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UNIVERSITY OF NORTHERN COLORADO
Greeley, Colorado
The Graduate School

MOTIVATIONAL INTERVIEWING FOR
WEIGHT LOSS IN PRIMARY CARE

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

Hannah Brumbaugh

College of Natural and Health Sciences
School of Nursing
Nursing Practice

December 2019

This Scholarly Project by: Hannah Brumbaugh

Entitled: *Motivational Interviewing for Weight Loss in Primary Care*

has been approved as meeting the requirements for the Degree of Doctor of Nursing Practice in College of Natural and Health Sciences in the School of Nursing, Program of Nursing Practice

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ABSTRACT

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Obesity is prevalent in this country and leads to many preventable deaths and chronic illnesses, including heart disease, diabetes, and various types of cancers. “Obesity is prevalent in the western world and leads to reduced life expectancy due to increased risk of chronic illness such cardiovascular disease” (Hardcastle, Taylor, Bailey, Harley, & Hagger, 2013, p. 2) It also has been established in the literature that even a small amount of weight loss, as little as 5% of a patient’s total body weight, has statistically meaningful risk reductions, especially those that relate to cardiovascular health. Behavioral interventions such as motivational interviewing that specifically targets obesity through changes in diet and exercise have been shown to be an affective intervention for providers to use for weight loss discussions (Hardcastle et al., 2013).

This Doctor of Nursing Practice scholarly project sought to address the way primary care providers discuss weight loss interventions with 25 patients that was patient centered. This was accomplished with the creation use of a template based on motivational interviewing and the health belief model. The template was created to increase patient and provider self-confidence with weight loss discussion that had the potential to lead to a 5% to 10% weight loss in patients. The preliminary results were

promising and seem to align with current research about motivational interviewing in primary care. Further research is needed to validate the template to determine if the positive preliminary results of the project could be reproduced with statistically significant data.

Keywords: weight loss, primary care, weight loss barriers, motivational interviewing, health belief model, obesity risk factors

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CHAPTER I

INTRODUCTION

Central Theme/Background

Obesity in the United States has been and continues to be a substantial health problem that costs the health care system billions of dollars. The Centers for Disease Control and Prevention (CDC) stated that the prevalence of obesity was 39.8% and affected about 93.3 million of United States adults through the years of 2015 to 2016. The CDC also stated that obesity-related conditions such as heart disease, stroke, type 2 diabetes, and certain types of cancer are some of the leading causes of preventable and premature deaths (CDC, 2019). The CDC also estimated that the annual medical cost of obesity in the United States was \$147 billion in 2008, and the medical cost for people who were obese was \$1,429 higher than those with normal weight (CDC, 2019).

People who have a body mass index (BMI) of greater than 30 are classified as obese. Obesity is then divided into three classes: class one consists of a BMI of 30 to < 35, class two consists of a BMI of 35 < 40, and class three is a BMI of 40 or higher (CDC, 2019). According to the CDC all classes are at increased risk for:

- All-causes of death (mortality).
- High blood pressure (hypertension).
- High low-density lipoprotein cholesterol, low high-density lipoprotein cholesterol, or high levels of triglycerides.
- Type 2 diabetes.

- Coronary heart disease.
- Stroke.
- Gallbladder disease.
- Osteoarthritis.
- Sleep apnea and breathing problems.
- Some cancers (endometrial, breast, colon, kidney, gallbladder, and liver).
- Low quality of life.
- Mental illness such as clinical depression, anxiety, and other mental disorders.
- Body pain and difficulty with physical functioning (CDC, 2019).

A weight loss of 5% has been shown to improve the overall health of people in the obese category. According to the CDC whatever the weight loss goal is, even a modest weight loss, such as 5% to 10% of total body weight, is likely to produce health benefits. These benefits include improvements in blood pressure, blood cholesterol, and blood sugars (CDC, 2019). A study conducted by Wing et al. (2011) also showed “the magnitude of weight loss at one year was strongly ($p < 0.0001$) associated with improvements in glycemia, blood pressure, triglycerides, and HDL [high-density lipoprotein] cholesterol” (p. 1481). The U.S. Preventative Services Task Force (USPSTF) (2018) stated that some of the most effective interventions for weight loss include intensive behavioral interventions that combine dietary changes and increased physical activity to achieve a weight loss of 5% or greater of total body weight. The U.S. Food and Drug Administration also consider a weight loss of 5% of total body weight as clinically significant (USPSTF, 2018).

Providers, especially primary care providers, have a professional obligation to discuss healthy weight and weight loss interventions with their patients. The USPSTF has weight loss discussions and interventions as a grade B recommendation. The USPSTF (2018) recommended that clinicians offer or refer adults with a BMI of 30 or higher to an intensive, multicomponent behavioral intervention. The USPSTF reviewed the evidence for weight loss interventions that could be performed within the primary care setting and found that multicomponent behavioral interventions in adults with obesity can lead to significant improvements in weight that will also reduce the incidence of type 2 diabetes and elevated glucose levels. They also determined that the harms of intensive, multicomponent behavioral interventions (including weight loss maintenance interventions) in adults with obesity are small to none (USPSTF, 2018).

However, there seems to be a disconnect between the recommendation and clinical practice.

According to clinical service data from the Health Resources and Services Administration (HRSA), in 2014, 56.1 % of adult community health center (CHC) patients received weight screening and follow-up, and according to surveys with overweight and obese CHC patients, 45.2% reported that a physician had told them that they were overweight. (Woodruff, Schauer, Addison, Gehlot, & Kegler, 2016, p. 2)

Many studies have shown an inadequate amount of weight management interventions and discussions occurring in the primary care setting. Ruelaz et al. (2007) suggested this is due to “providers’ perceived futility based on how they view their patients’ ability to lose weight as well as environmental factors beyond their control” (p. 521).

Statement of the Identified Problem

Although there are recommendations and data available for weight loss interventions in the primary care setting, there continues to be a theory to practice gap when it comes to weight loss discussions in primary care. Barriers identified by providers include lack of time, competing clinical priorities other than obesity, insufficient reimbursement, lack of community-based resources, lack of effective tools to provide patients, and obesity bias (Khandalavala, Rojanala, Geske, Koran-Scholl, & Guck, 2014; Woodruff et al., 2016). Other barriers for implementing weight loss interventions include frustration with relapse rates and lack of interest in behavior change (Timmerman, Reifsnider, & Allan, 2000). Providers also have the perception that there are factors outside their control such as a patient's lack of self-control, availability of fattening food in society, and finding time for physical exercise (Ruelaz et al., 2007). Ruelaz et al. (2007) also noted that patients may not ask their providers for help with weight loss, and it is crucial that providers initiate the conversation.

Patients often struggle in health-related behavior changes such as improving diet, increasing physical activity, losing weight, or doing whatever is necessary for optimal management of a condition or to prevent ill health (Barley & Lawson, 2016). "Systematic reviews report that on average non-adherence to medication regimens or other recommended health behavior changes ranges from 25% to 50%" (Barley & Lawson, 2016, p. 924).

Barriers for weight loss interventions from a patient's perspective emerged from one particular study and determined intervention effectiveness based on the affordability, anticipated effectiveness, scientific evidence base, and anticipated pleasantness of the

intervention (McVay et al., 2018). This study indicated that effective interventions for weight loss for patients needs to focus on the individual and what motivates them to change their behavior. Another study demonstrated that “40% of patients and providers believed that some people cannot lose weight no matter how little they eat” (Ruelaz et al., 2007, p. 521). Patients also seem to believe that there are some medical conditions that make people gain weight or not be able to lose weight; however, research has shown that medical conditions causing obesity are rare and/or only account for a small amount of weight gain in obese patients (Ruelaz et al., 2007). Providers need to have patient-centered motivational conversations with their patients, especially patients in the obese category (BMI > 30) about weight loss and its benefits.

Purpose of the Project

This project sought to create a motivational interviewing (MI) template for two primary care providers, a nurse practitioner, and a physician’s assistant at an internal medicine clinic in the Denver area to use during their annual physicals with their patients presenting with a BMI of 30 or greater. The template provides the health care providers opportunities for open conversations with their patients about healthy behavioral choices. More importantly, it leads to increased comfort levels and feelings of confidence for the provider to have a patient-centered weight loss conversation. The goal is also for the patient to leave the appointment with a self-created, concrete, action plan and an understanding of the perceived benefits and barriers of their weight loss goals and choice of weight loss intervention.

The template sought to promote behavior change and weight loss in patients that is efficient and effective for the provider, but also supports patient preferences and allows

for collaborative conversations about goal setting. The template is grounded in the health belief model (HBM) with emphasis on perceived benefits, barriers, and cues to action.

Need for the Project

The need for this project has already been established. Obesity in the United States has been and continues to be a considerable health problem that continues to cost the health care system billions of dollars (CDC, 2019). Not only is the cost of obesity high, the associated risk factors associated with obesity are very severe. Patients who have a BMI greater than 30 have an increased risk for hypertension, cardiovascular disease, kidney disease, stroke, and various cancers (Cohen, 2017).

Primary care providers are in key positions to discuss weight loss with their patients, but they are falling short due to many preventable barriers from both the patient and the provider. Providers feel they do not have the time or have other clinical priorities than obesity to discuss with their patients. They also feel that there is insufficient reimbursement, lack of community-based resources, and effective tools to provide patients (Woodruff et al., 2016). Many providers, although they do not want to admit it, also have some form of obesity bias, which is the feeling that patients are overweight because they are lazy and do not want to work out and be healthy (Khandalavala et al., 2014). Patients identify barriers in that they want weight loss interventions that are affordable, effective, science based, and pleasant (McVay et al., 2018).

The MI has the potential to be an effective method for behavior change that is patient-centered and empowers patients to take charge of their health. It has been shown to be effective in primary care with weight loss interventions. The MI, however, is not the standard of care, and many providers are not aware of its usefulness or feel they do not

have time for MI. There have been numerous studies conducted that show that MI produces results in areas that require a behavior change, such as weight loss, and that even a brief session with MI, by a minimally trained provider, can be effective (Hardcastle et al., 2013; Lindson-Hawley, Thompson, & Begh, 2015; Low, Giasson, Connors, Freeman, & Weiss, 2013; Rubak, Sandbæk, Lauritzen, & Christensen, 2005; VanBuskirk & Wetherell, 2014).

By creating a template for weight loss discussion, this project would integrate MI into the primary care setting in a practical way to help improve patients' and providers' feelings of self-confidence for implementation and discussion of weight loss interventions.

Patient/Problem, Intervention, Comparison, Outcome, and Time/Type Questions

For this project, two patient/problem, intervention, comparison, outcome, and time/type (PICO(T)) questions were established. The first looked at the patient's feeling of self-confidence after the provider uses a weight loss discussion template based on MI for weight loss interventions.

- Q1 In patients with a body mass index greater than 30 (P), how does using a template based on motivational interviewing about weight loss (I) compare to usual care/discussion on weight loss (C), effect a patient's feeling of self-confidence in their weight loss intervention (O), after their appointment with their provider?

The second question looked at the provider's feeling of self-confidence on having weight loss discussions with their patients after using a weight loss discussion template based on MI for weight loss interventions. Included in the assessment of the provider was also an assessment of the sustainability of use of the MI template. The providers were asked if they felt confident that they would continue to use the template in the future.

- Q2 In patients with a body mass index greater than 30 (P), how does using a template based on motivational interviewing about weight loss (I) compare to usual care/discussion on weight loss (C), effect a provider's reported self-confidence for weight loss discussions with patients (O), after their appointment (T)?

Objectives of the Project

The objectives of this project sought to align with the defined criteria that must be fulfilled by the final Doctor of Nursing Practice (DNP) project based on the definition created and agreed upon by the American Association of Colleges of Nursing (AACN) and the National Organization of Nurse Practitioner Faculties (Waldrop, Caruso, Fuchs, & Hypes, 2014). The criteria created by Waldrop et al. (2014) stated that the final DNP project should enhance health outcomes, practice outcomes, or health care policies and should be patient-centered. It should reflect on a culmination of practice inquiry engaging in partnerships with other disciplines. The project should also implement, apply, and translate evidence into practice, with a requirement of an evaluation of health care, practice, or policy outcomes (Waldrop et al., 2014).

Objective 1

This project attempted to enhance health outcomes with patient-centered weight loss interventions. This is a grade B recommendation from the USPSTF and yet there is still inconsistency in practice. By creating a template for providers to use with patients with a BMI of 30 or greater, this project provides a more efficient model than what is currently being used to discuss weight with patients. This outcome was measured by using a pre- and post-assessment Likert scale for the providers to assess their reported self-confidence in their discussions with their patients as well as if they were most likely to continue to use the template.

Objective 2

By completing research and attempting to implement evidence-based theory into practice with the use of MI and the creation of a template grounded in the HBM for weight loss interventions in primary care, this project reflects a culmination of practice inquiry that enacts change that is pragmatic and practical. It implemented, applied, and translated evidence into practice over a one-month period. Although the sample was small, the project aimed to be reproducible and sustainable with hopes that it could be implemented on a larger scale. It sought to align with the CDC and the USPSTF recommendations of weight loss interventions in primary care. The outcomes of this objective were assessed with pre-and post-assessment surveys. The surveys provided to the providers, as well as the patients, to assess the patients' and providers' self-confidence as well as the providers' feelings about using the MI template.

Objective 3

This project required engagement in partnerships. Partnerships were formed with the nurse practitioner and physician assistant at the internal medicine clinic that helped conduct the interventions. Partnerships were also formed with the committee members of this project, the clinic director of the clinic in which the project took place, and most importantly with the patients as they were the consumers of health care and the reason we seek improvements in care.

Definition of Terms

Body mass index. This is a measure of body fat based on height and weight that applies to adult men and women.

Centers for Disease Control and Prevention. This is the nation's health protection agency that protects people from health, safety, and security threats. It also serves as a resource for best practice clinical guidelines.

Community health centers. A not-for-profit, consumer directed health care organization that provides access to high quality, affordable, and comprehensive primary and preventive medical, dental, and mental health care (Community health center, 2019).

Cues to action. Part of the HBM.

This is the stimulus needed to trigger the decision-making process to accept a recommended health action. These cues can be internal (e.g., chest pains, wheezing, etc.) or external (e.g., advice from others, illness of family member, newspaper article, etc.). (Boston University, School of Public Health, 2018, para. 3)

Health belief model.

Derives from psychological and behavioral theory with the foundation that the two components of health-related behavior are 1) the desire to avoid illness, or conversely get well if already ill; and, 2) the belief that a specific health action will prevent, or cure, illness. (Boston University, School of Public Health, 2018, para. 3)

Obesity bias. Implicit and explicit stereotypes that fat people are lazy, stupid, and worthless (Khandalavala et al., 2014).

Motivational interviewing.

Motivational interviewing is a collaborative, goal-oriented style of communication with particular attention to the language of change. It is designed to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person's own reasons for change within an atmosphere of acceptance and compassion. (Miller & Rollnick, 2013, p. 663)

Perceived barriers. Part of the HBM.

This refers to a person's feelings on the obstacles to performing a recommended health action. There is wide variation in a person's feelings of barriers, or

impediments, which lead to a cost/benefit analysis. The person weighs the effectiveness of the actions against the perceptions that it may be expensive, dangerous (e.g., side effects), unpleasant (e.g., painful), time-consuming, or inconvenient. (Boston University, School of Public Health, 2018, para. 3)

Perceived benefits. Part of the HBM.

This refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease). The course of action a person takes in preventing (or curing) illness or disease relies on consideration and evaluation of both perceived susceptibility and perceived benefit, such that the person would accept the recommended health action if it was perceived as beneficial. (Boston University, School of Public Health, 2018, para. 3)

Perceived severity. Part of the HBM.

This refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). There is wide variation in a person's feelings of severity, and often a person considers the medical consequences (e.g., death, disability) and social consequences (e.g., family life, social relationships) when evaluating the severity. (Boston University, School of Public Health, 2018, para. 3)

Perceived susceptibility. Part of the HBM, and "refers to a person's subjective perception of the risk of acquiring an illness or disease. There is wide variation in a person's feelings of personal vulnerability to an illness or disease" (Boston University, School of Public Health, 2018, para. 3).

U.S. Food and Drug Administration. A federal agency of the United States Department of Health and Human Services, one of the United States federal executive departments.

U.S. Health Resources & Services Administration. An agency of the U.S. Department of Health and Human Services and is the primary federal agency for improving health care to people who are geographically isolated, economically or medically vulnerable (U.S. Health Resources & Services Administration, 2018).

U.S. Preventative Services Task Force. An independent, volunteer panel of national experts in disease prevention and evidence-based medicine. The Task Force works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services. (USPSTF, 2018)

Conclusion

Obesity in the United States is and will continue to be a major health concern if no preventative action is taken. This DNP scholarly project sought to use evidence-based practice and theory to improve current practice for weight loss discussions and interventions in a specific primary care clinic with the use of MI. Despite strong evidence supporting the efficacy of MI, the efforts to implement it into health care systems, motivating busy providers to change the way they speak to patients about weight loss, is challenging. As stated, most providers feel they do not have the time or the tools to have motivational conversations with their patients. However, behavioral change conversations such as weight loss are crucial for a patient's overall health and wellbeing.

Chapter II will delve into the literature and will explore the risk factors associated with obesity and the barriers of weight loss discussions in primary care that have been identified by the providers and the patients. It will determine the past and current literature related to MI in primary care, especially with weight loss discussions and interventions. Finally, the HBM will be reviewed and identified as the theoretical framework of this DNP scholarly project.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

A thorough literature review was conducted to assess the historical background of weight loss counseling, the development of motivational interviewing (MI), and the health belief model (HBM). The literature was evaluated for specific risk factors associated with obesity and whether using MI as an intervention for weight loss is effective. PubMed, Cochrane Database of Systematic Reviews, Cumulative Index to Nursing and Allied Health Literature Plus, PsycNET, and Google Scholar were used as search engines for this project. Key words included weight loss, primary care, weight loss barriers, motivational interviewing, health belief model, and obesity risk factors. There were 204 articles reviewed for this literature review, and of the 204 articles reviewed 26 were selected. Articles were excluded if they did not mention the use of MI or the HBM in primary care and or went into too much detail and specificity about the pathophysiology of the risk factors of obesity, as the review was meant to be a generalized overview of the risks of obesity. The articles pulled were mostly within a 10-year time frame; however, there were a few articles used that were greater than 10 years but were deemed relevant in the review as they were very informative and provided important background information and a reference point for the use of MI in primary care.

This chapter will first discuss the historical background of weight loss counseling and the development of MI and the HBM. It will then discuss the risks associated with obesity and the barriers providers and patients feel towards weight loss discussions in primary care. There will also be a review of the use of MI as an intervention for weight loss discussions in primary care. Finally, the HBM will be discussed and established as the theoretical framework for this Doctor of Nursing Practice (DNP) scholarly project.

Historical Background

Weight loss counseling has been the traditional approach for discussing obesity and weight loss in the clinical setting for years. This usually involves the provider stating what the patient's weight/body mass index (BMI) is and that they suggest the patient try to exercise more and eat healthier. Generally, primary care providers do not feel they have the appropriate tools and resources to address weight loss with their patients, and there are multiple barriers that prevent providers from having meaningful conversations that provoke change.

However, having a conversation about weight loss is crucial and is now recommended by multiple government agencies including the Centers for Disease Control and Prevention (CDC), and the U.S. Preventative Services Task Force (USPSTF). Reimbursement has now been tied to weight loss discussions, interventions, and follow-up.

Weight counseling is the traditional approach for addressing obesity in clinical settings. The USPSTF recommends that clinicians screen all patients for obesity and offer intensive counseling, which has been shown to result in modest weight loss over time. Additionally, HRSA [Health Resources and Services Administration] now requires that CHCs [community health centers] report the proportion of patients with an elevated BMI [body mass index] who have a documented follow-up plan as a clinical and financial performance measure,

indicating an increased emphasis on diagnosing obesity and providing appropriate follow-up care in this setting. (Woodruff et al., 2016, p. 2)

Obesity in this country continues to rise despite the recommendations, reimbursements, and providers' best efforts to fight. Primary care providers are faced with how to provide the best care for their obese patients and challenged to create an environment that is patient centered and motivating.

Obesity has reached epidemic proportions in the United States. Long-standing and well-established surveys, such as the Behavioral Risk Factor Surveillance System, the National Health Interview Survey, and the National Health and Nutrition Examination Survey, have documented the dramatic increases in the prevalence of both overweight and obesity from as early as the 1960s. (Bhupathiraju & Hu, 2016, p. 1724)

Motivational Interviewing

The MI, a well-documented form of counseling, has been present since its creation in the 1980s, but has started to surface as a strategy in research studies with a promising future in primary care. The MI may be a tool primary care providers can use to have positive patient-centered, collaborative, and effective conversations about weight loss interventions as well as a host of other behavioral change topics.

The MI was first introduced by Miller in an article written in the journal, *Behavioral Psychotherapy*, in 1983. Miller and Rollnick (2013) then went on to write the first edition of *Motivational Interviewing*. Miller's research focused on the treatment and prevention of addictions, with broader implications for the psychology of change (Miller & Rollnick, 2013).

Miller worked as a clinical psychologist in mental health and in primary health care for many years and began to use MI to improve challenging consultations in health and social care (Miller & Rollnick, 2013). Rollnick's research and "guidelines for good

practice have been widely published, and his work on implementation continues, with a focus on children with HIV/AIDS in Africa and on pregnant teens in deprived communities” (Miller & Rollnick, 2013, p. 47).

Miller and Rollnick have been teaching MI since 1980 and highlight the spirit of MI as the key catalyst to providers changing behaviors. They stated that without the spirit, MI “becomes a cynical trick, a way of trying to manipulate people into doing what they don’t want to do” (Miller & Rollnick, 2013, p. 396). This is not the point of interactions between providers and patients, and the goal is to help people see the need for change in themselves.

Miller and Rollnick (2013) described the four related elements of the spirit of MI as “partnership, acceptance, compassion, and evocation” (p. 401). Partnership is done for and with a person, it is an active collaboration, and the interviewer seeks to create a positive interpersonal atmosphere that is conducive to change (Miller & Rollnick, 2013). Acceptance is the second element of the spirit of MI and is associated with knowing each patient’s absolute worth, showing empathy, and providing autonomy and affirmation. The third element is compassion, and according to Miller and Rollnick compassion is to “actively promote the other’s welfare and to give priority to the other’s needs” (p. 494). Finally, the last element, evocation, is a different mindset and instead of approaching patients with the idea that they are lacking something, the approach is that people already have within them much of what is needed, and the provider’s task is to evoke it or discover it. The idea is to state that “You have what you need, and together we will find it” (Miller & Rollnick, 2013, p. 509).

From the spirit of MI, the four main components of MI are then created and include engaging, focusing, evoking, and planning. Engaging is the process by which both parties establish a helpful connection and a working relationship.

Engagement can occur within minutes or take much longer to establish and maintain. It is the degree to which someone feels like a comfortable and active participant in the consultation. It is the fuel that drives any good service and is the relational foundation for MI [motivational interviewing]. (Miller & Rollnick, 2013, p. 834)

Focusing is the process of deciding on how the conversation about change will be developed. “Focusing in MI includes the concept of agenda, which is more than a list of change goals. It includes a patient’s hopes, fears, expectations, and concerns. Miller and Rollnick (2013) also stated that focus can be initiated by the patient, the setting, and/or the provider.

Evoking is the third element of MI and involves eliciting the client’s own motivations for change. It is in the process of evoking that counseling becomes distinctly MI. Evoking involves the patient contemplating changes, which includes “self-talk and thinking about the pros and cons of available alternatives. This talk can happen aloud and interpersonally, and that is the context of MI [motivational interviewing]” (Miller & Rollnick, 2013, p. 3123).

Planning is the final step. Miller and Rollnick (2013) stated the most important part of the planning process in MI is “to move from discussing importance to developing a specific change plan that the person is willing to implement” (p. 5032). This is what leads to real change, healthy living, and weight loss.

The MI has demonstrated its effectiveness on many chronic conditions that have a behavioral component attached such as smoking and substance abuse. This scholarly

project and literature review is dedicated to focusing on obesity and weight loss interventions as obesity has shown to be a risk factor for many chronic diseases.

Health Belief Model

Along with MI interviewing, the HBM is an established theoretical framework used in various research studies since 1974 (Janz & Becker, 1984).

The HBM [health belief model] was developed in the early 1950s by a group of social psychologists at the U.S. Public Health Service in an attempt to understand the widespread failure of people to accept disease preventives or screening tests for the early detection of asymptomatic disease; it was later applied to patients' responses to symptoms, and to compliance with prescribed medical regimens. (Janz & Becker, 1984, p. 2)

A review of the model within various research studies was completed by Janz and Becker in 1984, 10 years after the model was introduced as a popular theoretical framework. They conducted a critical review of 29 HBM-related investigations published during the period 1974 to 1984. The results of the review were that perceived barriers and perceived benefits proved to be the most powerful of the HBM dimensions across the various study designs and behaviors (Janz & Becker, 1984). This finding of perceived barriers and benefits, being the most powerful dimensions for change, along with the four components of MI, was the basis of this DNP scholarly project. A template was created for providers to use that prompts discussion of weight loss interventions based on MI and framed by the HBM.

The following literature review will look at the available literature on associated risk factors of obesity, barriers that exist for providers when it comes to having weight loss discussions with their patients, and the research behind MI and whether it is an effective intervention for weight loss in obese patients. This review will also describe the HBM, which has been established as the theoretical framework of this scholarly project.

Synthesis of the Literature

Obesity Risk Factors

There have been numerous studies that have linked obesity to many preventable chronic diseases such as hypertension, coronary artery disease, diabetes, stroke, and different cancers including breast, endometrial, and colon. The pathophysiology behind many of the risk factors involves the development of chronic low-grade inflammation due to change of adipose tissue that leads to,

increased levels of circulating free-fatty acids, soluble pro-inflammatory factors (such as interleukin [IL] 1 β , IL-6, tumor necrosis factor [TNF] α , and monocyte chemoattractant protein [MCP] 1) and the activation and infiltration of immune cells into sites of inflammation. (Fruh, 2017, p. s5)

Hypertension related to obesity has been shown to be the root cause of many chronic diseases.

Epidemiological data unequivocally supports the link between body weight and BP [blood pressure]. Indeed, greater body weight is one of the major risk factors for high BP. Recent data indicates that the prevalence of hypertension among obese individuals, with a BMI ≥ 30 kg/m², is 42.5% compared with 27.8% for overweight individuals (BMI 25.0–29.0 kg/m²) and 15.3% for those with BMI < 25 kg/m². (Landsberg et al., 2013, p. 16)

One study conducted by Cohen (2017) showed that obesity and hypertension is highly associated with cardiac remodeling and increased risk for stroke.

The endothelial dysfunction caused by heightened sympathetic nervous system activity, renin-angiotensin aldosterone system activity, inflammatory cytokines, and oxidative stress in the setting of excess adipose tissue can contribute to left ventricular hypertrophy, ischemic heart disease, cardiac fibrosis, and cerebrovascular disease. (Cohen, 2017, pp. 3–4)

Other studies have shown multiple links to obesity and an increased risk for other cardiovascular diseases such as,

coronary artery disease, obesity-associated cardiomyopathy, essential hypertension, left ventricular hypertrophy, cor pulmonale, accelerated atherosclerosis, pulmonary hypertension of obesity, dyslipidemia, chronic heart failure, left ventricular hypertrophy, cardiomyopathy, pulmonary hypertension, and lymphedema. (Fruh, 2017, p. s6)

With increased obesity, especially abdominal obesity, on the rise studies have shown a direct correlation with increasing prevalence of impaired glucose intolerance and dyslipidemia.

In 1998, Dr. Reaven defined metabolic syndrome (MetS), also known as X syndrome. It is characterized by the clustering of abdominal obesity, impaired glucose tolerance, elevated triglyceride levels, reduced high-density lipoprotein (HDL) cholesterol levels, and hypertension, often accompanied by a proinflammatory status that predisposes to cardio-vascular disease (CVD). Persons with MetS are at increased risk of type 2 DM [diabetes mellitus] and CVD. (Riobó Serván, 2013, p. 139)

Studies suggest that the upregulation of the sympathetic nervous system, and renin-angiotensin aldosterone system activity associated with obesity, also causes an increase in glomerular pressure and hyperfiltration. As a result, obesity is associated with both the development of de novo renal disease as well as greater risk of the progression of chronic kidney disease (Cohen, 2017). Diabetes, a known complication of obesity, is also one of the main causes of blindness and end-stage renal disease, accounting for 40% to 50% of end-stage renal disease cases (Riobó Serván, 2013).

Other research has shown a direct relationship between BMI and diabetes. “The pathogenesis has been demonstrated to be a resistance to insulin action in peripheral tissues” (Riobó Serván, 2013, p. 139). Fruh (2017) also linked the development of type 2 diabetes to a chronic inflammatory state due to the increased level of free fatty acids from the increase of adipose tissue in the body. The study also associated obesity and cardiovascular risk factors as an established major contributing factor for insulin

resistance, which in itself is one of the key pathophysiologies of type 2 diabetes (Fruh, 2017).

Furthermore, central obesity defined by waist circumference is the essential component of the International Diabetes Federation (IDF) definition of the metabolic syndrome (raised triglycerides, reduced HDL [high-density lipoproteins] cholesterol, raised blood pressure, and raised fasting plasma glucose). (Fruh, 2017 p. s5)

Obesity has now also been linked to numerous types of cancer and has been estimated to be linked to 14% of cancer deaths in men and 20% in women (Kolb, Sutterwala, & Zhang, 2016).

The increase in obesity is associated with an increased risk for development of multiple malignancies, including colorectal cancer; esophageal adenocarcinoma; and cancer of the gastric cardia, gallbladder, pancreas, liver, kidney, postmenopausal breast, endometrium and thyroid, as well as non- Hodgkin lymphoma, multiple myeloma, and most likely ovarian cancer, high-grade prostate cancer, and the list continues to grow. (Berger, 2014, p. 1)

Studies suggest that the cause of increased cancer rates associated with obesity is most likely due to,

(1) increased levels and bioavailability of growth factors such as insulin and insulin-like growth factor (IGF-1), (2) increased sex steroid hormones such as estrogen and factors affecting their metabolism, (3) altered adipocytokine levels such as leptin, adiponectin, and visfatin, all originally thought to primarily affect energy balance, but now known to have growth, immune, and tumor-regulatory functions, (4) low-grade inflammation and oxidative stress affecting growth-promoting cytokines and immune modulation, and more recently, (5) altered microbiomes, especially those composing the intestinal flora. (Berger, 2014, p. 3)

Most of the mechanisms are not completely known, but studies suggest that obesity-associated inflammation, insulin resistance, increased infiltration of macrophages and immunosuppressive cells, and dysregulation of autophagy, are the main causes of different forms of cancer associated with obesity (Kolb et al., 2016).

The associated health risk of obesity has been well established, and yet the obesity and preventable chronic disease rates continue to increase in our country. Primary care providers are in a prime position to fight obesity by creating patient-centered goals based off change behavior models such as MI and the HBM.

Over one third of U.S. adults have obesity. Obesity is associated with a range of comorbidities, including diabetes, cardiovascular disease, obstructive sleep apnea, and cancer; however, modest weight loss in the 5%–10% range, and above, can significantly improve health-related outcomes. (Fruh, 2017, p. s3)

There are so many people who struggle to maintain weight loss. Strategies like realistic goalsetting, MI, and increased consultation frequency can greatly improve the success of weight-management programs (Fruh, 2017). Primary care providers have key roles in establishing weight-loss targets, providing motivation and support, and implementing weight-loss programs. They also must be aware of the barriers that are preventing meaningful weight loss discussions with their patients and seek to create a safe and fostering environment that promotes healthy change behaviors.

Barriers for Weight Loss Discussions in Primary Care

Many barriers have been identified that deter and prevent meaningful discussions about weight-loss interventions in primary care. Barriers on the provider side include lack of time, other medical priorities that take precedence over obesity, as well as perceived complex social, cultural, economic, and environmental determinants of obesity (Woodruff et al., 2016). Patients also stated that they do not feel discussions with their providers were beneficial, that providers blame them for their weight gain, and that the anticipated pleasantness of the intervention determines whether they will be successful (McVay et al., 2018; Ruelaz et al., 2007).

Woodruff et al. (2016) conducted a study on the perceived barriers of 30 primary care providers at a community health center in a rural area in the state of Georgia. Individual, interpersonal, and community barriers were identified. The providers thought that their patients would not be able to lose weight due to individual problems such as “poverty, limited economic resources, education, literacy and, lack of motivation to lose weight and to adhere to weight loss counseling recommendations” (Woodruff et al., 2016, p. 3). They also noted that interpersonal barriers existed such as “social norms regarding body size and those that arise from the high prevalence of obesity within patients’ communities” (Woodruff et al., 2016, p. 4). In the study conducted by Woodruff et al., community barriers of limited availability of healthy food options within patients’ communities and aspects of Southern food culture were also identified. While these are all potential barriers for weight loss, conducting a patient-centered interview that discusses a patient’s individual barriers and interventions to overcome those barriers would greatly increase a patient’s feeling of self-confidence and possibly lead to actual weight loss and health benefits.

This was evident in another study conducted that looked at barriers of weight loss interventions in primary care and why the interventions may or may not have been successful. The qualitative study conducted by McVay et al. (2018) sought to understand how adult patients with obesity had recently attempted weight loss either with assistance from an evidence-based behavioral intervention (intervention initiators) or without use of a formal intervention (intervention non-initiators). From this study, three themes emerged. One theme was barriers due to practical factors such as reasonable cost of the intervention and whether the intervention was conducive to a patient’s schedule. Another

theme discovered was how social aspects influenced effectiveness, such as support groups that could offer learning opportunities, as when group members share their weight loss strategies or recipes (McVay et al., 2018). A third theme was the “anticipated pleasantness of an intervention” (McVay et al., 2018, p. 6).

Anticipated pleasantness of an intervention was a key discovery in this study and was related to the patients’ sense for how well an intervention would work for them. This theme overlaps and ties in with several theoretical models, including the perceived benefits of health behavior from the HBM. Perceived benefits states that the course of action a person takes in preventing (or curing) illness or disease relies on consideration and evaluation of both perceived susceptibility and perceived benefit and that the person would accept the recommended health action if it was perceived as beneficial (Janz & Becker, 1984).

Another study conducted by Aleem, Lasky, Brooks, and Batsis (2015) noted that clinicians thought patients lacked discipline to eat healthy, had easy access to unhealthy food, did not have the time to exercise, or had some sort of psychological disorder that prevented them from losing weight. The authors also noted a discrepancy between clinician and practice reporting of obesity. The study showed that only 27% of the patients meeting the criteria for obesity had any documentation in the electronic medical record. Again, a trend emerged that there are missed opportunities for primary care providers to address weight loss interventions with patients. Failure to document is a missed opportunity for monitoring prevalence in health care and impacts interventions at the provider and organizational level (Aleem et al., 2015).

Another study evaluated 48 internal medicine providers and 488 patients to identify beliefs about obesity that create barriers for weight loss interventions in primary care. This study identified beliefs from both the providers and the patients that affected meaningful conversations about weight loss. Providers and patients differed significantly on many beliefs about weight.

Providers were more likely than patients to perceive that patients lack self-control to stay on a diet and that fattening food in society and lack of time for exercise were prime factors in weight gain. They also expressed more interest in helping patients with weight management than patients desiring this. Patients were more likely to state that weight problems should be managed on one's own, talking to a provider is not helpful, providers blame them for their weight problem, and that appointments contain sufficient time for weight discussion. (Ruelaz et al., 2007, p. 518)

This study again emphasized the importance of patient-centered discussions for motivation of behavioral change interventions. Data analyzed from the 1996 Behavioral Risk Factor Surveillance System found that 78% of overweight patients attempted to lose weight when told to lose weight by a physician, and that only 33% of patients within the same BMI category attempted to do so if their physician did not tell them to lose weight (Ruelaz et al., 2007).

Patient-centered discussions that are based on MI techniques have been shown to be effective in many areas where there is a need for behavioral change such as smoking cessation, substance abuse, and weight loss. The following section reviews multiple studies that have used MI to help motivate patients to lose weight and be healthy. The results are promising.

Motivational Interviewing

The MI was first introduced by Miller and Rollnick in 1983 and has demonstrated to be effective in the management of a variety of chronic diseases that have associated behavioral aspects.

Motivational interviewing is a particular way of helping clients recognize and do something about their current or potential problems. It is viewed as being particularly useful for clients who are reluctant to change or who are ambivalent about changing their behavior. The strategies of motivational interviewing are more persuasive than coercive, more supportive than argumentative, and the overall goal is to increase the client's intrinsic motivation so that change arises from within rather than being imposed from without. (Rubak et al., 2005, p. 305)

There have been multiple studies conducted since showing the effectiveness of MI and that it should be the standard of care when it comes to counseling patients on behavior change.

Studies with motivational interviewing not specific to weight loss. Rubak et al. (2005) did an extensive literature review to assess MI in different areas of disease and to identify factors shaping outcomes. The overall result of the study documented that MI in a scientific setting effectively helps clients change their behavior and out performs traditional advice giving in about 80% of the studies (Rubak et al., 2005). No studies have reported MI to be harmful or to have any kind of adverse effect, and the review shows that MI effects “estimates of body mass index, total blood cholesterol, systolic blood pressure, blood alcohol concentration and standard ethanol content” (Rubak et al., 2005, p. 309). This review also suggested that even a 15-minute MI encounter has been demonstrated to be effective: “motivational interviewing can be effective even in brief encounters of only 15 minutes and that more than one encounter with a patient increases the likelihood of effect” (Rubak et al., 2005, p. 309). Also important to note from this

study is that indirect and direct measures can be used to assess the effects of MI. Indirect measures included feelings of self-confidence with questionnaires and direct measures such as blood pressure, blood glucose, weight, and length of hospital stay (Rubak et al., 2005).

A systematic review was conducted in 2014 that assessed whether “motivational interviewing is effective in improving behavior modifications in patients seeking treatment for health conditions in primary care settings, as compared to treatment-as-usual, or other interventions in randomized control trials (RTC)” (VanBuskirk & Wetherell, 2014, p. 2). Based on the inclusion criteria of the randomized control trials, 12 studies were identified. Of those, nine had positive results with MI versus the control conditions which included usual care and didactic pamphlets. Two had mixed results and one had no significant results with MI (VanBuskirk & Wetherell, 2014). Primary findings of the study included that MI continues to be used predominately with substance use populations, but there has also been success associated with diet and exercise, medication adherence, and colorectal screening. One interesting aspect of this review was the discovery of the effectiveness of MI in as little as one 15- to 20-minute session with an individual who had minimal training in MI techniques. Also, MI was shown to be effective when delivered entirely over the phone or when boosted by intermittent phone calls after an in-person meeting (VanBuskirk & Wetherell, 2014).

A systematic review conducted in 2015 by Lindson-Hawley et al., looked to see if MI could be effective with patients in smoking cessation counseling. The review identified 28 studies published between 1997 and 2014 involving over 16,000 participants. The MI was performed in one to six sessions that ranged from 10 to 60

minutes. The sessions were held by primary care providers, hospitalists, nurses, and counsellors (Lindson-Hawley et al., 2015). The review found that “motivational interviewing appears to help more people to quit smoking than brief advice or usual care when provided by general practitioners and by trained counsellors” (Lindson-Hawley et al., 2015, p. 2). It also demonstrated that shorter MI sessions (less than 20 minutes per session) were more effective than longer ones (Lindson-Hawley et al., 2015). Although this study did not look at weight loss specifically, the concept of MI in this study can be used by any provider seeking to motivate and change behavior such as with weight loss. “Lack of motivation (or resistance to change) is seen as something that is open to change” (Lindson-Hawley et al., 2015, p. 4). The focus of MI is to change behavior by helping people explore and change their attitude toward that change.

Miller and Rollnick also suggested that adopting an aggressive or confrontational style or both (as in traditional approaches) is likely to produce negative responses from people (such as arguing), which then may be interpreted by the practitioner as denial or resistance. (Lindson-Hawley et al., 2015, p. 4)

This is not a healthy interaction for any provider or patient to experience.

Another systematic review conducted in 2011 by Smedslund et al. looked at the effects of motivational interviewing on substance abuse. Again, although this is not a review on weight loss specifically, the results of the effects of MI on behavior change can be applied elsewhere. This review included 59 studies with a total of 13,342 participants. The results were then compared to no treatment control, and MI showed a significant effect on substance use, which was strongest at post-intervention (Smedslund et al., 2011). The study highlighted how the counsellor uses MI techniques to help drug and alcohol abusers find reasons to quit.

The drug abuser and counsellor typically meet between one and four times for about one hour each time. The counsellor expresses that he or she understands how the clients feel about their problem and supports the clients in making their own decisions. He or she does not try to convince the client to change anything but discusses with the client possible consequences of changing or staying the same. Finally, they discuss the clients' goals and where they are today relative to these goals. (Smedslund et al., 2011, p. 2)

The MI is intended to work through its four main principles, which are to “(1) express empathy, (2) support self-efficacy, (3) roll with resistance, and (4) develop discrepancy” (Smedslund et al., 2011, p. 6). When patients see that their behavior is creating discrepancy between where they are and where they want to be, they become more motivated to make important life changes, such as stopping smoking, quitting drugs or alcohol, and losing weight.

Elwyn et al. (2014) discussed the benefits of MI and shared decision making in primary care. The authors suggested that,

motivational interviewing and shared decision making provide practical and well-described methods to accomplish patient-centered care in the context of situations where medical evidence supports specific behavior changes and the most appropriate action is dependent on the patient's preferences. (p. 270)

Shared decision making is described as a joint decision-making process, where the physician and patient decide together based on the best available evidence and what are the benefits and harms (Elwyn et al., 2014). The MI is characterized by focusing on “helping patients identify and resolve ambivalence about changing their behavior, typically by exploring their personal perspectives as well as perceived barriers” (Elwyn et al., 2014, p. 271). The authors suggested that both shared decision making and MI should become the standard of care, especially when it comes to providing patient-centered care. These approaches should be “valued as core elements of good practice; they should be

taught, assessed, and integrated into daily practice, then appropriately measured and rewarded” (Elwyn et al., 2014, p. 275).

Studies with motivational interviewing specific to weight loss. A study conducted by Carels et al. (2007), evaluated 55 sedentary obese patients.

Participants were included if they were (a) obese (body mass index [BMI] 30 kg/m²), (b) sedentary (exercise 2 times per week), and (c) nonsmokers; they were excluded if they had (a) cardiovascular disease, (b) musculoskeletal problems preventing moderate physical activity, or (c) insulin-dependent diabetes or impaired fasting glucose. (Carels et al., 2007, p. 370)

The results of the study showed statistically significant results when interventions involved MI. Participants significantly decreased their weight, increased physical activity/fitness, and improved dietary intake. The behavioral weight loss program and stepped care with MI participants lost more weight and engaged in greater weekly exercise than the behavioral weight loss program with stepped care patients who did not receive motivational interviewing (Carels et al., 2007).

Another study looked at the effects of MI about weight loss versus traditional education on weight loss for primary-care patients. The patients were randomly assigned to an intervention group that received standard exercise and nutrition information as well as up to five face-to-face MI sessions, delivered by a physical activity specialist and registered dietician over six months. The comparison group received the standard information only, which included written information on physical activity and diet (Hardcastle et al., 2013). The study suggested that,

a low-intensity MI counselling intervention is effective in bringing about long-term changes in some, but not all, health-related outcomes (walking, cholesterol levels) associated with CVD [cardio-vascular disease] risk. The intervention was particularly effective for patients with elevated levels of CVD risk factors at baseline. (Hardcastle et al., 2013, p. 1)

Rodriguez-Cristobal et al. (2017) conducted a multi-center cluster randomized trial with interventions on 846 overweight and obese patients with a 24-month follow-up.

The control group included,

Four hundred and forty-six participants who followed the usual intervention, according to the protocols in each center. Patients were visited every 3 months and doctors always included advice on life-style changes, physical exercise, hypocaloric diet containing 1,200–1,500 kcal, and anthropometric measurements (weight, height and waist circumference). (p. 3)

The intervention group included 400 patients whose treatment was identical to the control plus MI was added. The MI were provided “every 15 days, once fortnightly during weeks 1 to 12, and then monthly from week 13 to 32. Each session would last for one hour, for a 24-month follow-up period, with a total of 32 interventions” (Rodriguez-Cristobal et al., 2017, p. 3). The main finding of this study was that within the MI group, significantly more patients achieved a reduction of 5% or more of the initial weight, which is “a common criterion for clinically meaningful weight loss” (Rodriguez-Cristobal et al., 2017, p. 4). Also important to note is that interventions focusing on changing eating habits and increasing daily physical activity to encourage healthy living were the best options to address obesity (Rodriguez-Cristobal et al., 2017).

Yet another systematic review was conducted on MI on weight loss in primary care. This review was conducted in 2015. It looked at 24 randomized controlled trials that examined MI and weight loss treatments on adults in primary care. The results, although slightly mixed, showed that over one-third of the articles examined resulted in patients losing significantly more weight with MI techniques than with usual care, and that over half of those articles reported patients losing greater than 5% of their initial weight (Barnes & Ivezaj, 2015). The results of this review, although not overly impressive, did

show some positive results and although interventions such as weight loss surgery and other intensive life style interventions may show more weight loss, there is a push for scalable and easily assessable obesity treatment plans for primary care providers (Barnes & Ivezaj, 2015).

The MI offers weight loss benefits to those patients who seek treatment and care in the primary care setting. The MI also gives primary care providers a useful tool/intervention to help promote weight loss and healthy living with their patients, which according to the data have been lacking in recent years.

Obesity diagnoses and the provision of weight counseling remains low at clinics nationwide, including at community health centers. According to clinical service data from the HRSA [Health Resources and Services Administration], in 2014, 56.1 % of adult CHC [community health center] patients received weight screening and follow-up. According to surveys with overweight and obese CHC patients, 45.2 % reported that a physician had told them that they were overweight. (Woodruff et al., 2016, p. 2)

Another study showed similar results, stating that “only 9.8% of all patients reported receiving any advice from a physician to lose weight” (Ruelaz et al., 2007, p. 518).

Another study looked specifically at MI and weight loss with obese cardiac patients (Low et al., 2013). There were a total of 56 participants, 26 females and 30 males. Thirty-eight of the patients were assigned to the MI condition, and 18 were assigned to the nutrition-education group. Ages ranged from 33 to 78 years old. Results of the study were significant reductions in weight in women in the MI intervention, but none for the men. Interesting results, however, as this study again shows the potential for MI in a plethora of behavioral change situations. Another interesting element of this study was that MI was provided by trained undergraduate students and not professionals (Low et al., 2013).

The evidence for incorporating MI into the primary care setting is overwhelming. However, currently this is not standard practice for any type of discussions between providers and their patients, including the topic of weight loss. The question is, how can MI be effectively incorporated into a physical exam or patient encounter in a practical way that will help patients and providers feel self-confidence for weight loss interventions to improve?

Theoretical Framework (Health Belief Model)

Convincing people that they need to change is hard. It is especially difficult in a very short period of time. Patients need more than information to change. “Behavior change theories highlight the complexity of making and sticking to health-related behavior changes” (Barley & Lawson, 2016, p. 924). Intentions to change will be affected by a range of beliefs, influences (including past behaviors and perceptions of what people think), values, beliefs about the ability to change, lack of or presence of self-control, as well as timing and context (Barley & Lawson, 2016). All are important in changing behaviors. Theories such as the HBM help providers prompt reflection and support patients when discussing behavioral change.

The basic components of the HBM are derived from a well-established body of psychological and behavioral theories whose various models hypothesize that behavior depends mainly upon two variables, “(1) the value placed by an individual on a particular goal; and (2) the individual’s estimate of the likelihood that a given action will achieve that goal” (Janz & Becker, 1984, p. 2). When these variables were conceptualized in the context of health-related behavior, the results were “(1) the desire to avoid illness, and (2)

the belief that a specific health action will prevent illness” (Janz & Becker, 1984, p. 2).

The HBM consists of the following dimensions.

- Perceived susceptibility -Individuals vary widely in their feelings of personal vulnerability to a condition. Thus, this dimension refers to one’s subjective perception of the risk of contracting a condition.
- Perceived severity -Feelings concerning the seriousness of contracting an illness (or of leaving it untreated) also vary from person to person. This dimension includes evaluations of both medical/clinical consequences (e.g., death, disability, and pain) and possible social consequences (e.g., effects of the conditions on work, family life, and social relations).
- Perceived benefits -While acceptance of personal susceptibility to a condition also believed to be serious was held to produce a force leading to behavior, it did not define the particular course of action that was likely to be taken; Thus, a sufficiently-threatened individual would not be expected to accept the recommended health action unless it was perceived as feasible and efficacious.
- Perceived barriers -The potential negative aspects of a particular health action may act as impediments to undertaking the recommended behavior. A kind of cost benefit analysis is thought to occur wherein the individual weighs the action’s effectiveness against perceptions that it may be expensive, dangerous (e.g., side effects, iatrogenic outcomes), unpleasant (e.g., painful, difficult, upsetting), inconvenient, time-consuming, and so forth. (Janz & Becker, 1984, p. 2)

Cue to action is an added dimension of the HBM. This is the combination of susceptibility and severity that provides the energy to act and the perception of benefits that a preferred path of action provides. It is felt to trigger the decision-making process and, “this so-called cue to action might be internal (i.e., symptoms) or external (e.g., mass media communications, interpersonal interactions, or reminder postcards from health care providers)” (Janz & Becker, 1984, p. 2).

Having a strong theoretical framework is key to the success of a project.

A guiding theoretical framework in research not only serves to guide a single research study, but also serves as a link with previous and future research that is guided by the same framework. It helps to link scientific work together over time, which can then advance the science of a discipline in a particular area, and it helps researchers and clinicians communicate more effectively with one another. (Montgomery, 2002, p. 119)

There have been multiple successful studies framed in the HBM. For example, a meta-analysis of 18 studies (2,702 subjects) was conducted by Carpenter in 2010. This study reviewed the effectiveness of the HBM variables in predicting behavior and on health communication. The results of this study showed that benefits and barriers were consistently the strongest predictors (Carpenter, 2010). The HBM is a perfect framework for this DNP scholarly project as this project created a template for providers to partner with patients in making life changing decisions about their current weight and life style that would lead to a healthier life with decreased risks for other chronic health conditions such as diabetes and hypertension.

Summary of the Literature Review

Based on this review of literature there is strong evidence to suggest that obesity is a growing health problem in this nation.

The United States is currently facing a very real obesity epidemic. The most recent National Health and Nutrition Examination Survey indicates that approximately two thirds of US adults are presently classified as overweight or obese (BMI > 25) and one third as obese (BMI > 30). (Landsberg et al., 2013, p. 14)

As a result of increasing obesity rates in the country there are also increasing rates in preventable chronic health conditions. Chronic health conditions associated with obesity include hypertension, coronary artery disease, diabetes, stroke, and different cancers including breast, endometrial, and colon (Fruh, 2017). Studies also suggest that even a modest amount of weight loss such as 5% of a patient's weight can lead to significant decreases in risks associated with obesity and improve health-related outcomes (Fruh, 2017).

Based on the review of literature, studies suggest that primary care providers are not discussing weight loss interventions with their patients, as well as not documenting their interactions even though it is recommended by government agencies such as the CDC and the USPSTF to have intensive multicomponent behavioral interventions (USPSTF, 2018).

Multiple barriers are associated with why providers are not talking to their patients about weight loss and why patients do not feel comfortable discussing weight loss with their providers. Some of these barriers include lack of time, other medical priorities that take precedence over obesity, as well as perceived complex social, cultural, economic, environmental determinants of obesity, lack of perceived benefits of weight loss discussions, blame of the provider on the patient for their weight gain, and the anticipated pleasantness of the intervention (McVay et al., 2018; Ruelaz et al., 2007; Woodruff et al., 2016).

Even though there are barriers, discussing weight loss with patients is essential. The MI is a promising technique that can be used by primary care providers to discuss weight loss that is patient-centered, engaging, focused, evoking, and key in creating an achievable weight loss plan with patients (Miller & Rollnick, 2013). The HBM is a proven theoretical framework that ties in with motivational interviewing that allows providers to promote permanent change behaviors in patients by focusing on the perceived benefits and barriers of an action plan (Janz & Becker, 1984).

Conclusion

Based on this literature review, a template based on MI and the HBM was created and implemented into a primary care clinic. This template bridges the gap between theory

and practice in an attempt to provide primary care providers a useful tool to have meaningful, change provoking conversations with their patients about weight loss interventions. The hope is that by creating a MI template for primary care providers to use while discussing weight loss interventions with their patients, it will be a practical way to introduce this theoretical concept into practice. The template is framed in the HBM and concepts such as perceived barriers and benefits were used. As already discussed, there are many studies that have demonstrated the benefits of the HBM in research especially in research that attempts to change a patient's feelings of self-confidence about certain health interventions. Chapter III outlines in detail the methodology and implementation of this DNP scholarly project.

CHAPTER III
METHODOLOGY

Introduction

Obesity is prevalent in this country and leads to many preventable deaths and chronic illnesses, including heart disease, diabetes, and various types of cancers. “Obesity is prevalent in the western world and leads to reduced life expectancy due to increased risk of chronic illness such cardiovascular disease” (Hardcastle et al., 2013, p. 2). It also has been established in the literature that even a small amount of weight loss, as little as 5% of a patient’s total body weight, has statistically meaningful risk reductions, especially those that relate to cardiovascular health. Behavioral interventions such as motivational interviewing (MI) that specifically targets obesity through changes in diet and exercise have been shown to be an effective intervention for providers to use for weight loss discussions (Hardcastle et al., 2013).

This chapter discusses the details of this Doctor of Nursing Practice (DNP) scholarly project. The project mission, vision, and objectives are discussed along with the specific design of the project, the setting, and the sample size. The project design, plan, the instruments that were used to measure the objectives, discussion on how the project was analyzed, duration of the project, and finally the ethical considerations of the project are also discussed.

Design

This DNP scholarly project is a non-experimental field study to determine the best evidence to assess whether using a template based on MI and the health belief model (HBM) can be a useful tool for direct care providers to use while discussing weight loss interventions with their patients.

The study attempted to assess two different interventions. The first was to assess the knowledge and understanding of the provider in the use of MI and the MI template in discussing weight loss interventions with their patients. This was accomplished with a six-question MI pre-assessment Likert scale. The study was also interested in assessing the longevity and reproducibility of the MI template and questioned the providers' feelings of whether they would continue to use the template to discuss weight with their patients. This was discovered with the implementation of an eight-question MI post-assessment Likert scale.

Secondly, this study assessed the patient's self-confidence and personal growth initiative. It assessed the patient's active and intentional involvement in changing habits based on the MI template and discussion about weight loss with the provider. This was assessed after the provider used the MI template with the use of a modified form of the personal growth initiative scale (PGIS).

The hope was to have patients leave their appointments motivated, engaged, and focused with a thorough understanding of their perceived barriers and benefits of their weight-loss intervention. The provider would hopefully leave the appointment encouraged that they had a meaningful and effective conversation with their patients about weight loss interventions.

Although there was consideration that there should be weight loss suggestions for the providers to use included on the MI template, the decision was made to exclude the weight loss suggestions as this would deter from the spirit of MI, which should be patient-focused and evoking. The concern was that if suggestions were provided on the template, the providers and patients would fall back into the usual care category, which is the provider telling the patient what to do, and the weight loss interventions would then not be initiated by the patient.

Setting

The setting was an internal medicine clinic in Lakewood, Colorado. The internal medicine clinic does not see any pediatric patients; therefore, the population studied was only adults 18 years and older. The clinic also sees primarily older adults, 65 years and older, with multiple chronic conditions and who carry Medicare as their primary insurance. The clinic has five providers, three family practice physicians, a nurse practitioner, and a physician assistant. The clinic also has five medical assistants, one for each of the providers. There are two coders and an administrative clerk who works at the front desk.

Sample

The individuals carrying out the intervention were two providers, a nurse practitioner and a physician assistant. The providers represented a convenience sample, and data were collected on the providers' perceptions of the MI template and whether they would continue to use the tool. The patient sample included 25 patients with a BMI of 30 or greater who were presenting to the clinic for their annual physicals with the two providers. Exclusion criteria for this study included patients who were severely disabled

and did not have the ability to care for themselves. Also excluded were patients who were very hard of hearing, as indicated by a diagnosis in their medical record, and/or had a diagnosis of dementia. Data were collected on the patient's thoughts of how the discussion on weight loss went with the provider and the patient's self-confidence in the success of the selected interventions. The DNP student was responsible for working with the patients to obtain consent, alert the provider that the patients were ready for use of the MI template, and was responsible for presenting the patients with the modified PGIS survey after their interaction with the provider.

Mission

The clinic providers are associated with the Colorado Preferred Physicians Organization, whose mission is to create value through integrated health care. They seek to:

- Improve quality of care.
- Improve service.
- Improve accessibility.
- Improve medical team involvement.
- Protect intimacy.
- Reduce unit costs.
- Improve operating efficiency.
- Strengthen customer relationships.
- Enhance product offering.
- Encourage community responsibility including indigent care (Colorado Preferred Physicians Organization, Inc., 2010).

The mission of the project aligns with the mission of the organization as it seeks to improve quality of care, service, and accessibility by increasing provider awareness of the benefits of MI and to attempt to bridge the gap between theory and practice by creating a practical tool to use for weight loss discussions. By not including suggestions for weight loss, MI is truly tested as a template to evoke change talk from patients. The mission is to have the providers initiate a weight loss discussion but have the patients determine an intervention that they feel confident they could be successful in using towards their goals. It is also intended for patients to take charge of their health and encourage them to acknowledge that they alone have the ability to change their lives for the better. It is essential that patients identify the barriers preventing them from being healthy and understanding how their future would improve if small steps were taken towards weight loss.

Vision

The vision of the Colorado Preferred Physicians Organization, Inc. (2010) is to create a balanced partnership between physicians, hospitals, payers, and consumers. The vision of this project was to create a lasting versatile tool based in MI that would not only be useful in weight loss discussions but also be used by providers to have other meaningful patient-centered discussions about behavior changes, thus making the use of MI standard practice for primary care providers. This correlates with the vision of the organization as the MI template creates an opportunity for collaborative conversations between patients and providers, thus creating partnerships that provoke change.

Objectives

The project aimed to meet the requirements of the DNP scholarly project based on the definition created and agreed upon by the American Association of Colleges of Nursing (AACN) in 2006 and the National Organization of Nurse Practitioner Faculties in 2007 (Waldrop et al., 2014). These criteria included that the DNP project enhances health and practice outcomes, as well as health care policies and should be patient-centered. It should reflect on a culmination of practice, inquiry, and engage in partnerships with other disciplines. The project should also implement, apply, and translate evidence into practice and should have some form of evaluation of health care, practice, or policy outcomes (Waldrop et al., 2014). The DNP scholarly project met these requirements by:

1. Creating a versatile template based on MI and the HBM for weight loss discussions, thus meeting the requirement of implementation, application, and translation of evidence into practice.
2. Increasing provider knowledge and understanding of MI and its usefulness in weight loss discussions with patients in evaluating the current health care practice outcomes and hopefully improving future practice outcomes.
3. Creating a long-lasting tool for MI discussions that would continue to be used by providers after completion of the project, thus showing improvement in health care practice outcomes.
4. Increasing patient self-confidence and personal growth by selecting weight loss interventions with which the patient would demonstrate success with

the use of the template, thus assessing health care outcomes and evaluating health care practice outcomes.

Plan

The plan for the project included creating a template for weight loss interventions that based on MI and the HBM (see Appendix A). The two providers were educated with a PowerPoint presentation before implementation on the basics of MI and the HBM. They were also educated on how to use the template with their patients. Consents were given to the health care providers (see Appendix B). The providers were assessed on their knowledge of MI and on using the template after their education and, then again, after they had used the template for one month using the pre-assessment MI 5-point Likert scale and the post-assessment MI 5-point Likert scale (see Appendices C and D). Patients, without any severe disabilities and who were obese presenting for a yearly physical, were identified in the electronic health record and tagged for intervention by the DNP student. The DNP student also noted the previous physical and if the patient's BMI was discussed based on the providers' charting. An international classification of diseases 10 code of overweight or obesity does not qualify as a prior discussion by the provider. There must be a documented intervention and a plan in the electronic health record. The patients, who had been identified for the intervention, were given an assigned number of 1 to 30. This number was placed on the top of the consent form, the template, and the PGIS survey. The consent included consent to participate that day (see Appendix B). The consent was given to the patients as the consent created did not need a signature and was designed to be kept by the patient. The providers would discuss weight loss with these patients by using the created MI template. The patients were asked at the end of the

appointment about their self-confidence and personal growth based on the intervention selected and their discussion with the provider using the modified PGIS. This assessment was given to the patient by the DNP student/researcher. The assessment was then placed in the assigned folder by the DNP student for review and assessment along with the assigned MI template.

Instrumentation

There was one method of intervention and two survey instruments used for this project. The first was the template based on MI and the HBM that guided the providers in having a patient-centered conversation about weight loss. The template was created by the DNP student and off the Miller and Rollnick (2013) key concepts of MI, which are engaging, focusing, evoking, and planning. It was also based off the two most powerful components of the HBM based on the literature review, which are the perceived benefits and perceived barriers of change (see Appendix A) (Janz & Becker, 1984).

The second and third is the MI pre- and post-assessment 5-point Likert scale created to assess the providers' knowledge of MI after the PowerPoint presentation and after using the MI template for a month with their patients. Based on research, there were a few validated tools to assess MI such as the MI skills code, the MI treatment integrity, and the behavior change counselling index (Motivational Interviewing Network of Trainers, 2018). Although these tools were validated in prior studies, they were deemed to be time consuming and did not assess the outcomes measures this DNP scholarly project was looking for, which was the knowledge of MI of the providers and whether they found the MI template useful. There were six questions on the pre-assessment performed after the education. The first question assessed if the provider had heard or

knew about MI. The second question assessed their knowledge of MI by identifying three essential elements of MI. The third question assessed if the providers consistently used MI when talking to their patients about change behavior. The fourth assessed if the providers felt that they could change their patient's behavior by using MI techniques and the MI template. The fifth and sixth questions assessed the providers' feelings of their interactions and education of their patients. The 5-point Likert scale ranged from *strongly agree*, *agree*, *neutral*, *disagree*, and *strongly disagree* (see Appendix C).

There was a post-assessment used after the providers used the MI template for one-month that had the same six questions as well as added questions regarding if they found the template helpful, and if they would continue to use the template. Again, these questions were with the 5-point Likert scale ranging from *strongly agree*, *agree*, *neutral*, *disagree*, and *strongly disagree* (see Appendix D).

The third was the PGIS, which is a validated tool that measures a person's active and intentional involvement in changing and developing as a person. The PGIS consists of nine items that are rated on a Likert scale from 1 = *strongly disagree* to 6 = *strongly agree*. The PGIS was created by Christine Robitschek and is a self-report instrument that yields a single scale score for personal growth initiative. This tool has been used in multiple studies to assess personal growth in career exploration, counseling and development, family functioning, and parental alcoholism (Robitschek, 2019). There is evidence that the PGIS is strongly positively related to psychological well-being and negatively related to psychological distress. Reliability and validity evidence have been strong. All items in the PGIS are worded in the positive direction. Strengths of the PGIS include its brevity and strong psychometric properties. Internal consistency estimates

ranged from .78 to .90, with the majority above .85, in college student, midlife, and elderly adult samples. Relations with the convergent validity constructs support the instrumental nature of PGIS (i.e., intentional behavior) (Robitschek et al., 2012). The PGIS has been tested with multiple ethnic groups, including European, African American, Asian, and Mexican. The results of the studies show:

Evidence for construct validity that is supported by confirmatory factor analyses indicating a single factor for European American college students and elderly adults, although there was some evidence for a two-factor model for Mexican American college students. College students with high PGI reported high levels of instrumentality, assertiveness, and internal locus of control, and low levels of chance locus of control, providing evidence of convergent validity. (Robitschek et al., 2012, p. 275)

The PGIS takes about five minutes to complete, and there is no time limit (Robitschek, 2019). Although the tool itself only takes five minutes to complete, it has been modified, with consent of the author, to include only four questions. This modification was decided based on the committee's recommendations and based on the age group of the patient sample. The age of the patient sample was mostly 65 years and older and having four questions instead of the original nine was thought to be more beneficial for that population. The questions chosen included: I know how to change specific things that I want to change in my life, I know what I need to do to get started toward reaching my goals, I have a specific action plan to help me reach my goals, and I have a plan for making my life more balanced. These questions were chosen because they seemed to best assess the patients' feelings of the MI template and their self-confidence. This tool, although not specifically created to assess a patients' feelings of MI and weight loss, does incorporate the spirit of MI with personal growth and change. The tool assessed the patients' over all feelings of their weight loss interventions and how

successful they felt in accomplishing their goal and if it impacted their lives positively (see Appendix E).

Analysis

There are multiple steps in which data collection is needed. The first is in selection of the appropriate patients for intervention. This data were collected by the DNP student. The DNP student requested access to the electronic health record from the clinic leader. Permission was granted and documented in an e-mail from the clinic leader (see Appendix F). Then the provider's schedule was reviewed by the DNP student. Patients were marked for intervention based on their previous BMI documented in the chart. Demographics collected from the patients included their BMI, gender, and age. They were excluded based on certain medical conditions in their chart including severe disabilities, documented hearing loss, and dementia. The DNP student assigned numbers to each of the patients on the corner of the templates, along with the patient's age, gender, and BMI. The numbers were assigned sequentially from 1 through 30. These forms were placed in a folder and kept by the DNP student. The DNP student provided the patients with the consent and briefly explained the study to the patients. The DNP student then notified the providers that the patient had consented to the intervention and that would alert the provider that they could use the MI template with that patient. After the appointment the DNP student provided the patient with the modified PGIS survey, collected it, and returned it to the respective folder for review and assessment at a later date.

Data Analysis Procedures

Data were collected by the DNP student based on the results of the two surveys given to the providers in the pre- and post-assessment time period as well as from the PGIS survey given to the patients after their interaction with their provider. Since there were only two providers and statistically significant data would not be achieved with the pre- and post-MI test for the providers for the purpose of this DNP scholarly project, the results of the survey of the providers were simply listed. The goal was to assess if the providers wanted to continue to use the template created and to assess to see if there was a possibility that the two providers' daily practice could be improved. If there were positive feelings towards the template, then the sample size could be increased to more providers and then more statistically relevant data could be obtained.

Since the patient sample size was larger to include 25 patients, a Wilcoxon matched-pairs signed rank test was completed on the PGIS surveys given to the patients. The surveys were given after each appointment that the provider used the MI template. There were only 25 patient participates, thus resulting in non-statistically significant data. However, the object of this DNP scholarly project was to implement a change that had the potential to change daily practice even for a few patients and providers. Also, for interest some of the statements recorded on the MI template were mentioned to demonstrate the concrete action plans patients created or did not create with the use of the MI template.

The providers' pre- and post-MI test was assessed to determine the effects of the MI education given to the providers as well as the feelings of the providers of the usefulness of the MI template for weight loss discussion. The patients' modified PGIS

survey assessed the effects of MI on the patients feeling of self-confidence and self-growth with weight loss interventions after having a MI-based conversation with their provider.

Duration of the Project

The timeline of the project was as follows:

- April 18: Chapters I through III of the project were turned in to the committee for review.
- April 18–May 1: Changes were made on Chapters I through III as needed and the PowerPoint presentation was created for the education of the providers. The PowerPoint presentation for defense of Chapters I through III of the DNP project was created.
- May 2: Formal proposal defense of Chapters I through III to the committee.
- May 21: Submission of the Institutional Review Board narrative for approval.
- June 31: Approval from the Institutional Review Board for implementation of the project.
- July 1: PowerPoint presentation/education of the providers.
- July 10–July 31: Implementation of the MI template by the providers.
- August 5–August 15: Outline and write Chapters IV and V.
- August 15–September 15: Finish writing Chapters IV and V.
- September 15: Submit final project Chapters I through V to editor for review.

- September 15–September 30: Changes made based on editor’s suggestions and final PowerPoint presentation created.
- October 10: Final defense
- October 31: DNP scholarly project submitted to the Graduate school for review.

Ethical Considerations

This project was reviewed by a DNP committee and submitted for review to the Institutional Review Board prior to implementation. The project was initiated upon receipt of approval. Studies have shown that the use of MI has not been associated with any harm to the patient or have any adverse effects of any kind (Rubak et al., 2005). Even the U.S. Preventative Services Task Force (USPSTF) (2018) has deemed discussions about weight with patients to not be harmful in the primary care setting. Patients were informed of the goal and mission of the project and were provided a copy of the written consent prior to implementation of the project. The patients were informed with their consent that they had the right to refuse participation, there was no discrimination or hard feelings felt towards them, and their care at the clinic was not affected by participation or lack thereof in the study. Patient information remained confidential by using assigned numbers, 1 through 30, and not the patient’s name. Results of the study did not include any patient identifiers, and the patients’ health information was only discussed with the providers. There had not been any other ethical considerations identified at this time.

Conclusion

The need for discussion about weight loss in the primary care setting with evidence from the literature has been proposed in this DNP scholarly project. Based on

the need for improved weight loss interventions and the documented need in the literature, a possible solution has been created that was implemented and tested in a small internal medicine clinic, with two providers, and 25 patients with a BMI greater than 30. Chapter IV discusses the data of the project analyzed over one month. It determined whether the MI template created was sustainable and perhaps demonstrated positive results with a larger sample size. Chapter IV will also discuss any further analyses that were perhaps not proposed but were carried out in duration of the project.

CHAPTER IV

DATA ANALYSIS AND RESULTS

The findings of this non-experimental field study are presented in this chapter. The first goal of this Doctor of Nursing Practice (DNP) scholarly project was to look at the patients' feeling of self-confidence after their providers used a weight loss discussion template based on motivational interviewing (MI) and the health belief model (HBM) to discuss weight loss interventions with them. The second goal assessed the providers' feeling of self-confidence in having weight loss discussions with their patients with the use of the MI weight loss template. For this project, two patient/problem, intervention, comparison, outcome, and time/type (PICO(T)) questions were established to assess these feelings of self-confidence.

- Q1 In patients with a body mass index greater than 30 (P), how does using a template based on motivational interviewing about weight loss (I), compare to usual care/discussion on weight loss (C), affect a patient's feeling of self-confidence in their weight loss intervention (O), after their appointment with their provider?
- Q2 In patients with a body mass index greater than 30 (P), how does using a template based on motivational interviewing about weight loss (I) compare to usual care/discussion on weight loss (C), affect a provider's reported self-confidence for weight loss discussions with patients (O), after their appointment (T)?

The project was successfully carried out after approval was received by the Institutional Review Board on June 29, 2019 (see Appendix G). Below is the data analysis and results of the study described in phases. Phase one describes the patient results, and phase two describes the provider results.

Phase One

To help answer Question Q1, which assessed a patient's feeling of self-confidence in their weight loss intervention after their appointment with the provider, the qualified patients' demographics were identified and recorded by the researcher which included, the patient's body mass index (BMI), age, and gender. Patients were excluded if they were severely disabled and did not have the ability to care for themselves. Also excluded were patients who were very hard of hearing, as indicated by a diagnosis in their medical record, and or a diagnosis of dementia. There were 25 patients who met the criteria over the four-week data collection period, 19 were female, 6 were male. Since there were only 25 patients in the sample, a Wilcoxon matched-pairs signed rank test was used, and data were entered into SPSS, version 23. The mean age was 64.6, and the average BMI was 36. Table 1 shows patient demographics of age and BMI; as mentioned above, there were 19 female participants and 6 male participants.

Table 1

Patient Demographics

Characteristic	<i>N</i>	<i>n</i>	<i>M</i>	Mode	<i>Mdn</i>	Minimum	Maximum
Age	25		64.6	73	68	29	89
Body mass index	25		36	Multiple	34.9	30.0	54.3

Each of the qualified patients were consented by the researcher and then one of the two providers used the MI template with their patients to discuss weight loss. After

the provider had completed the interview, the patients were provided with a modified personal growth initiative scale (PGIS) to assess their feelings of how the interview went with their provider and if they felt as if they had a concrete plan as to how they would work towards weight loss and healthy living. Table 2 shows an overall representation of the percent of responses based on gender as well as the BMI percentage of patients. The table shows that 100% of the patients filled out the survey after their appointment with their providers; 76% were female, and 24% were male. Also, 84% of the patients had a BMI between 30 and 40, with most of the patients' BMI falling in the range between 30 and 35, which was 64% of the patients.

Table 2

Overall Representation

Characteristic	<i>N</i>	<i>n</i>	%
Gender	25		
Female		19	76.0
Male		6	24.0
Body mass index	25		
30-35		16	64.0
36-40		5	20.0
41 and above		4	16.0

The PGIS questions were analyzed based on patient responses and feelings of whether the template the providers used had an impact on their weight loss interventions

and feelings of self-confidence. Table 3 demonstrates a breakdown of each of the four questions of the PGIS survey and the percent of the patients' responses to each question.

Table 3

Responses to Personal Growth Initiative Scale Survey (N = 25)

Personal growth initiative scale question	1 = Definitely disagree %	2 = Mostly disagree %	3 = Somewhat disagree %	4 = Somewhat agree %	5 = Mostly agree %	6 = Definitely agree %
1. I know how to change specific things that I want to change in my life	8.0	4.0	0.0	12.0	12.0	64.0
2. I know what I need to do to get started toward reaching my goals	12.0	4.0	0.0	16.0	8.0	60.0
3. I have a specific action plan to help me reach my goals	8.0	12.0	4.0	28.0	8.0	40.0
4. I have a plan for making my life more balanced	8.0	4.0	8.0	24.0	16.0	40.0

As seen in Table 3, overall three patients, or 12% of the patients, disagreed, and 22 patients, or 88% of the patients, agreed that they knew how to change specific things

in their lives, how to get started, that they had a specific action plan, and that they knew how to make their lives more balanced.

Phase Two

To help answer the second PICO(T) question, which looked at the provider's reported self-confidence for weight loss discussions with patients after their appointment, the providers were consented (see Appendix E) and were educated on MI and the goal of the DNP scholarly project with a brief PowerPoint presentation. They were then provided the provider motivational interviewing pre-assessment (see Appendix B). This was a 5-point Likert scale that ranged from 1 to 5, with 1 = *strongly disagree* and 5 = *strongly agree*. This assessment consisted of six questions focused on assessing the providers' feelings and knowledge of MI and their level of comfort discussing weight loss with their patients. There were only two providers that agreed to participate in this study; therefore, data could not be entered into SPSS, version 23. A simple report of the surveys is noted in Table 4, which represents provider one results, and Table 5, which represents provider two results. For a clearer picture, the total points of the pre-assessment surveys were added up for each of the providers. Provider one scored 20/30 on the pre-assessment, and provider two scored 18/20 on the pre-assessment test.

Table 4

Provider One Results of Pre-Assessment

Pre-assessment question	1 = Strongly disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly agree
1. I have prior knowledge of motivational interviewing			x		
2. I can identify three components of motivational interviewing				x	
3. During my weight loss discussions with my patients I do most of the talking, educating, and planning				x	
4. During my patient appointments it is important for me to provide education to my patients					x
5. I consistently use motivational interviewing when I talk to my patients about their weight		x			
6. I feel that I can effectively change my patient's behavior and thoughts about weight loss by using motivational interviewing and the motivational interviewing template				x	

Table 5

Provider Two Results of Pre-Assessment

Pre-assessment question	1 = Strongly disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly agree
1. I have prior knowledge of motivational interviewing			x		
2. I can identify three components of motivational interviewing		x			
3. During my weight loss discussions with my patients I do most of the talking, educating, and planning				x	
4. During my patient appointments it is important for me to provide education to my patients				x	
5. I consistently use motivational interviewing when I talk to my patients about their weight			x		
6. I feel that I can effectively change my patient's behavior and thoughts about weight loss by using motivational interviewing and the motivational interviewing template		x			

The providers then implemented and used the MI template on all of their patients that met the criteria over a four-week implementation period. At the end of the four weeks, the providers were given another survey, the provider MI post-assessment. This was again a 5-point Likert scale, from 1 to 5, with 1 = *strongly disagree* and 5 = *strongly agree*. The assessment had eight questions; however, along with the original six questions that were on the pre-assessment, two questions were added at the end. These questions asked if the providers found the MI template helpful and if they would continue to use the template. Again, since there were only two providers, data could not be entered into SPSS, version 23. The results of the post-assessment for both providers are displayed in Table 6 for provider one post-assessment results and Table 7 for provider two post-assessment results.

Providers one and two showed slight improvement in their post-assessment scores compared to their pre-assessment scores. Provider one scored 22/30 on her post assessment compared to 20/30 on the pre-assessment. Provider two scored 21/30 on her post assessment compared to 18/30 on her pre-assessment. Both providers agreed that the MI template was helpful and that they would continue to use the template after completion of the study.

Table 6

Provider One Results of Post-Assessment

Post-assessment question	1 = Strongly disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly agree
1. I have prior knowledge of motivational interviewing				x	
2. I can identify three components of motivational interviewing			x		
3. During my weight loss discussions with my patients I do most of the talking, educating, and planning				x	
4. During my patient appointments it is important for me to provide education to my patients					x
5. I consistently use motivational interviewing when I talk to my patients about their weight			x		
6. I feel that I can effectively change my patient's behavior and thoughts about weight loss by using motivational interviewing and the motivational interviewing template			x		
7. I have found the motivational interviewing template helpful				x	
8. I will continue to use the motivational interviewing template				x	

Table 7

Provider Two Results of Post-Assessment

Post -assessment question	1 = Strongly disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly agree
1. I have prior knowledge of motivational interviewing				x	
2. I can identify three components of motivational interviewing			x		
3. During my weight loss discussions with my patients I do most of the talking, educating, and planning		x			
4. During my patient appointments it is important for me to provide education to my patients				x	
5. I consistently use motivational interviewing when I talk to my patients about their weight				x	
6. I feel that I can effectively change my patient's behavior and thoughts about weight loss by using motivational interviewing and the motivational interviewing template				x	
7. I have found the motivational interviewing template helpful				x	
8. I will continue to use the motivational interviewing template				x	

Conclusion

The results of this non-experimental field study have been reported. Although the sample size is small for both the patients and the providers, this study could be easily implemented with a larger sample size. The template and assessment tools are provided on the appendix of this paper and could easily be used again for further data collection. The results seem to be promising and align with current literature regarding MI and weight loss in primary care. The meaning of the results of this study and the implications for future practice will be further discussed in Chapter V of this DNP scholarly project.

CHAPTER V

DISCUSSION

The focus of this Doctor of Nursing Practice (DNP) scholarly project was to help increase providers' self-confidence and help them have meaningful conversations with their patients about weight loss. The goal was to eliminate some of the perceived barriers providers have when they talk to their patients about weight loss. Some of the barriers identified in the literature include lack of time, other medical priorities, and perceived complex social, cultural, economic, and environmental determinants of obesity (Woodruff et al., 2016).

By creating a template that was based on motivational interviewing (MI) and the health belief model (HBM) for the providers to use, the goal was to break down those barriers and provide a tangible tool for the providers to have meaningful conversations with their patients. In this project there were only two providers at the clinic who were willing to participate. Although the provider sample size was small and statistically significant data could not be obtained, by both engaging in a candid discussion with the providers and as shown in the provider post-assessment results, both the providers felt the MI template was helpful, and they agreed that they would continue to use the template.

Both providers also discussed with the researcher that they felt the template provided opportunities for meaningful conversations with their patients that normally would not have occurred. They felt that the best question within the template was the first question; this was the engaging question that asked patients how they are feeling about

their weight today. The providers stated that this was the best way to start a weight loss conversation as it was patient-led and non-confrontational. Again, although the sample size was small, the components of the study, such as the MI template and the surveys for the provider and the patients, could easily be reproduced and used with a larger sample size. The results of this field study are promising and have the potential for change.

The project also sought to increase patient self-confidence in weight loss interventions. The goal was to have patients walk away from their appointment with their providers with a concrete, self-initiated, weight loss intervention. By using MI and the HBM as the guiding theoretical framework, patient barriers such as feelings that discussions with providers were not beneficial, providers blamed them for their weight gain, and lack of pleasantness associated with a weight loss intervention would be eliminated (McVay et al., 2018; Ruelaz, et al., 2007). There were 25 willing patients that met criteria for the project. This, again, did not meet the criteria for statistically significant data; however, as with the providers the preliminary results were promising as 88% of the patients on their personal growth initiative scale (PGIS) surveys after their interaction with their providers agreed that they knew what they had to do to make a change in their life and had a concrete action plan.

The goal and success of MI is that it is patient led and individualized. Miller and Rollnick (2013), the founders of MI, spoke to this when they discussed the spirit of MI and the four elements which are “partnership, acceptance, compassion, and evocation” (p. 401). The goal is for the provider to empower the patient, having the attitude that, “You have what you need, and together we will find it” (Miller & Rollnick, 2013, p. 509).

This was evident in the patient responses to question four on the MI template. Each of the patients' responses were different and was something they came up with by themselves. The intervention was not something the provider told them to do. Table 8 shows some of the patient responses to question four.

Table 8

Patient Responses to Question Four

Patient no.	Question four response
1	“Cut out dessert, my wife is losing weight, encourage and piggyback off her.”
2	“Make a commitment to walk on the street by my house and engage my wife.”
13	“Weighing food that I eat, eat less.”
14	“Walk more and use the exercise bike, track calories.”
17	“Use weight loss app to track calories.”
22	“Stop eating at night, go to the gym at night when the kids go to bed.”
24	“Eat less fat, no more fast food.”

Based on the literature review conducted earlier in this project, the evidence for incorporating MI into the primary care setting was overwhelming, and the results of this field study appear to align with current research (Barnes & Ivezaj, 2015; Carels et al., 2007; Hardcastle et al., 2013; Low et al., 2013; Rodriguez-Cristobal et al., 2017).

The results of the study also coincide with the foundational beliefs of the theoretical framework chosen for this DNP scholarly project. This project has two guiding theories. The first is very evident and that is MI, which as mentioned before is a patient led and individualized method of communicating and talking to patients about certain behavioral change topics, such as weight loss. Most of the questions created on the MI template in this project were based on MI. The other theory, however, chosen for this project is the HBM. There are many components of this theory, but research has shown that two aspects of the theory, perceived barriers and perceived benefits, are the most beneficial for provoking change in patients (Carpenter, 2010; Janz & Becker, 1984). This was evident in questions five and six of the MI template. Question five asks the patients to think about what are some barriers that will prevent them from succeeding in their chosen weight loss interventions. Question six asks the patients to identify their perceived benefits, by asking “How do you see your life improving if you do succeed?”

Although the sample size was small, there were positive results from both the providers and the patients. The MI is not standard practice for any type of discussions between providers and their patients; implementation of the MI template created in this project has potential to become an easy addition to any annual physical or appointment in primary care.

Limitations

There were a few limitations identified in this project. Limitations to the study included the total number of clinics involved, as well as provider and patient willingness to participate. There was only one clinic in which the project was implemented. Data had the potential to be significant if the MI template could have been implemented at multiple

clinics simultaneously. However, the researcher was limited as only one clinic was willing to participate. If this project were to be implemented again, using the template at multiple clinics during the same time period would be recommended.

Another limitation was that within the clinic, only two of the five providers were willing to use and implement the MI template. Again, if all five of the providers were willing to participate, a greater number of patients could have been surveyed as well as more provider data could have been collected, possibly resulting in statistically significant data. Most of the providers did not want to participate because they felt that the template would take too long to use. In reality, the template only took an extra three minutes of the providers' time. If this project were to be implemented again, this information would be provided at the start of the project and included in the providers' PowerPoint education.

Another limitation to the study included the validity of the modified PGIS tool. Although the full PGIS tool had shown to be valid in other studies, the modified form used on this study was not validated. The choice was made to modify based on the committee members' suggestion and the age group of the patient sample.

The MI template created in this project was also a student-created questionnaire. Although it was based off highly reviewed theoretical models such as MI and the HBM, it would have been better to have content experts review the template for content validity before using it with the patients.

Finally, not all patients at the clinic who qualified for the study consented to participate, thus creating a lower patient number for data collection. The hope was to have at least 30 willing patients, but only 25 patients were willing at the end. Again, this

would not have been as difficult with more providers and more clinics.

Recommendations for further data collection would be to have more opportunities for patient participation with more providers and clinic locations. Suggestions would be to use the full PGIS survey as that tool has been validated in multiple studies along with the MI template that had content expert reviews.

Recommendations for Future Practice

Recommendations for future practice include using the MI template on a larger scale with more clinics, more providers, more patients, and edited and validated tools as discussed in the limitations to determine if the preliminary results of this study can be reproduced with statistically significant data. It is also recommended to assess a patient's weight six to 12 months after initiation of the intervention to see if there was a 5% total body weight loss. It would be interesting to assess to see if longitudinal quantitative data could be obtained and associated with this study. The MI as seen in the literature review has been a well-established form of communication, especially with topics associated with behavior change such as with smoking cessation, addiction, and weight loss (Carels et al., 2007; Lindson-Hawley et al., 2015; Rubak et al., 2005; Smedslund et al., 2011). The MI is not routinely practiced in primary care at this time, but by creating an easy to use MI template based on the HBM, this project may have found a way to implement MI into daily practice. Further research is needed to confirm the results of this study.

Reflections

The American Association of Colleges of Nursing (AACN) has created eight essentials that address foundational competencies associated with all advanced nursing practice roles but are closely tied to the DNP. Two tracks have been established for

nurses seeking the highest degree in nursing; these two tracks are research focused, Doctor of Philosophy degree, and practice focused (AACN, 2006). Both programs share demanding expectations with a commitment to advancing the profession of nursing; however, the DNP places a higher emphasis on practice versus theory, meta-theory, research, and statistics (AACN, 2006). The eight DNP essentials listed below have been met by this DNP scholarly project.

- Essential I: Scientific underpinnings for practice.
- Essential II: Organizational and systems leadership for quality improvement and systems thinking.
- Essential III: Clinical scholarship and analytical methods for evidence-based practice.
- Essential IV: Information systems/technology and patient care technology for the improvement and transformation of health.
- Essential V: Health care policy for advocacy in health care policy.
- Essential VI: Interprofessional collaboration for improving patient and population health outcomes.
- Essential VII: Clinical prevention and population health for improving the nation's health.
- Essential VIII: Advanced nursing practice.

Essential I

This essential has been met as this DNP scholarly project has combined the knowledge gleaned from the literature review in ethics, biophysical, psychosocial, analytical, and organizational sciences to apply the theory of MI and the HBM to create a

template that could be implemented and evaluated in a practice setting to determine strategies to “enhance, alleviate, and ameliorate health and health care delivery phenomena” (AACN, 2006, p. 9). The MI template also demonstrates a new practice approach based on theories from other disciplines as MI has roots in psychology (Miller & Rollnick, 2013).

Essential II

This DNP scholarly project has met Essential II, which states that a DNP has more responsibility than just caring for patients directly. The DNPs must also use their education to care for “a panel of patients, a target population, a set of populations, or a broad community” (AACN, 2006, p. 10). In this case the project focused on a population of patients that had a body mass index (BMI) greater than 30, which is associated with multiple comorbidities. The MI template created in this project demonstrated a feasible and cost-effective remedy to actively engage a patient population that is high risk, thus giving patients and providers a positive platform for weight loss discussions.

Essentials III and IV

This DNP scholarly project has met Essentials III and IV. Analytical methods to appraise existing literature and determine how to implement best evidence for practice were demonstrated in Chapter II, Review of the Literature. Chapter III spoke to the design and implementation process created to determine outcomes of practice. Surveys and assessments were created to determine whether the outcomes would promote safe and relevant data that could generate meaningful evidence for nursing practice. Although the study did not produce statistically significant data, the results were promising and reproducible, thus showing the potential for research to improve health care outcomes.

Essential V

Essential V discusses health care policy and how it can be created through government actions, organizational standards, or institutional decision making (AACN, 2006). Health care policy creates a framework for providers to deliver health care services in a safe and effective manner. Through the design of the MI template this project created a framework for providers to deliver health care by providing an opportunity for positive weight loss discussions and concrete interventions. By having a positive weight loss conversation, the goal was to help patients and providers take steps towards fighting the obesity epidemic in this country. The two providers using the template stated they would most likely use the template again, thus showing a potential for health policy change in that particular clinic.

Essential VI

Essential VI discusses the importance of effective communication and collaborative skills for the DNP in the development and implementation of practice models (AACN, 2006). This project was the product of communication with other providers on the needs of the clinic. A discussion was conducted with a specific provider on what would be an easy and effective way to promote healthy living and weight loss with their patients. This specific provider proposed an option for creating a template that could be used and followed. After that discussion the project idea was born, literature reviews were done, and the MI template was created. This is a simple example of how effective communication can lead to implementation of practice models and practice change, especially when performed by an educated individual such as a DNP.

Essential VII

Essential VII promotes the importance of clinical prevention and population health. Primary care providers are at the forefront of clinical prevention, health promotion, and population health. It is the primary care providers' job to keep their patients healthy and away from acute crises. "Clinical prevention is defined as health promotion and risk reduction/illness prevention for individuals and families" (AACN, 2006, p. 15). The entirety of this project has met this essential. The MI template created in this project focused on health promotion and weight loss for individuals at risk for multiple comorbidities related to their weight. This project aligned with the recommendations for health promotion of government agencies such as the U.S. Preventative Services Task Force (USPSTF) (2018).

Essential VIII

Finally, Essential VIII discusses the advanced nursing practice role and how "increased knowledge and sophistication of health care has resulted in the growth of specialization in nursing in order to ensure competence in highly complex areas of practice" (AACN, 2006, p. 16). Health care is changing daily. There are new treatments and cures being developed and discovered that will forever change the way medicine is practiced. Having the education as a doctorate prepared advance practice nurse opens opportunities to be on the front lines of medicine caring for patients in highly complex areas of practice with full confidence and competence. This DNP scholarly project is a small example of the dedication it takes to achieve such a degree and brings together all the Essential Competencies I through VIII as discussed above. As stated by the AACN (2006),

The final DNP project produces a tangible and deliverable academic product that is derived from the practice immersion experience. The final DNP product documents outcomes of the student's educational experiences provides a measurable medium for evaluating the immersion experience and summarizes the student's growth in knowledge and expertise. (p. 20)

**Enhances, Culmination, Partnerships, Implements,
Evaluates: Criteria for a Successful Doctor of
Nursing Practice Scholarly Project**

There are five criteria that must be fulfilled by the final DNP scholarly project defined by the AACN (2006) and the National Organization of Nurse Practitioner Faculties (Waldrop et al., 2014). This definition states that the “project should address a complex practice, process, or systems problem in the practice setting, (and) use evidence to improve practice, process, or outcomes” (Waldrop et al., 2014, p. 301). The five criteria are represented by enhances, culmination, partnerships, implements, evaluates (EC as PIE) (Waldrop et al., 2014) (see Figure 1).

The three objectives of this project were created in Chapter I to align with the defined criteria that must be fulfilled by the final DNP project based on the definition created and agreed upon by the AACN 2006, and the National Organization of Nurse Practitioner Faculties (Waldrop et al., 2014). Below is a list of the objectives and how they were met by this DNP scholarly project, meeting the criteria for EC as PIE (E = enhances; C = culmination; P = partnerships; I = implements; E = evaluates) (Waldrop et al., 2014).

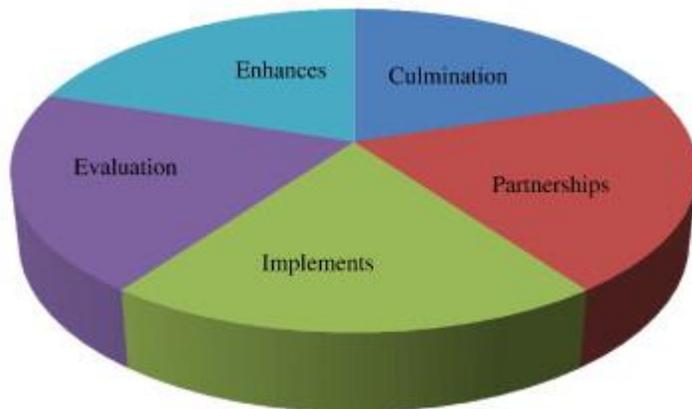


Figure 1. Five criteria for a successful Doctor of Nursing Practice final project. From “EC as PIE: Five Criteria for Executing a Successful DNP Final Project,” by J. Waldrop, D. Caruso, M. A. Fuchs, and K. Hypes, 2014, *Journal of Professional Nursing*, 30(4), p. 301.

Objective 1

This project has enhanced health outcomes with patient-centered weight loss interventions by culminating education, relationships, and health care needs to create a practical tool for providers to discuss weight loss. Discussing weight loss is a grade B recommendation from the USPSTF and inconsistencies in practice are evident. By creating a MI template for providers to use with patients with a BMI of 30 or greater, this project was successful in providing a more efficient model than what was currently being used by two providers in an internal medicine clinic in Lakewood. This objective was met and measured by using a pre- and post-assessment Likert scale for the providers to assess their reported self-confidence in their discussions with their patients as well as if they are most likely to continue to use the template. Although the numbers were small the results were promising and could easily be reproducible.

Objective 2

This objective was met by completing research and implementing evidence-based theory into practice with the use of MI and the creation of a template grounded in MI and the HBM for weight loss interventions in primary care. This project reflected a culmination of practice inquiry that enacted change that was pragmatic and practical for two primary care providers. The project as well as the MI template demonstrated how theory could be translated into practice. Again, although there was a small sample, the project could be reproducible and sustainable and there are hopes that it can be implemented on a larger scale sometime in the future, thus showing evidence of implementation and evaluation.

Objective 3

This project demanded that the researcher engage in partnerships. Partnerships were formed with the nurse practitioner and physician assistant at the internal medicine clinic who conducted the interventions. Partnerships were also formed with the committee members of this project; their reviews and expert recommendation made this project possible. Most importantly partnerships were formed with the patients as they are the consumers of health care. The creation of the MI template was an attempt to take theories such as MI and the HBM to promote confidence in patients, allowing them to feel like they are a partner in their health care and not simply a victim.

Conclusion

As obesity continues to be a growing concern in this nation, primary care providers have a professional obligation to discuss weight and weight loss with their patients. It is a known fact that obesity, especially in the targeted BMI range of 30 and

greater, puts people at high risk for strokes, heart attacks, and various cancers. The USPSTF (2018) stated that some of the most effective interventions for weight loss includes intensive behavioral interventions that combine dietary changes and increased physical activity to achieve a weight loss of 5% or greater of a total body weight.

Studies have been conducted to assess the effectiveness of MI and weight loss, and many of the studies have shown promise as MI focuses on the individual and what motivates one to change. Rubak et al. (2005), in a literature review to assess MI in different areas of disease, found that MI in a scientific setting effectively helps clients change their behavior and outperforms traditional advice giving in about 80% of the studies.

The preliminary results of this project appear to support the current literature. The two providers who used the template stated they would most likely continue to use the template, and they felt the template provided a platform for a healthy weight loss discussion with their patients they would not have had if they did not use the template. Patients seemed to respond positively to the template as over 80% of them stated that after the provider used the template, they felt they had an action plan for change. This study should be performed again with more providers and more patients to determine if this template could become part of standard practice.

Finally, as stated by Waldrop et al. (2014), “A DNP final project that meets the five criteria will be one that enhances health outcomes for individual patients or systems of care” (p. 305). This project has not only had an impact on two specific providers and how they care for their patients, but it has also hopefully had a positive impact on the patients involved and has motivated them to take steps towards healthy living. This is the

whole goal of a DNP project; evoke change and make a difference, even in small numbers.

REFERENCES

- Aleem, S., Lasky, R., Brooks, W., & Batsis, J. (2015). Obesity perceptions and documentation among primary care clinicians at a rural academic health center. *Obesity Research & Clinical Practice*, 9(4), 408–415. doi:10.1016/j.orcp.2015.08.014
- American Association of Colleges of Nursing. (2006). The essentials of doctoral education for advanced nursing practice. Retrieved from <http://www.aacnursing.org/portals/42/publications/DNPEssentials.pdf>
- Barley, E., & Lawson, V. (2016). Using health psychology to help patients: Theories of behavior change. *British Journal of Nursing*, 25(16), 924–927. doi:10.12968/bjon.2016.25.16.924
- 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
- Berger, N. A. (2014). Obesity and cancer pathogenesis. *Annals of the New York Academy of Sciences*, 1311(1), 57–76. doi:10.1111/nyas.12416
- Bhupathiraju, S., & Hu, F. (2016). Epidemiology of obesity and diabetes and their cardiovascular complications. *Circulation Research*, 118(11), 1723–1735. doi:10.1161/CIRCRESAHA.115.306825
- Boston University, School of Public Health. (2018). *Behavioral change models*. Retrieved from <http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories2.html>
- Carels, R. A., Darby, L., Cacciapaglia, H. M., Konrad, K., Coit, C., Harper, J., . . . Versland, A. (2007). Using motivational interviewing as a supplement to obesity treatment. *Health Psychology*, 26(3), 369–374. doi:10.1037/0278-6133.26.3.369
- Carpenter, C. J. (2010). A meta-analysis of the effectiveness of health belief model variables in predicting behavior. *Health Communication*, 25(8), 661–669. doi:10.1080/10410236.2010.521906
- Centers for Disease Control and Prevention. (2019). *Overweight & Obesity*. Retrieved from <https://www.cdc.gov/obesity/index.html>

- Cohen, J. (2017). Hypertension in obesity and the impact of weight loss. *Current Cardiology Reports*, 19(10), 1–8. doi:10.1007/s11886-017-0912-4
- Colorado Preferred Physicians Organization, Inc. (2010). *About CPPO*. Retrieved from <https://www.coloradopreferredphysicians.com/content/about-cppo>
- Community health center. (2019, October 19). In *Wikipedia*. Retrieved from https://en.m.wikipedia.org/wiki/Community_health_center.
- Elwyn, G., Dehlendorf, C., Epstein, R., Marrin, K., White, J., & Frosch, D. (2014). Shared decision making and motivational interviewing: Achieving patient-centered care across the spectrum of health care problems. *Annals of Family Medicine*, 12(3), 270–275. doi:10.1370/afm.1615
- Fruh, S. M. (2017). Obesity: Risk factors, complications, and strategies for sustainable long-term weight management. *Journal of the American Association of Nurse Practitioners*, 29(S1), S3–S14. doi:10.1002/2327-6924.12510
- Hardcastle, S. J., Taylor, A. H., Bailey, M. P., Harley, R. A., & Hagger, M. S. (2013). Effectiveness of a motivational interviewing intervention on weight loss, physical activity and cardiovascular disease risk factors: A randomized controlled trial with a 12-month post-intervention follow-up. *The International Journal of Behavioral Nutrition and Physical Activity*, 10(1), 40. doi:10.1186/1479-5868-10-40
- Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. *Health Education & Behavior*, 11(1), 1–47. doi:10.1177/109019818401100101
- Khandalavala, B. N., Rojanala, A., Geske, J. A., Koran-Scholl, J. B., & Guck, T. P. (2014). Obesity bias in primary care providers. *Family Medicine*, 46(7), 532. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/25058546>
- Kolb, R., Sutterwala, F., & Zhang, W. (2016). Obesity and cancer: Inflammation bridges the two. *Current Opinion in Pharmacology*, 29, 77–89. doi:10.1016/j.coph.2016.07.005
- Landsberg, L., Aronne, L. J., Beilin, L. J., Burke, V., Igel, L. I., Lloyd-Jones, D., & Sowers, J. (2013). Obesity-Related hypertension: Pathogenesis, cardiovascular risk, and treatment. *The Journal of Clinical Hypertension*, 15(1), 14–33. doi:10.1111/jch.12049
- Lindson-Hawley, N., Thompson, T. P., & Begh, R. (2015). Motivational interviewing for smoking cessation. *The Cochrane Database of Systematic Reviews*, (3), CD006936. doi:10.1002/14651858.CD006936.pub3

- Low, K., Giasson, H., Connors, S., Freeman, D., & Weiss, R. (2013). Testing the effectiveness of motivational interviewing as a weight reduction strategy for obese cardiac patients: A pilot study. *International Journal of Behavioral Medicine, 20*(1), 77–81. doi:10.1007/s12529-011-9219-9
- McVay, M. A., Yancy, J., William, S., Bennett, G. G., Jung, S., & Voils, C. I. (2018). Perceived barriers and facilitators of initiation of behavioral weight loss interventions among adults with obesity: A qualitative study. *BioMed Central Public Health, 18*(1), 854–11. doi:10.1186/s12889-018-5795-9
- Miller, W., & Rollnick, S. (2013). *Motivational interviewing: Helping people change* (3rd ed.) [Kindle edition]. New York, NY: The Guilford Press.
- Montgomery, K. S. (2002). Health promotion with adolescents: Examining theoretical perspectives to guide research. *Research and Theory for Nursing Practice, 16*(2), 119–134. doi:10.1891/rtnp.16.2.119.53001
- Motivational Interviewing Network of Trainers. (2018). *Welcome to the Motivational Interviewing Network of Trainers*. Retrieved from <https://motivationalinterviewing.org/>
- Riobó Serván, P. (2013) Obesity and diabetes. *Nutrición Hospitalaria, 28*, 138–143. ISSN: 0212-1611 info@nutriciónhospitalaria.com
- Robitschek, C. (2019). *Personal growth initiative scale*. Retrieved from University of Pennsylvania, Positive Psychology Center website: <https://ppc.sas.upenn.edu/resources/questionnaires-researchers/personal-growth-initiative-scale>
- Robitschek, C., Ashton, M. W., Spering, C. C., Geiger, N., Byers, D., Schotts, G. C., & Thoen, M. A. (2012). Development and psychometric evaluation of the personal growth initiative scale–II. *Journal of Counseling Psychology, 59*(2), 274–287. <http://dx.doi.org.unco.idm.oclc.org/10.1037/a0027310>
- Rodriguez-Cristobal, J. J., Alonso-Villaverde, C., Panisello, J. M., Travé-Mercade, P., Rodriguez-Cortés, F., Marsal, J. R., & Peña, E. (2017). Effectiveness of a motivational intervention on overweight/obese patients in the primary healthcare: A cluster randomized trial. *BioMed Central Family Practice, 18*(1), 74–8. doi:10.1186/s12875-017-0644-y
- Rubak, S., Sandbæk, A., Lauritzen, T., & Christensen, B. (2005). Motivational interviewing: A systematic review and meta-analysis. *British Journal of General Practice, 55*(513), 305–312.

- Ruelaz, A., Diefenbach, P., Simon, B., Lanto, A., Arterburn, D., & Shekelle, P. (2007). Perceived barriers to weight management in primary Care—Perspectives of patients and providers. *Journal of General Internal Medicine*, 22(4), 518–522. doi:10.1007/s11606-007-0125-4
- Smedslund, G., Berg, R. C., Hammerstrøm, K. T., Steiro, A., Leiknes, K. A., Dahl, H. M., & Karlsen, K. (2011). Motivational interviewing for substance abuse. *The Cochrane Database of Systematic Reviews*, (5), CD008063. doi:10.1002/14651858.CD008063.pub2
- Timmerman, G. M., Reifsnider, E., & Allan, J. D. (2000). Weight management practices among primary care providers. *Journal of the American Academy of Nurse Practitioners*, 12(4), 113–116. doi:10.1111/j.1745-7599.2000.tb00289.x
- U.S. Health Resources & Services Administration. (2018). About HRSA. Retrieved from <https://www.hrsa.gov>
- U.S. Preventive Services Task Force. (2018). *Final recommendation statement*. Retrieved from <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/obesity-in-adults-interventions1>
- VanBuskirk, K., & Wetherell, J. (2014). Motivational interviewing with primary care populations: A systematic review and meta-analysis. *Journal of Behavioral Medicine*, 37(4), 768–780. doi:10.1007/s10865-013-9527-4
- Waldrop, J., Caruso, D., Fuchs, M. A., & Hypes, K. (2014). EC as PIE: Five criteria for executing a successful DNP final project. *Journal of Professional Nursing*, 30(4), 300–306. doi:10.1016/j.profnurs.2014.01.003
- Wing, R., Lang, W., Wadden, T., Safford, M., Knowler, W., & Bertoni, A. (2011). *Diabetes care*, 34(7), 1481.
- Woodruff, R. C., Schauer, G. L., Addison, A. R., Gehlot, A., & Kegler, M. C. (2016). Barriers to weight loss among community health center patients: Qualitative insights from primary care providers. *BioMed Central Obesity*, 3(1) doi:10.1186/s40608-016-0123-3

APPENDIX A

**MOTIVATIONAL INTERVIEWING AND THE
HEALTH BELIEF MODEL TEMPLATE
(WEIGHT LOSS)**

**Motivational Interviewing and the Health Belief Model
Template (weight loss)**

1. Engaging question- How have you been feeling about your weight lately?
2. Focusing question- What can you change in your life that you think might make the biggest difference for you in your weight?
3. Evoking question- What do you think could be some advantages if you were to lose weight?
4. Planning question- How would you implement that change daily?
5. Health belief question- What are the barriers you see that will prevent you from succeeding?
6. Health belief question- How do you see your life improving if you do succeed?

APPENDIX B
CONSENT FORMS



Health Care Provider Consent

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH UNIVERSITY OF NORTHERN COLORADO

Project Title: Motivational Interviewing for Weight Loss in Primary Care
Researcher: Hannah Brumbaugh RN, BSN, DNP-FNP Student
Phone Number: (xxx) xxx-xxxx e-mail: brum1340@bears.unco.edu

I am researching the use of a template based in motivational interviewing for health care providers to have an effective conversation with their patients about weight loss interventions. As a participant in this research, you will be asked as a health care provider to use the template with your patients to talk about weight loss interventions and to fill out a six question survey prior to using the template and a eight question survey after using the template about your interaction with your patient's and if you feel the template it useful. This will take place during your physical exams with your patients. The surveys should not take you more than five minutes to fill out. The template will just be an added piece to your interactions with your patients.

For the survey, you will not provide your name. Therefore, your responses will be anonymous. Only the researcher will examine individual responses. Results of the study will be presented in group form only (e.g., averages).

Risks to you are minimal. The patients may feel anxious or frustrated with the weight loss discussion had with you, and you may also feel uncomfortable having a weight loss conversation with your patients, but we are trying to minimize these feelings as the template is geared to the patient's feelings and preferences about weight loss and how you can be successful. The benefits to you include having a positive conversation about weight loss with your patients and guiding your patients to attainable weight loss goals.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Please take your time to read and thoroughly review this document and decide whether you would like to participate in this research study. If you decide to participate, your completion of the research procedures indicates your consent. Please keep or print this form for your records. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.



Patient Consent

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: Motivational Interviewing for Weight Loss in Primary Care
Researcher: Hannah Brumbaugh RN, BSN, DNP-FNP Student
Phone Number: (xxx) xxx-xxxx e-mail: brum1340@bears.unco.edu

With the help of your health care providers here at the clinic I am researching the use of a template based in motivational interviewing for your health care providers to have an effective conversation with you about weight loss interventions. As a participant in this research, you will be asked to allow the health care provider to use the template to talk to you about weight loss interventions and to fill out a four-question survey about your interaction with them. This will take place during your physical exam today. The survey is only four questions and should not take you more than five minutes to fill out. The template will just be an added piece to your visit that will be used by your health care provider today.

For the survey, you will not provide your name. Therefore, your responses will be anonymous. Only the researcher will examine individual responses. Results of the study will be presented in group form only (e.g., averages).

Risks to you are minimal. You may feel anxious or frustrated with the weight loss discussion had with your provider, but we are trying to minimize these feelings as the template is geared to your feelings and preferences about weight loss and how you can be successful. The benefits to you include having a positive conversation about weight loss with your health care provider and leaving with attainable weight loss goals.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Please take your time to read and thoroughly review this document and decide whether you would like to participate in this research study. If you decide to participate, your completion of the research procedures indicates your consent. Please keep or print this form for your records. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

APPENDIX C
PROVIDER MOTIVATIONAL INTERVIEWING
PRE-ASSESSMENT

Provider Motivational Interviewing Pre-Assessment

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

1. I have prior knowledge of motivational interviewing.

(1, 2, 3, 4, 5)

2. I can identify three components of motivational interviewing.

(1, 2, 3, 4, 5)

3. During my weight loss discussions with my patients I do most of the talking, educating, and planning.

(1, 2, 3, 4, 5)

4. During my patient appointments it is important for me to provide education to my patients.

(1, 2, 3, 4, 5)

5. I consistently use motivational interviewing when I talk to my patients about their weight.

(1, 2, 3, 4, 5)

6. I feel that I can effectively change my patient's behavior and thoughts about weight loss by using motivational interviewing and the motivational interviewing template

(1, 2, 3, 4, 5)

APPENDIX D
PROVIDER MOTIVATIONAL INTERVIEWING
POST-ASSESSMENT

Provider Motivational Interviewing Post-Assessment

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree

1. I have prior knowledge of motivational interviewing

(1, 2, 3, 4, 5)

2. I can identify three components of motivational interviewing

(1, 2, 3, 4, 5)

3. During my weight loss discussions with my patients I do most of the talking, educating, and planning

(1, 2, 3, 4, 5)

4. During my patient appointments it is important for me to provide education to my patients

(1, 2, 3, 4, 5)

5. I consistently use motivational interviewing when I talk to my patients about their weight

(1, 2, 3, 4, 5)

7. I feel that I can effectively change my patient's behavior and thoughts about weight loss by using motivational interviewing and the motivational interviewing template

(1, 2, 3, 4, 5)

8. I have found the motivational interviewing template helpful

(1, 2, 3, 4, 5)

9. I will continue to use the motivational interviewing template

(1, 2, 3, 4, 5)

APPENDIX E
MODIFIED PERSONAL GROWTH INITIATIVE
SCALE

Modified Personal Growth Initiative Scale

Using the scale below, circle the number which best describes the extent to which you agree or disagree with each statement, based on your weight loss discussion with your provider today.

1 = Definitely disagree

2 = Mostly disagree

3 = Somewhat disagree

4 = Somewhat agree

5 = Mostly agree

6 = Definitely agree

1. I know how to change specific things that I want to change in my life.
(1, 2, 3, 4, 5, 6)

2. I know what I need to do to get started toward reaching my goals.
(1, 2, 3, 4, 5, 6)

3. I have a specific action plan to help me reach my goals.
(1, 2, 3, 4, 5, 6)

4. I have a plan for making my life more balanced.
(1, 2, 3, 4, 5, 6)

APPENDIX F
IMPLEMENTATION CONSENT

5/18/2019

Mail - brum1340@bears.unco.edu

Re: Hannah Brumbaugh DNP Project Implementation

Karen Charland <kkcharland@att.net>

Fri 4/26/2019 8:30 AM

To: Brumbaugh, Hannah <brum1340@bears.unco.edu>;

Hannah-

I have spoken to all of our physicians and we are all in agreement to allow you to proceed with your project.

Thank you

Karen Charland, NP

On Wednesday, April 24, 2019 01:37:23 PM EDT, Brumbaugh, Hannah <brum1340@bears.unco.edu> wrote:

Dear Karen,

This is an official request to implement my DNP Scholarly Project: *Motivational Interviewing and Weight Loss in Primary Care*, at your clinic the Internal Medicine Associates of Wheatridge this year from May 2019 until August 2019. I will be submitting my project for approval to the University of Northern Colorado Internal Review Board prior to implementation to ensure that the safety and confidentiality of your patients is maintained. I will also have consent forms to be signed for transparency of the project for the participating patients as well as providers. Thank you for your assistance. If you could reply to this email with acknowledgement and consent to proceed with the project that would be much appreciated. Again thank you.

Sincerely,

Hannah Brumbaugh

414-418-1902

brum1340@bears.unco.edu

APPENDIX G
INSTITUTIONAL REVIEW BOARD APPROVAL



Institutional Review Board

DATE: June 29, 2019

TO: Hannah Brumbaugh, DNP
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [1443797-2] Motivational Interviewing for Weight Loss in Primary Care
SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE: June 28, 2019
EXPIRATION DATE: June 28, 2023

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Nicole Morse at 970-351-1910 or nicole.morse@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.