey and provolone cheese sandwich on wheat 1 tbsp mustard 1 bag chips 1 diet coke (M) (PC) (H) 1 X 3 4 5 (6) 7 8 9 10 Mood: happy	8 oz spaghetti 4 small meatballs side salad diet jello 8 oz water M (PC) (H) 1 X 3 4 5 (6) 7 8 9 10 Mood: anxious	6 oz baked chicken without skin 2 tbsp bbq sauce 1/2 cup steamed rice + margarine 1 cup broccoli 8 oz water M (PC) H 1 X 3 4 5 6 (7) 8 9 10 Mood: angry	6 oz salmon 1 cup spinach 1/2 baked potato with 1 tbsp low-fat sour cream and 1 tbsp margarine 8 oz water M PC H 1 X 3 4 5 6 7 (8) 9 10 Mood: sad	6 oz grilled sirloin steak 1 cup sautéed mushrooms 3/4 cup scalloped potatoes (M) (PC) (H) X 2 3 4 5 6 7 (8) 9 10 Mood: happy	2 chicken soft tacos 1/2 cup black beans 20 chips with salsa 1/2 cup yellow rice 1 skinny margarita M PC H 1 X 3 4 5 6 7 8 (9) 10 Mood: happy	1 1/2 cup cheese r side salad 1 piece garlic bread 8 oz water M PC 1 X 3 4 5 (6) 7 8 Mood: content
Snacks & Beverages (between meals) Remember, all snacks should be healthy, mindful and portion controlled; include alcoholic beverages	90-calorie granola bar 2 cups popcorn 1 medium apple	Orange 120-calorie granola bar 1 medium chocolate muffin	Celery Carrots 2 tbsp peanut butter 150- calorie frozen yogurt cone		2 string cheese 15 almonds		Celery and carrots 2 tbsp peanut butt
Total Calories	1422	1938	2399	2175	1718	2720	1625
Goal Met?	(I did it) Almost Try Again	(I did it) Almost Try Again	I did it (Almost) Try Again	I did it (Almost) Try Again	(I did it) Almost Try Again	I did it Almost (Try Again)	(I did it) Almost Try

Daily Food and Physical Activity Diary

Name: _____ Date: _____ **Daily Calorie Goal:** _____ (see instructions or Standard Handout S01 for guidance)

Weekly Food Goal: _____ NOTE: Include everything you eat and drink in your diary.

Day/Weight	Sunday/	Monday/	Tuesday/	Wednesday/	Thursday/	Friday/	Saturday/
Breakfast (6 am – 10am) M = Mindful PC = Portion Control H = Healthy **Hunger/Fullness Scale** X = Pre-meal **O** = Post-meal	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:
Lunch (11 am – 2pm)	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:
Dinner (5 pm – 8pm)	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:	M PC H 1 2 3 4 5 6 7 8 9 10 Mood:
Snacks & Beverages (between meals) Remember, all snacks should be healthy, mindful and portion controlled; include alcoholic beverages							
Total Calories							
Goal Met?	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*

Physical Activity Weekly Goal:

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Aerobic (Type, Time/ Steps/Wheelchair Revolutions)	Pedometer:	Pedometer:	Pedometer:	Pedometer:	Pedometer:	Pedometer:	Pedometer:
Strength	Type:	Type:	Type:	Type:	Type:	Type:	Type:
	Repetitions:	Repetitions:	Repetitions:	Repetitions:	Repetitions:	Repetitions:	Repetitions:
	Sets:	Sets:	Sets:	Sets:	Sets:	Sets:	Sets:
Flexibility (Type)							
Lifestyle Activity (Type/Time)							
Goal Met?	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Again*	*I did it Almost Try Ag*
Total Weekly Aerobic Time (# minutes)							

Appendix E

MOVE!® Weight Management Program for Veterans

FITT – Frequency, Intensity, Time, and Type of Activity

When you put a lot of effort into increasing physical activity, you want results! Whether you are a beginner or have experience, FITT will help you build your physical activity program. By following FITT, you are striving to manage your weight and improve your health.

FREQUENCY

How often are you active?

Everyone:

- Be active 5 or more days of the week.
- Start slowly and gradually increase your physical activity.

Beginners:

- Start with 2–3 days of aerobic activity (activity that increases your heart rate). Gradually increase to at least 5 days/week.

Experienced:

- Continue with aerobic activity 5+ days/week.
- Add in 2 days (Tuesday, Thursday) of strength training.

INTENSITY

How hard are your heart and muscles working?

Everyone (including Beginners):

- Always warm-up, cool-down, and stretch.
- Be active at a moderate intensity (like a brisk walk or gardening).
- Be active at a rate that allows you to talk.
- Slow down if you have trouble breathing or if you can't catch your breath.
- You should stretch after aerobic or strength training. A stretch should never be painful. Some discomfort is normal. You want to feel a slight pull of the muscle.

Experienced:

- Build intensity for aerobic exercise by increasing speed (fast/sprint walk for 30 seconds followed by 1 minute brisk walk) and/or incline/resistance (hills on treadmill, greater workload on bike).
- Increase intensity for strength training by adding weight or only resting 30 seconds between sets.

MOVE!

FITT – Frequency, Intensity, Time, and Type of Activity

TIME

How long are you active?

Everyone:

- Try to stay active for at least 10 minutes without stopping. Remember, some activity is better than no activity. It is okay to build up to 10 minutes.
- Aim for a total of at least 30 minutes of activity throughout the day. For weight loss, increase this to 60 minutes per day.
- Set a goal for the week based on total minutes of physical activity.
- Increase the length of time you are active before increasing the intensity of the activity.
- There are no time goals for strength training.
- You should stretch after aerobic or strength activity. For muscles that were used, hold each stretch for 15–30 seconds. Repeating stretches will increase flexibility.

TYPE

What are you doing?

Everyone:

- All types of physical activity are important...so mix it up.
- Aerobic–walking, bicycling, dancing, swimming, mowing the lawn.
- Strength–carrying wood, lifting dumbbells.
- Flexibility–seated stretches, yoga.

DEFINITIONS

Aerobic activity is when the body's large muscles move together and your heart beats faster than usual. This type of activity burns the most calories and promotes weight loss. Examples include aerobics, swimming, running, walking, kickboxing, dancing, and cycling.

Strengthening activity is when the body's muscles work against a force or weight. Examples include elastic bands, weights, or body weight.

Flexibility lengthens a muscle while increasing range of motion. Examples include self-stretch, yoga, Pilates, and chair stretching routines.

Lifestyle activity occurs during normal, everyday activity such as vacuuming, walking the dog, mowing the lawn, participating in a walking meeting at work, or dancing.

Appendix F

P20

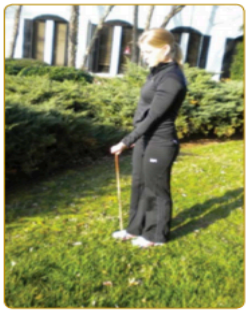
MOVE!®

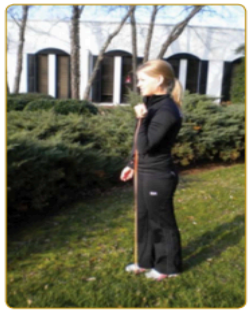
Resistance Tubes and Bands

Resistance tubes and bands are great tools to use for strength training. They can be used at home, work, or when travelling. Here are some examples of exercises you can perform on your own. When performing any exercise, remember knees should be slightly bent, abdominals should be tightened, and breathe.

Bicep Curl

- Place the resistance band under your foot and grasp the handle with your right hand.
- Stand tall with the abdominal muscles tight. Keep your elbow tucked to the side of your waist.
- Curl the hand up towards the shoulder and slowly release back down to the start position.
- Repeat this 8–12 times. Perform on the other side.





Latissimus (Lat) Pull-down

- Stand with feet hip-width apart or sit tall in a chair with your abdominal muscles tightened.
- Begin with arms straight up overhead, holding the band toward the middle to increase tension.
- Contract the back muscles and pull the band out while bringing the elbows towards the rib cage.
- Always keep band above or in front of head. Repeat 8–12 times.

Leg Press

- Place one loop under the right foot.
- Either standing or sitting, start with the knee at a 90-degree angle.
- Keeping tension on the band with hands, extend the knee into a straight position, pushing out with the quadriceps muscle.
- Standing during this exercise challenges balance. If this is too challenging, lie on your back with your knee and foot in the air.
- Repeat 8–12 times. Perform on the left leg.

Hamstring Curl

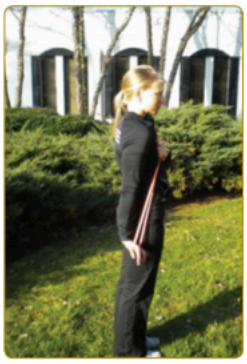
- You may wish to hold onto a wall or chair for this exercise.
- Loop one handle around standing left ankle.
- Loop other handle under the right foot.
- With knees touching, focus on bringing the heel of the right foot to the gluteus muscle (bottom). This should be felt in the back part of the upper leg.
- Repeat 8–12 times. Perform the exercise on the left side.

Back Row

- Seated on the floor or in a chair, place the center of the band under both feet.
- Handles go on the either side of the legs.
- Grabbing handles, "row" elbows behind the body.
- Keep shoulders relaxed and envision squeezing shoulder blades together.
- Repeat 8–12 times.

Tricep Extension

- Hold one side of the band close to chest, while other hand grips handle with palm facing downward.
- Place right arm at a 90-degree angle, with elbow close to abdomen.
- Extend elbow down and towards the hip.
- Slowly bend the elbow back to 90 degrees and repeat 8–12 times.
- Perform the exercise on the left side.

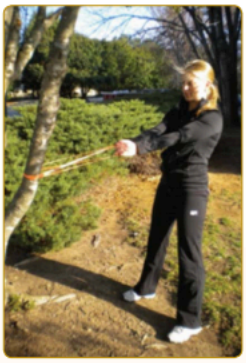
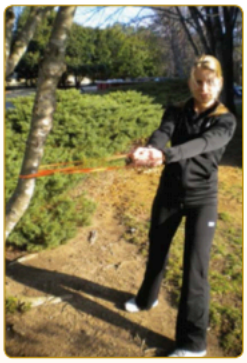



Side Steps for Abductors

- Step into the resistance tube so that both feet are inside loops. Make sure you are wearing socks or something around your ankles.
- Start with the ankles touching; take 2 large side steps to the right, and then 2 large steps back to the left. This is also going to challenge balance.
- Repeat 8–12 times.


Abdominal Twists

- Wrap the tube around a fixed object (tree, post, door handle, etc).
- Standing hip distance apart and both hands grasping the tube, tighten the abdominal muscles and twist to the right.
- Return back to center with abdominals still tightened, and twist to the left.
- It's important to use the core muscles only. You will feel this in your lower back if you are not tightening abdominal muscles.
- Repeat 8–12 times.

For any questions or for more ideas, ask your MOVE!® team.

Appendix G

P30

MOVE!®

Sample Stretches

Calf and hamstring stretch:

Stand near a wall or other structure and lean on it with your head on your hands as shown. Bend one leg and place your foot on the ground in front of you, with the other leg straight behind. Slowly move your hips forward, keeping your lower back flat. Keep the heel of the straight leg on the ground, with toes pointing straight ahead or slightly in. Hold the stretch for 15–60 seconds. Do not bounce. Repeat at least 4 times. Now, stretch the other leg.

Ankle and Achilles tendon stretch:

Place your left foot against a wall, with your ankle flexed and toes up as shown. Move your body forward until you feel a mild stretch in the Achilles tendon area (see arrow on picture). Hold for 15–60 seconds. Repeat at least 4 times. This also stretches the bottom of your foot and toes. Now, stretch the other foot.

Thigh stretch:

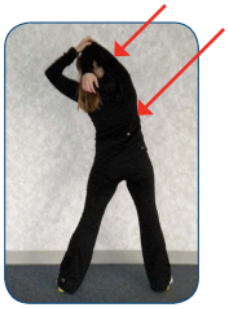
Start with your feet a little more than shoulder-width apart. Bend your right knee slightly and move your left hip downward toward the right knee. This stretches your left inner thigh. Hold for 15–60 seconds. Repeat at least 4 times. Now, stretch the other thigh.

Alternate thigh muscles stretch:
Standing close to a wall or a chair, place your right hand on the wall or chair. With the left hand, reach back and slowly pull your left foot up to touch your buttocks. Hold for 15–60 seconds. Relax back to your starting position. Repeat at least 4 times. Now, stretch the other leg.

Lower back, hips, groin, and hamstring stretch:
Start in a standing position with feet about shoulder-width apart and pointed straight ahead. Slowly bend forward from the hips. Keep your knees slightly bent. Let your neck and arms relax. Go to the point where you feel a slight stretch in the back of your legs. Hold this stretch for 15–60 seconds. Slowly come back to a standing position with knees bent. Keep your knees bent throughout the exercise. Repeat at least 4 times.

Shoulder and neck stretch:
Gently tilt your head to one side, as if you are trying to put your ear on your shoulder. Hold for 15–60 seconds, and then tilt your head to the other side. Then, relax your shoulders downwards. Repeat at least 4 times.

Arm and side stretch:
From a standing position, bend your knees slightly. Gently pull your elbow behind your head as you bend from your hips to the side. Hold a mild stretch for 15–60 seconds. Repeat at least 4 times. Now, stretch the other side.



INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the **last 7 days**. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the **vigorous** activities that you did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

   _____ **days per week**

   ☐ No vigorous physical activities → ***Skip to question 3***

2. How much time did you usually spend doing **vigorous** physical activities on one of those days?

   _____ **hours per day**

   _____ **minutes per day**

   ☐ Don't know/Not sure

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

   _____ **days per week**

   ☐ No moderate physical activities → ***Skip to question 5***

4. How much time did you usually spend doing **moderate** physical activities on one of those days?

_____ **hours per day**

_____ **minutes per day**

☐ Don't know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

_____ **days per week**

☐ No walking → ***Skip to question 7***

6. How much time did you usually spend **walking** on one of those days?

_____ **hours per day**

_____ **minutes per day**

☐ Don't know/Not sure

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

_____ **hours per day**

_____ **minutes per day**

☐ Don't know/Not sure

This is the end of the questionnaire, thank you for participating.

SHORT LAST 7 DAYS SELF-ADMINISTERED version of the IPAQ. Revised August 2002.