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Brenda L. Jaeger

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Obesity Group Medical Visits

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**Table of Contents**

Abstract .....	5
Introduction and Background .....	6
Group Visits .....	9
Problem Statement .....	13
Review of the Literature .....	14
Methods.....	14
Group Visits .....	14
Obesity .....	15
Clinical Guidelines on Obesity Treatment .....	16
Veterans Health.....	16
Diabetes Prevention .....	18
Chronic Care Model Group Visits .....	19
Patient and Provider Satisfaction with Group Visits .....	21
Theoretical Framework.....	23
Stages of Change.....	24
Project Description, Implementation and Monitoring .....	25
Description of the Group, Population or Community.....	25
Organizational Analysis of Project Site .....	25
Evidence of Stakeholder Support.....	26
Facilitators and Barriers.....	26

Project Plan .....	27
Project Design and Feasibility .....	27
Goals, Objectives and Outcomes .....	29
Cost Analysis/Budget.....	30
Ethics and Human Subjects Protection .....	31
Implementation/Evaluation plan .....	32
Timeline .....	33
Evaluation .....	34
Results, Findings, Data Analysis .....	34
Discussion .....	40
Limitations .....	43
Conclusion .....	44
References.....	46
Appendix A (Transtheoretical Model: Stages of Change).....	57
Appendix B (Stages by Principle and Processes of Change) .....	59
Appendix C (Confidentiality/HIPAA).....	61
Appendix D (Invitation Letter) .....	62
Appendix E (Pre-visit Questionnaire).....	63
Appendix F (Session Descriptions) .....	66
Appendix G (Projected Costs) .....	67
Appendix H (IRB Exception) .....	69
Appendix I (Food Diary) .....	70
Appendix J (Goals Worksheet).....	71

Appendix K (Individual Session Patient Satisfaction Survey) .....73

Appendix L (Final Visit Patient Satisfaction Survey) .....74

Appendix M (Provider Evaluation) .....76

Appendix N (Post Visit Questionnaire) .....77

Appendix O (Final Group Evaluation Graph) .....78

Appendix P (Provider Evaluation Graph).....79

## Abstract

*Background:* Obesity is a major risk factor associated with multiple chronic diseases, presenting a significant global health challenge. Current evidence supports that group medical visits, an alternative format for the provision of primary care, are effective in disease management. *Purpose:* The goal of this project was to examine the effectiveness of group medical visits for the management of obesity in primary care. *Methods:* Individuals with a BMI greater than 30 participated in a series of six multidisciplinary group medical visits over a 12-week period. Each session included a brief individual medical visit followed by group education and discussion. Topics included; introduction and goal setting, behavior changes, nutrition, physical activity, challenges/struggles, and future goals. *Results:* Data was obtained pre and post 12 week group sessions from health records and from questionnaires. Nine individuals age 52 to 76, with a variety of chronic medical conditions in addition to obesity, participated. Following with 12-week group sessions, attendees, as a group had a decrease in weight ( $P=.006$ ), BMI ( $P=.007$ ) and waist circumference ( $P=.019$ ). Participants and providers indicated high levels of satisfaction. All participants found that they were able to make better choices about general health, identified group visits as more helpful than individual healthy life style discussions, and would participate in this type of visit again. *Conclusions:* This collaborative model of care needs further evaluation with larger groups; however, the group medical visit appears to be a successful method for educating and supporting lifestyle modifications for individuals with obesity in this clinical setting.

*Keywords:* group medical visit, group visit, shared medical appointment, obesity

### **Introduction and Background**

Chronic disease is a significant public health issue. It is a leading cause of mortality, morbidity, disability, pain, reduction in quality of life and health care costs (Jaber, Braksmajer & Trilling, 2006a). In the United States chronic diseases are responsible for 70 percent of all deaths each year. Eighty-six percent of our nation's health care costs are related to treating people with chronic diseases (National Center for Chronic Disease Prevention and Health Promotion, 2015). As of 2012, about half of all adults had one or more chronic health conditions and one in four had two or more chronic health conditions (National Center for Chronic Disease Prevention and Health Promotion, 2015). Chronic diseases are among the most common, costly and preventable health problems.

Significant contributors of chronic disease can be linked to a short list of risk factors and most adults have more than one of these risk factors (National Center for Chronic Disease Prevention and Health Promotion, n.d.). Risk factors include: high blood pressure, tobacco use, exposure to secondhand smoke, obesity, physical inactivity, excessive alcohol use, diet low in fruits and vegetables and a diet high in sodium and saturated fats. These risk factors are modifiable making many of these disease states highly preventable. According to the World Health Organization it is estimated that if major risk factors for chronic disease were eliminated at least 80 percent of all heart disease, stroke and type 2 diabetes would be prevented and that more than 40% of cancer cases could be prevented (National Center for Chronic Disease Prevention and Health Promotion, 2009). The strategies for reducing risk factors for chronic disease need to focus on providing and encouraging healthy lifestyle choices.

Obesity, one of the major risk factors associated with chronic disease, is a significant global health challenge. The worldwide prevalence of adults being overweight and obese

combined has risen by 27.5% between 1980 and 2013 (Ng et al., 2014). The U.S. in particular stands out for its high prevalence of obesity. Unfortunately, more than 50% of the 671 million obese individuals in the world live in ten countries (listed in order of number of obese individuals): these countries include the U.S., China, India, Russia, Brazil, Mexico, Egypt, Germany, Pakistan and Indonesia (Ng et al., 2014, p.777). More than two-thirds (68.8 percent) of U. S. adults are considered to be overweight or obese with more than one-third (34.9% or 78.6 million) being obese or having a body mass index (BMI) of 30 or greater (Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, 2015).

Although rates are lower than the national average in Massachusetts, obesity is still problematic. More than half of adults are overweight or obese with almost a quarter being obese (Mass.gov, 2015). These rates are consistent with the patient population at the health center medical practice. The health center primarily serves patients in both Hampshire and Hampden counties. In Hampshire County the obesity rate is 22 percent and physical inactivity rate is 15 percent which is below the state average, whereas in Hampden County the obesity rates is 29 percent and physical inactivity rate is 27 percent which is above the state average rates (County Health Rankings, 2015). These obese individuals are at increased risk for diabetes mellitus, cardiovascular disease, hypertension, arthritis, certain cancers and many other conditions.

In 2008 the estimated annual medical cost of obesity in the U.S. was \$147 billion, with the medical costs for people who are obese \$1,429 higher than those of normal weight (Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, 2015) and may be as high as \$210 billion annually. Employment absenteeism related to obesity costs \$4.3 billion annually (The State of Obesity, 2015). If the current trends in



obesity rates continue by the year 2030, the combined medical costs associated with treating preventable obesity-related diseases are estimated to increase by \$48 billion to \$66 billion per year and the loss in economic productivity could be between \$390 billion and \$580 billion annually (The State of Obesity, 2014).

A concerted effort needs to occur to help optimize the public health of our nation and control health care costs. The Centers for Disease Control and Prevention (CDC) recommends coordinating chronic disease prevention efforts into four key domains: epidemiology and surveillance, environmental approaches, health care system interventions and community programs linked to clinical services (National Center for Chronic Disease Prevention and Health Promotion, n.d.). With one of the biggest and costliest aspects of health care being the treatment of chronic diseases the primary care provider can play a key role in facilitating health care system interventions that increase use and improve the quality of clinical and other preventive services. They serve as a critical entry point in the health care setting for the obese population (Haire-Joshu & Klein, 2011). The high prevalence rate of obesity and its association with medical complications pretty much guarantees that obese patients are frequently encountered in the primary care practice (Haire-Joshu & Klein, 2011). Individuals that receive physician advice for weight loss have higher odds of attempting weight loss (Ely et al., 2011).

Primary care providers are instrumental in improving health and reducing adverse outcomes as well as health care costs. There are concerns that although the Accountable Care Act expands the number of Americans with health care coverage that this will result in not having enough practitioners to meet the growing demand for services. An estimated 65 million Americans presently live in areas with a shortage of primary care providers (Freundlich, N. & Staff of The Commonwealth Fund, 2013). Similar disparities between the local counties exist in

relation to primary care providers with Hampshire County being above the state average and Hampden County being significantly lower. Easier access to primary care and innovations in care models is vital to improving the quality of health care and controlling the country's high medical costs. Therefore, this project was designed to evaluate the effectiveness of the group medical visit in the ability to deliver extensive patient education and self management instruction to promote weight loss, improve patient satisfaction and overall outcomes in the clinical setting.

### **Group visits**

Determinants of obesity are multifactorial. Certain behaviors, educational attainment, socioeconomic status and environmental influences all contribute to the obesity epidemic. Individual patient obesity care should focus on assisting the patient in making healthier dietary and physical activity choices that can lead to weight loss, preventing further weight gain and improved overall health. This starts with educational awareness on some of the obesity-promoting behaviors described by (Affenito, Franko, Striegel-Moore & Thompson, 2012) such as frequent fast food consumption, dining out, large portion sizes, high consumption of sugary beverages and skipping breakfast which can all contribute to weight gain. These behaviors combined with an increased sedentary lifestyle and numerous other factors all play a causal role in the higher prevalence of Americans being overweight or obese.

In addition to general health promotion information educational programs should be tailored toward teaching behavioral skills such as: goal-setting and self-monitoring of progress toward those goals, building social support for new behaviors, behavioral reinforcement through self-reward and positive self-talk, structured problem solving to maintain behavior changes and prevent relapse of sedentary behaviors (USA.gov, 2014). Comprehensive lifestyle management which is the prevailing principle associated with maintaining a healthy weight is best met

through a multidisciplinary collaborative approach that is consistent with the chronic disease management model and is key in supporting patient self-management, motivation and adherence (Kushner & Sur, 2014). According to Kushner (2012) one of the most useful strategies to aid in achieving lifestyle goals is to include a self-monitoring diary as part of the treatment program. These principles are consistent with the group medical visit concept.

Patient-provider relationships have changed considerably over the past 50 years, previously patients assumed a primarily passive role, however now patients are taking a much more active role in their care. Group medical visits introduced in the 1990's were developed by health psychologist Dr. Edward Noffsinger at Kaiser of Northern California as a way to optimize time and quality of care provided to the growing number of individuals in the United States living with a chronic medical condition through enhanced patient education and support (Bronson & Maxwell; Wong, Lavoie, Browne, Macleod & Chongo, 2015). Group medical visits offer a refreshing format for the delivery of patient-centered care for chronic medical conditions (Lavoie et al., 2013). Group medical visits actively engage patients in health promotion and disease management (Lum et al., 2016).

Unfortunately, obesity tends to be neglected when compared to other chronic conditions, although it is often a significant contributor to the development or worsening of these conditions (Baillargeon et al., 2014). This fact combined with rising health care costs and the growing number of individuals living with one or more chronic conditions has sparked an interest in the utility of group medical visits. Health care providers face constant pressure to increase productivity while meeting the demands of providing quality care to the growing number of individuals with chronic disease (Barud, Marcy, Armor, Chonlahan & Beach, 2006). The terms

group medical visit and shared medical appointment are often used interchangeably and any reference to either is a reflection to the same concept.

Basic treatment of overweight and obesity is not simple and requires a comprehensive approach involving diet and nutrition, regular physical activity and behavioral changes with a focus on long-term weight management rather than immediate extreme weight reduction (Ely et al., 2011). Group medical visits offer an alternative format for the provision of primary care that brings together the benefit of a group process and of a clinical encounter. Trotter (2013) shares that “group medical visit programs have emerged in an effort to increase efficiency, improve service and quality of healthcare, and better manage high risk patient populations” (p. 48). The group visit model has emerged as one potential solution to assist in combating the limitations related to the current health care structure and the demands associated with chronic illness management (Jaber et al., 2006a).

There are two basic formats to group visits: cooperative health-care clinics (CHCCs) and drop in medical appointments (DIGMAs). CHCCs which are the primary format we are discussing are characterized by a group of individuals that share a common diagnosis or concern who are scheduled to attend a group medical visit session that has a formal educational component, group discussion and individualized medical care (Jaber et al., 2006a; Lavoie et al., 2013). The DIGMA model allows different patients to drop in when they have a specific need. Group visits include most of the components of individual visits with the addition of group education and interaction.

The Future of Family Medicine project (2004) identified the need for a transformative patient centered care process that provides care through a multidisciplinary team approach grounded in a thorough understanding of the population served, eliminates barriers, improves

quality and safety, overall outcomes and enhances practice finances. Group visits support the team approach, although typically led by a physician or advanced practice nurse with the assistance of a medical assistant or nurse other subject matter experts are also normally part of the team in full or intermittent participation to include: a social worker, dietician, pharmacist, or mental health professional (Davis, Sawyer & Vinci, 2008; Kirsh et al., 2007). Group visits seem to be uniquely suited to meet the challenges associated with this necessary patient centered care process.

This modality involves the delivery of medical care in a group setting of several patients with a similar condition. These visits typically last between 90 minutes and two hours. Visits include group education and interaction and most elements of an individual patient visit, such as the collection of vital signs, history taking and physical exam performed by a physician or advanced practice nurse, prescribing of medications or laboratory studies and a designated plan of care (Jones, Napatsawan & Lekhak, 2014). The overall goal is to provide group education, support and individualized medical care to impact a designated condition. The peer interactions in the group medical visit setting can help facilitate positive lifestyle and behavior changes by creating a supportive clinical and social environment. Other potential benefits from group medical visits include: reduced healthcare expenses, improved patient and provider satisfaction, higher immunization rates, fewer repeat hospital admissions, fewer visits to the emergency department and specialists, increased physician productivity and practice cost per visit and increased patient compliance (Barud, et al., 2006).

The strongest evidence in support of group medical visits has surrounded diabetes management; however, there is significant promise for weight loss and obesity treatment. The group visit format offers the ideal venue for chronic disease management and prevention through

education and support in the reduction of key risk factors. Individual assessment, problem management and plan of care development which are standard in usual care are also included in the CHCC group medical visit model without the time constraints that often limit the ability to effectively provide comprehensive quality care. These visits offer the opportunity to provide accurate information on nutrition, physical activity and emotional wellbeing while promoting physical and psychological health resulting in both overall patient and provider satisfaction (Theobald & Masley, n.d.). Strengths associated with the group medical visit format include increased patient satisfaction, support for behavior change and patient engagement (Lum et al., 2016).

### **Problem Statement**

Obesity is a significant modifiable risk factor for the development of many chronic diseases and conditions including diabetes, heart disease, hypertension, depression, stroke, arthritis and some cancers affecting mortality, morbidity, disability, pain and quality of life. Primary care is the ideal setting to promote interventions aimed at reducing obesity in the general population. However, time and reimbursement constraints often limit the ability to effectively counsel and manage obesity care. As healthcare providers face increasing demands for improved productivity combined with an increasing number of patients with chronic illness, the group medical visit has proven to offer a viable solution to provide necessary and accurate information on nutrition, physical activity and emotional wellbeing in a supportive environment that not only improves outcomes, but also leads to higher provider and patient satisfaction (Theobald & Masley, n.d.).

## **Review of the Literature**

### **Methods**

An online search was conducted to identify literature published in English between 2000 and 2015 relating to group medical visits and obesity. The following data bases: PubMed (Medline), Health Reference Center Academic, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Academic Search Premier, Sage Journals and Science.gov were searched. The key search words used were group medical visits, group medical appointments, group visits, shared medical appointments and shared appointments, with and without the words obesity and weight loss. Search results varied from none found over 700 articles for those broad one term searches, with most of those above the 50 to 60 mark truly not applicable. The search was limited to articles published in the English language involving human subjects 18 years of age and older.

Five articles were specific to the group medical visit and the promotion of weight loss or obesity treatment. One of the five was excluded given that it was only an editorial summary. Two of the remaining four articles pertained to studies involving veteran experiences with healthy life style modifications. The role of the health care provider in relation to the group medical visit is to be the champion, group facilitator, offer health education and work with each individual in the group to develop a personalized education plan (Miller, Zantop, Hammer, Faust & Grumbach, 2004).

### **Group Visits**

Group medical visits are considered an innovation with great potential to improve chronic outcomes and patient satisfaction while lowering costs (Theobald & Masley, n.d.). They are a great way for individuals with similar diseases to have an opportunity to interact with and learn

from both providers and one another (Jaber et al., 2006a). During these group medical visits patients receive a routine health evaluation as well as educational information about their condition and prevention of complications and disease progression. In addition, they may have necessary prescriptions, referrals and laboratory tests ordered (Housden, Wong & Dawes, 2013).

The amount of time allocated for the visit and the frequency of meetings vary. The majority of the studies available that utilize the group medical care model focus primarily on the management of diabetes. Only a few research studies are available on the effectiveness of group medical visits in relation to weight management or obesity. Therefore, this review of literature includes these four studies that provide evidence for the use of the group medical care model and a general evaluation of group medical visits and diabetes outcomes with particular attention on weight management.

### **Obesity**

Obesity truly is a complex issue that requires sustained lifestyle and behavioral changes (Cohen, Hartley, Mavi, Vest & Wilson, 2012). It is well established that obesity contributes to increased morbidity, mortality and health care costs as well as decreased quality of life, impaired body image and social stigmatization. Previous studies have demonstrated that weight loss through improvements in physical activity and promotion of proper nutrition can positively impact overall health (Palaniappan, Muzaffar, Wang, Wong & Orchard, 2011).

Despite obesity prevalence and the positive outcomes associated with weight loss, it is significantly under-diagnosed and undertreated in many primary care settings (Barnes, Theeke, & Mallow, 2015; Noel et al., 2009; Shay, Shobert, Seibert & Thomas, 2009, Toth-Capelli, Brawer, Plumb & Daskalakis, 2013). Some of the reasons cited include: provider confidence in treatment and management, decreased time, lack of financial incentive, negative attitudes,



frustration with prior attempts and failure to believe patients can be successful (Barnes et al., 2015; Shay et al., 2009). Although there is a large amount of information readily available on diet and exercise a significant knowledge gap exists with the American public (Shay et al., 2009).

### **Clinical Guidelines on Obesity Treatment**

The recognition of obesity as a disease state by the American Medical Association in 2013 has the potential to increase provider adherence to national clinical practice guidelines (Barnes et al., 2015). An effective treatment plan that includes a combination of diet modification, increased physical activity, behavioral modification and psychological support is essential (Barnes et al., 2015; Cristobal et al., 2010). Education on healthy diet and physical activity, scheduled follow up every two to three weeks until goal weight is reached (Shay et al., 2009, inter-professional teams and proactive diagnostic and treatment approaches (Barnes et al., 2015) can contribute to overall success. Additional resources beyond the routine primary care visit may be necessary to overcome barriers and promote success.

### **Veterans Health**

Similar to the general population obesity is a substantial problem in the Veterans Health Administration (VHA). The VHA developed and disseminated the managing overweight/obesity for veterans everywhere (MOVE) weight management program for veterans to address the need for evidence-based weight management treatment (Kahwati et al., 2011). The MOVE program provides diet and physical activity counseling combined with behavioral modification strategies (Kahwati et al., 2011).

In the twenty-two facilities that were included in this analysis the authors found that two conditions were necessary for larger patient weight-loss outcomes: the use of a standard

curriculum for program delivery and the use of a group care-delivery format. However, this alone did not guarantee success. Four combinations of conditions were also necessary; a high program complexity combined with high staff involvement; group care-delivery format combined with low accountability to facility leadership; an active physician champion combined with low accountability to facility leadership; and the use of quality-improvement strategies combined with not using a waiting list (Kahwati et al., 2011). This study reinforces the need for a strong commitment that is well organized for successful group medical visits.

The second MOVE study used focus groups to explore the experiences of those veterans who participated in shared medical appointments for managing overweight/obesity for veterans everywhere (Cohen et al., 2012). The following positive themes were identified as a result of the focus group analysis: empowerment, peer support, awareness, positive provider characteristics, teamwork, benefits, and convenience (Cohen et al., 2012). Not only was knowledge gained but participants also appreciated increased self-awareness of how behaviors affected their health as well as motivation and self-confidence to make behavioral changes (Cohen et al., 2012).

A positive peer support and connection is often described in the literature (Burke & O'Grady, 2012; Cohen et al., 2012; Lavoie et al., 2013; Miller et al., 2004). Sharing stories and having a social exchange appear to be powerful motivators in the group experience (Miller et al., 2004). Caring, knowledgeable providers combined with the feeling that they were part of a cooperative partnership with the health care team were also noted (Cohen et al., 2012). Lastly, these veterans reported high levels of overall satisfaction while appreciating measurable health outcomes such as lower blood pressure, reduced Hemoglobin A1C and weight loss (Cohen et al., 2012). The study by Miller et al., (2004) of 28 low income women with chronic disease did not measure clinical outcomes but also noted increased satisfaction.

**Diabetes Prevention**

Diabetes similar to obesity requires multiple changes in behavior, diet and lifestyle. Obesity and physical inactivity contribute to diabetes type 2 and in many cases this disease can be prevented, delayed and have complications minimized through nutrition, physical activity and weight loss (Burke & O'Grady, 2012). Approximately 83% of U.S. adults with pre-diabetes will progress to diabetes; however, applied lifestyle modifications could reduce this to 65% or less (Cole, Boyer, Spanbauer, Sprague & Bingham, 2013, p. 345). Improved outcomes attained from group visits can decrease diabetes related death risk, reduce myocardial ischemia and microvascular complications (Burke & O'Grady, 2012).

It was also noted that patients required fewer specialty care, urgent care, emergency department visits and hospitalizations, improved glycemic control and blood pressure, increased diabetes knowledge and health behavior, increased patient and provider satisfaction and improved provider productivity (Burke & O'Grady, 2012). The relationships established by group medical visits support higher overall satisfaction scores. The literature review performed by Ridge (2012) and the nonrandomized prospective study by Jessee & Rutledge (2012) in relation to group medical visits compared to usual care for diabetes shares many of the same findings identified by Burke & O'Grady (2012) such as: demonstrated effectiveness in improving knowledge, quality of life and problem-solving skills.

A systematic review of studies published from 1947 to 2002 of diabetic patients that had group medical visits as an intervention with a focus on evaluation of effectiveness of these visits was conducted (Housden et al., 2013). The authors identified 26 out of 94 studies that met designated inclusion criteria. The only statistically significant finding was in relation to a reduction in hemoglobin A1C. Although not statistically significant, but positively identified

were a slightly encouraging effect on weight, reported improvements in quality of life and reductions in systolic and diastolic blood pressure (Housden et al., 2013). A convenience sample study by Riley et al., (2011) of 22 patients that attended three consecutive monthly group visits also supported significant improvements in hemoglobin A1C levels, blood pressure, weight, depression and overall satisfaction.

A study to assess the effectiveness of shared medical appointments on weight loss in an outpatient setting identified a positive association between these types of visits and weight loss (Palaniappan et al., 2011). Individuals with a BMI equal to or greater than 25 were personally invited within a single physician practice to a shared medical appointment program that utilized intervention materials from the Diabetes Prevention Program. Biweekly sessions were conducted over a two-year period. In total eighty patients participated on average in 2.9 shared medical visits with a median of 6.4 weeks between visits. A comparison group was created consisting of 356 patients with similar characteristics who may have received similar advice and instructions on weight loss during their individual office visits during the same time period (Palaniappan et al., 2011). Individuals that participated in the shared medical appointments on average lost one percent of their baseline weight whereas the comparison group gained 0.8 percent (Palaniappan et al., 2011). This study further validates that shared medical appointments can be a valuable option to assist busy physicians to promote weight loss in the clinical setting either alone or as an adjunct to more intensive community programs (Palaniappan et al., 2011).

### **Chronic Care Model Group Visits**

A randomized clinical trial to test a chronic care model program for obesity compared to usual care demonstrated that a chronic care model program incorporating group office visits was both feasible and effective for obesity treatment in the primary care settings (Ely et al., 2011).

This study included 16 weekly group office visits and intensive lifestyle training in two academic primary care practices for adult patients with a BMI between 27 and 45 (Ely et al., 2011). In total of the 78 patients screened 19 were randomly assigned to the active arm and ten were assigned to the control or standard care arm. Those patients who completed at least 50% of the sessions were successful at reaching initial weight loss goal of 5-10% body weight loss at 16 weeks (Ely et al., 2011). Appreciable secondary outcomes were continued weight change at 24 weeks, change in diet, physical activity behaviors, and self-efficacy for weight control and physiologic markers for cardiovascular risk (Ely et al., 2011). Not without limitations, but this study further supports the potential benefits of group visits and lifestyle training in the management of overweight or obesity.

The educational component shared in the group setting encourages information sharing. One of the strengths of group visits as previously discussed is the peer support and connection however this can lead to concerns related to confidentiality. The challenges of confidentiality in the group visit model occur when individuals that attend these sessions openly discuss their conditions and results with one another (Jaber et al., 2006b). A mixed method study conducted by Wong et al., (2015) demonstrated that breaches in confidentiality were not a major concern and that individuals participating in group medical visits reported that they developed more supportive bonds with each other as a result of shared personal and geographical contexts. Confidentiality agreements often included in group medical visit consent procedures. Patients and providers then negotiate between maintaining confidentiality and an appropriate level of disclosure (Wong et al., 2015).

Literature supporting group visits shows very promising, but mixed results. This leads to provider hesitancy in initiating the group visit format (Jones, Napatsawan & Lekhak, 2014).

Another reason for uncertainty is the lack of standardization of group visit content and format (Jones et al., 2014). Studies differ in group visit model, education content, presentation style, populations, practice organizations, length and frequency of programs and evaluation instruments making it difficult to globally generalize results and assumptions (Burke & O'Grady, 2012; Jaber et al., 2006a). To increase support for group medical visits Jaber et al., (2006) suggests the need delineate and refine structural elements, process and visit content, instruments of measurement and specific chronic illness outcomes (p. 288). Despite the differences several encouraging characteristics are shared in that they are patient centered, interactive and empowering (Burke & O'Grady, 2012, p. 104).

### **Patient and Provider Satisfaction with Group Visits**

Even with identified study limitations overall patient and provider satisfaction appears to be higher for those participating in group medical visits. Miller et al., (2004) found that group medical visits may not have improved provider productivity or decreased number of ambulatory care visits but did appear to reduce the need for urgent care services. A retrospective case control study in Seattle Washington in 2004 comparing 221 patients aged 65 and older with high outpatient usage in the previous 18 months compared to 1,015 control patients selected randomly from clinics not participating in the intervention noted that total costs were not statistically different between the two groups (Levine, Ross, Balderson & Phelan, 2010). There was also no statistically significant difference in utilization of hospital admissions and outpatient visits, however high levels of both patient and provider satisfaction were reported. Jaber et al., (2006a) qualitative review of 18 group visits studies found improved patient and physician satisfaction, quality of care, quality of life and decreased emergency department and specialist visits. A two year randomized control study of 294 patients conducted by Scott et al., concluded similar results

of increased self-efficacy and patient satisfaction, improved communication between participants and physicians, better quality of life, fewer health plan terminations and provider changes and lower emergency, hospital and professional services utilization.

Patients that are active participants in care are more likely to have better adherence and report higher satisfaction levels (Scott et al., 2004). The literature review conducted by Jones et al. (2014) supports that in order to appreciate the benefits of greater patient and provider satisfaction, reduced overall utilization, improved clinical outcome and greater provider efficiency and productivity certain characteristics such as those previously described by Kahwati et al. (2011) must be met. Such as these group visits need to be well-planned and well conducted with strong leaders. In addition, there is a need for a curriculum focused on acquiring self-management skills and behaviors, adequate space and personnel combined with strong organization support.

Barriers to participation in group medical visits especially in disadvantaged populations include potential problems with transportation, work conflicts, forgetting appointments, family obligations, complaints about insufficient attention (Miller et al., 2004) visit co pays (Jaber, Braksmajer & Trilling, 2006b) vacation and time (Jessee & Rutledge (2012). This increases the difficulty in having individuals return every two to three weeks for check in as suggested for success by Shay et al. (2009). Jaber et al., (2006b) notes that patients are more likely to drop out of group visit programs if the interval between each meeting is too long, therefore, assistance in overcoming identified barriers is important to facilitate attendance.

The nurse practitioner can play an important role in supporting the group medical visit model of care. The nurse practitioner trained to take a holistic approach to chronic illness management can foster team building, educate and motivate patients and identify medication

issues and barriers to adherence (Watts et al., 2009). The advanced education and training of the nurse practitioner can offer a solid evidence-based and a patient-centered holistic approach to care (Watts et al., 2009). Recognizing the value of the group medical visit format Trotter (2013) supports the inclusion of group medical visits in the nurse practitioner training curriculum to help support the development and adoption of this innovation (p.52).

Obesity one of the major risk factors associated with chronic disease is a major global health challenge. Group medical visits can create a focus on the management of a specific disease or condition that organizes and streamlines care while continuing to individualize treatment to improve quality and facilitate patient self-efficacy and self-management patient outcomes (Ridge, 2012; Sanchez, 2011). The limited studies identified have demonstrated that incorporating group medical visits for obesity treatment in primary care settings is effective and supports improved outcomes. From a practical perspective, this model can be implemented in any primary care practice that is supportive of evidenced based practice and can accommodate space requirements. The group medical visit concept has the potential to provide comprehensive and coordinated care for patients while still being efficient, effective, financial viable and sustainable (Sanchez, 2011).

### **Theoretical Framework**

The Transtheoretical Model (TTM) developed by Prochaska and DiClemente uses stages of change to conceptualize the process of intentional behavior change (Pro-Change Behavior Systems, Inc., 2014). It assists in describing the stages that individuals go through when they attempt to change a behavior and the cognitive and behavioral processes that influence it (Seals, 2006, p.64). No single theory can account for all of the complexities involved in behaviors and behavioral changes however the TTM is currently one of the most promising models to aid in



understanding and promoting behavior change related to the attainment of healthy lifestyles (Andres, Gomez & Saldana, 2007). This model was initially applied to smoking cessation however has rapidly expanded and been applied to a wide range of problems such as alcohol and substance abuse, anxiety, panic disorders and depression, eating disorders, obesity and weight loss, etc. (Andres et al., 2007; Glanz, Rimer & Viswanath, 2008).

### **Stages of Change**

This model identifies six stages of change: precontemplation (not ready), contemplation (getting ready), preparation (ready), action, maintenance and termination (see Appendix A). Individuals move through a series of stages when modifying behavior. Change is a process that unfolds over time and these changes are the true foundation of the model (Pro-Change Behavior Systems, Inc., 2014). The amount of time a person stays in each stage is variable however the necessary tasks required to move to the next stage are not (Pro-Change Behavior Systems, Inc., 2014). Individuals who are attempting to change often progress through these six stages although not frequently in a linear model but rather may go back and forth between stages. (Glanz et al., 2008; Seals, 2006). Because the stages of change are dynamic, ongoing evaluation of what stage the patient is in is needed with modification to individual plan of care as necessary. TTM can be used as a guide to assess stage of readiness and to help determine which technique or intervention would be most appropriate and effective (Seals, 2007).

The core constructs of the TTM are the processes of change, decisional balance, self-efficacy and temptation. Certain principles work to promote success at each stage. Individuals move through the stages when modifying behavior. Appendix B provides stages by principles and processes of change with definitions. Health population programs need to assist people as they progress over time by setting realistic goals and supporting with specific processes and

principles emphasized based on stage to maximize efficacy (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014).

### **Project Description, Implementation and Monitoring**

#### **Description of the Group, Population or Community**

The setting for this educational intervention provided through the group medical visit process was a federally funded health center. This clinic provides services to the rural hill town communities of Western Massachusetts. However, since some of the providers have previously provided care in the surrounding area other towns and cities are also represented. This facility is located in a small rural town abutting two towns of similar size and structure. The population for all three towns combined is approximately 5,100. The median age is 38 to 45 years old. Estimated median household income is \$53 to \$65 thousand. Greater than 95.9 percent of the population is white. For population 25 years and over 87 to 89.8 percent have a high school or higher; 17.4 to 20.2 percent have a Bachelor's degree or higher, 6.1 to 9.5 percent have a graduate or professional degree. The unemployment rate is 3.7 to 7.2 percent and the mean commute time to work is 29.7 to 38.9 minutes (City-data.com, 2015a).

#### **Organizational Analysis of Project Site**

The health center is one of twelve health centers in Hampshire County, Massachusetts. It is part of a small network which also includes another health center, family center/social services community support and a school-based health center. This site primarily serves the rural population in the hill towns of Western Massachusetts. It is also a non-profit, federally qualified health center.

The health center offers laboratory services, medical, dental, optometry and behavioral health care. There are two primary care physicians and three nurse practitioners at this specific

site each assigned a primary medical assistant. The registered nurse is responsible for administration of professional nursing services, patient advocate, and resource and contact person to assist patients in making informed decisions regarding care. There are a variety of reception staff as well as referral coordinator. A dietician and pharmacist are also available for a limited number of hours each week. The group medical visits engaged a multidisciplinary approach to include collaboration among the physician champion, registered nurse, social worker, pharmacist, dietician, medical assistant and office assistant.

### **Evidence of Stakeholder Support**

To achieve project success key stakeholders were actively engaged and letter of agreement was obtained. The key stakeholders engaged in this project included the board of directors, administrative staff, multidisciplinary team members and the participants. Stakeholder support is essential for the success of the group medical visit model.

### **Facilitators and Barriers**

A significant facilitator to this project was having a physician champion, pharmacist, and DNP student that worked closely and were committed to program success. Full stake holder support was obtained. The support staff was also enthusiastically engaged. As a federally funded facility finances are always a consideration. Implementation of this program was not projected to impact productivity but rather strengthen it by promoting group participation and overall increased satisfaction.

Barriers noted with recruitment included having enough participants volunteer for the intervention. The setting of a rural health clinic without public transportation is one identified barrier to participation. Implementation of a new program such as this group medical visit for obesity without a defined standardization of content and format as well as proven instruments of

measurement was an additional hurdle to overcome. Ensuring participants felt comfortable sharing information and maintaining confidentiality were also important identified barriers to overcome.

## **Project Plan**

### **Project Design and Feasibility**

This proposed project was designed to translate and further support current research evidence to practice using the group medical visit model to implement a simple educational intervention for overweight and obese patients. Based on available research, support of board of directors, administrative staff, multidisciplinary team members as well as commitment for participation from nine individuals this project was determined to have operational, technical, schedule and economic feasibility.

The intervention involved inviting all of the patients in the physician champion's practice with a body mass index greater than 30 to participate in the group medical visit. Each individual received an invitational letter (Appendix D). The group limit identified was 15 individuals that would be randomly chosen from those interested in attending. A cohort of nine individuals participated in the group medical visits. Prior to the first group visit those patients identified as participants for the group medical were mailed a personal questionnaire to complete to aid in the development of an individualized plan of care/prescription for weight loss (Appendix E). Each patient participating in the group medical visit was also required to sign a confidentiality agreement and HIPAA notification.

The project implementation occurred every other Wednesday morning over a 12-week period of time. The time period from 8 am to 10am was utilized as a preparation period where the medical assistant and the DNP student ensured that the room was set up, all appropriate

materials were available and that there were no concerns. The group visits occurred between 10:00 am to 12:00 pm. The group visits consisted of a brief medical exam, an educational session, group discussion, review of food logs as well as individual and group goals. Medical record documentation was reviewed and completed from 12pm to 1pm following the visit.

The medical exam included obtaining vital signs, weight utilizing the same scale each week, waist circumference from the same medical assistant for each session. Physician and/or NP student performed a focused physical examination to identify any pertinent concerns, necessary laboratory data, treatment, prescriptions or referrals. Each week a designated educational topic important for a healthy weight and obesity care and management was presented utilizing knowledge experts at the health center. The educational topics included; introduction and initial goal setting, behavior changes, nutrition, physical activity, challenges/struggles and a wrap up with identification of future goals. See Appendix F for expanded information to be included in identified topics.

The method of presentation power point, flip charts, facilitated group education, or any of these combinations, was determined by the presenter(s). Information however was always presented in a nonthreatening, non-lecture manner with ability to ask questions at any time. Icebreaker activities were included at the beginning of the first few visits to encourage sharing among participants and facilitators. Each education session concluded with an additional opportunity for interactive question and answers. Sessions occurred in the same location each week. Many of the visits included healthy snacks with recipes to reinforce that food can taste good and still are low in fat and calories.

Each participant was provided a pedometer and a folder with resource materials during the first visit. These folders were brought to each group medical visit. Resource materials

included public handouts on dietary guidelines for adults from ChooseMyPlate.gov, information on pedometer use, a chart of estimated calorie needs per day by age, gender, and physical activity, a daily food log and healthy eating/fitness goals and prescription tools (Appendix J & K). Additional hand outs were utilized to reinforce topic presented.

Patient and provider satisfaction data was obtained through DNP student developed pen and paper questionnaires approved by the physician champion. Satisfaction measurement was based on a five point Likert scale ranging from one (strongly disagree) to five (strongly agree). Demographic and baseline medical data was obtained from pre visit questionnaire and medical record review. Yes, and no and questions as well as identification of behavior changes made and continued struggles was solicited during the last group medical visit. Additional qualitative data was obtained through direct question answers. Maintenance of lifestyle changes was assessed during the follow up visit 12 weeks after the termination of group medical visit session. Paired sample t-tests were used to determine if the education intervention provided during group medical visits had a significant difference on the variables of weight, abdominal circumference and BMI. Each patient was presented with a certificate of appreciate at the conclusion of the group medical visits.

### **Goals, Objectives and Expected Outcomes**

An important goal of this DNP capstone project was to support the primary care practice and its patients by providing educational sessions to improve knowledge and ability to apply learned information, improve patient and provider satisfaction, decrease caloric intake, improve physical activity and promote weight loss. Our goal was recruitment of fifteen adult individuals with a BMI greater than 30 to participate in the group medical visits, which would support an increased economic advantage and foster additional group discussion. Provider satisfaction was

facilitated by improved ability to educate patients on healthy lifestyles and behaviors. The ultimate goal in the treatment and management of overweight and obesity for this group medical visit was to prevent further weight gain, reduce body weight by a half to one pound a week and attain/maintain long-term healthy body weight through education and participant ability to identify healthier lifestyle choices.

### **Cost-Benefit Analysis**

Well-organized group visits have been identified as a cost effective way to accomplish follow up appointments and improve outcomes. The provider normally sees approximately ten patients in the time frame identified for the group medical visits. The goal group participation rate was 15 individuals, which would further support the argument for increased revenue in relation to provider productivity. A minimum of eight participants was required for approval allowing the group medical visits to occur. The provider is able to bill for these visits. Group medical visits have demonstrated improved quality of care and higher levels of patient and provider satisfaction (Theobold & Masley, n.d.). Although not a primary goal of this project with increased patient participation there is a potential for improved practice profitability and productivity.

The total budget for this project was \$5,592.78. See Appendix G for projected program cost analysis. Direct costs reflect those costs that are attributable to the project (Zaccagnini & White, 2011). For this project these costs included personnel, materials, supplies, equipment and food. Many materials needed were already present at the facility. The DNP student was responsible for pedometers, name tags, and participant folder construction. The costs associated with healthy snacks were shared by all facilitators. Indirect costs reflected those costs not directly associated with the project itself. These costs include those items shared by the

institution such as space, air conditioning, electricity, and telephone and internet access.

Personnel costs are considered both a direct and indirect cost.

### **Ethics and Human Subjects Protection**

Although anticipated risk was minimal and not greater than would be expected during individual medical appointment care, an application to the Institutional Review Board (IRB) was submitted and exception was received (Appendix I). Informed consent was obtained and included details of the group medical visit, study details and what participation would involve. Patients were made aware that by consenting to involvement, that they agreed to participate in the group visits and that they would be asked to evaluate the success of the program in meeting their individual needs and promoting positive outcomes. Individuals were also informed that data would be analyzed and the results of this data would be shared to determine effectiveness of group medical visits in improving clinical outcomes. All information collected for planning, evaluation of outcomes and quality improvement was de-identified to ensure that patient privacy and confidentiality were protected. Participation was completely voluntary and individuals could choose to terminate participation in the group medical visits at any time.

In this group setting information sharing among peers is encouraged to support and promote learning from each other. Since individuals would most likely share medical information in the presence of other patients' confidentiality and HIPAA agreements were obtained to increase confidence that they could safely and confidentially discuss their health and health care needs. See Appendix C. Staff members are subject to facility confidentiality agreements and the Health Insurance Portability and Accountability Act (HIPAA) in relation to protecting personal information of patients receiving health care.



**Implementation/Evaluation Plan**

The realization of the group medical visits at the Huntington Community Health Center occurred every other week during the time period of September through November 2015 with a follow up visit in February of 2016. Group session content was identified to determine who should lead the group that week to allow for adequate preparation from the session champion. Patient evaluation was obtained at the completion of sessions two, four and five with a final overall evaluation at the completion of the six visits. An additional participant evaluation was administered 12 weeks after program completion. The five point Likert scale 1- strongly disagree, 2- disagree, 3- no opinion, 4- agree and 5- strongly agree was used for all evaluations.

The following eight questions were asked at session two, four and five:

1. The amount of time for the program was good.
2. This presentation was useful.
3. This presentation increased my knowledge.
4. I feel empowered by today's presentation to make some changes.
5. There was adequate time for questions.
6. My questions were answered satisfactorily.
7. I felt comfortable in the group.
8. I would recommend this group medical visit.

Provider evaluation was solicited at the completion of group medical visits. The electronic health record provided comparison medical data to assess clinical outcomes. The utilization of the timeline ensured compliance with the identified implementation plan.

The Statistical Package for the Social Sciences (SPSS) software version 22 was utilized to assist in data analysis. Paired sample t-tests were performed to determine if the education intervention provided during group medical visits had a significant difference on the variables of weight, abdominal circumference, BMI and PHQ-2 depression screen. Descriptive statistics were computed from all surveys.

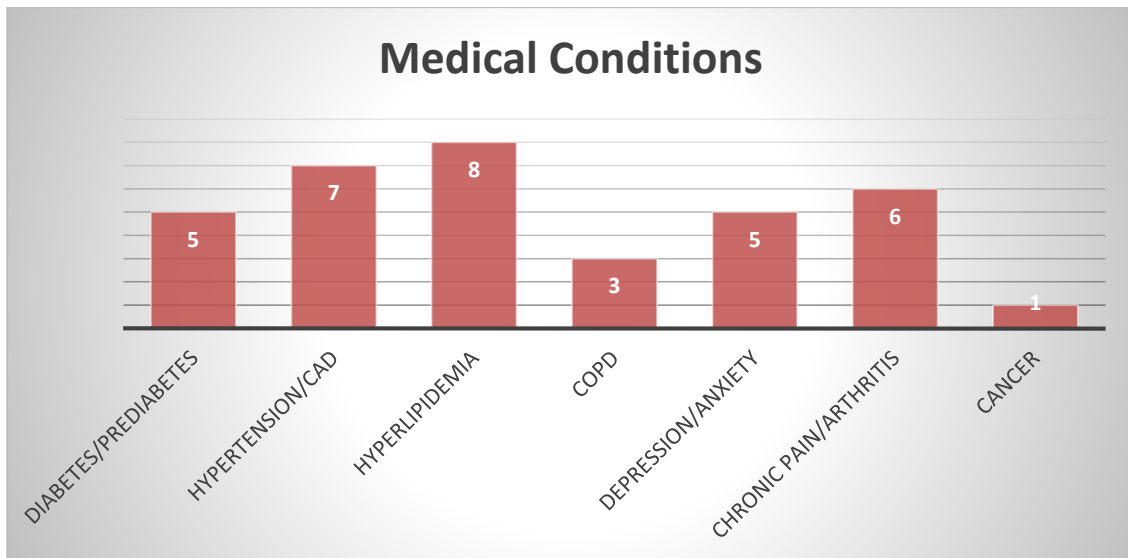
**Timeline**

This project was carried out over the course of the eleven months. The complete timeline for the implementation of this project was from June 2014 through April 2016. The group medical visits occurred as identified in the implementation plan. Data input, review and analysis occurred following conclusion of initial group visits and upon completion of additional 12-week post conclusion evaluation. The timeline was designed to ensure this project was completed within the applicable time frame.

**Evaluation****Results, Findings and Data Analysis**

For the group medical visits there were a total of nine (n=9) participants with the majority being men (67%). Patients were age 52 to 76 with a variety of chronic medical conditions in addition to being obese with a BMI greater than 30. All participants were of the white race and over half were single. One hundred percent of the patients had Medicare as primary. Income data was available for eight of the nine patients; 75% (n=6) reported an income between \$0-\$20,000 annually and 25% (n=2) reported an income between \$40 and \$60,000. See Table 1 for summary chronic medical conditions often associated with obesity present in participants. None of the participants had an emergency visit or had been hospitalized during the six months prior to the start of group visits. Two patients attended every group visit. Of the remaining two patients were able to attend five out of the six visits, four attended four visits and one participant was present at three of the sessions. The mean number of group visits attended was 4.56.

Table 1

*Group Medical Visit Participant Medical Conditions*

General health habits were assessed prior to start of visits. Only one participant was a current every day smoker. Alcohol intake was not noted as problematic; never 33.3% (n=3), monthly or less 33.3% (n=3), two to four times a month, two to three times a week and four or more times a week had percentages of 11.1 (n=1) each. Daily water intake was reportedly good with 88.9% (n=8) reporting at least two glasses of water daily. Four individuals (44.4%) reported some structured exercise while five (55.6%) admitted to no regular exercise. Fruit and vegetable intake as well as minimal intake of soda and sugary drinks are essential for overall health. The recommended allowances of fruit and vegetables for individuals over age 51 who get less than 30 minutes per day of moderate physical activity, beyond normal daily activities is:

Men: 2 cups Fruits + 2 1/2 cups Veggies = 4 1/2 cups TOTAL

Women: 1 1/2 cups Fruits + 2 cups Veggies = 3 1/2 cups TOTAL

As noted Tables 2 and 3 there was significant room for improvement in this area with only a third of the individuals consuming fruits and vegetables twice a day. In addition, as noted in

Table 4, two thirds of participants were consuming soda and/or other sugary drink daily to weekly.

Table 2

*Participant Vegetable Intake*

Vegetable Intake	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Once daily	4	44.4	44.4	44.4
Twice daily	3	33.3	33.3	77.8
Weekly	2	22.2	22.2	100.0
Total	9	100.0	100.0	

Table 3

*Participant Fruit intake*

Fruit Intake	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Daily	5	55.6	55.6	55.6
Twice daily	3	33.3	33.3	88.9
Weekly	1	11.1	11.1	100.0
Total	9	100.0	100.0	

Table 4

*Participant Sugar Drink/Soda Intake*

Sugar drink/soda intake	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Never	3	33.3	33.3	33.3
Daily	2	22.2	22.2	55.6
Twice daily	1	11.1	11.1	66.7
Weekly	3	33.3	33.3	100.0
Total	9	100.0	100.0	

Group baseline mean BMI of the patients was 36.68±10.31kg/m<sup>2</sup> (30.17-63.39), baseline mean weight was 236.48±63lbs (174-392.80) baseline mean waist circumference was 49.67±7.7inches (44-68.5). Thirty-three percent (n=3) had an initial positive PHQ-2 depression

screen. Paired sample t-tests were used to examine the differences in the mean BMI value, mean body weight, mean waist circumference and PHQ-2 screening pre and post group medical visit intervention. As noted in Table 5 statistically significance was found in BMI, weight and waist circumference but not PHQ-2.

Table 5

*Pre and Post Intervention Comparison of BMI, Weight and Waist Circumference*

<b>Measure</b>	<b>Pre-intervention</b>	<b>Post Intervention</b>	<b>P</b>
BMI	36.68±10.31kg/m <sup>2</sup> (30.17-63.39)	35.96±10.24kg/m <sup>2</sup> (28.94-62.21)	.007
Weight	236.48±63lbs (174-392.8)	231.67±62.59lbs (166-385.5)	.006
Waist Circumference	49.67±7.74inches (44-68.5)	48.42±7.68inches (40.75-67)	.019
PHQ-2	33% (n=3) positive 67% (n=6) negative	33% (n=3) positive 67% (n=6) negative	.169

Overall, the patients and providers we interviewed reported a great deal of satisfaction with the group medical visit format. Individual group session evaluation was obtained at sessions two (behavior changes), four (physical activity) and five (challenges/struggles). See Table 6 for results of satisfaction surveys by group visit. There was one individual that reported no opinion in a couple areas, however there were no negative scores appreciated during these visits. Mean ranges on the Likert scale for session two were 4.21 to 4.86, for session four 4.33 to 4.67 and lastly for session five 4.67 to 5.00 indicating high levels of positive comments.

Table 6

*Satisfaction Surveys by Group Visit*

<b>Group Visit 2 n=7</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1. The amount of time for the program was good.</b>	0%	0%	0%	43%	57%
<b>2. This presentation was useful.</b>	0%	0 %	14%	43%	43%
<b>3. This presentation increased my knowledge.</b>	0%	0%	0%	29%	71%
<b>4. I feel empowered by today's presentation to make some changes.</b>	0%	0 %	14%	43%	43%
<b>5. There was adequate time for questions.</b>	0%	0%	0%	29%	71%
<b>6. My questions were answered satisfactorily.</b>	0%	0 %	14%	43%	43%
<b>7. I felt comfortable in the group.</b>	0%	0%	0%	29%	71%
<b>8. I would recommend this group medical visit.</b>	0%	0 %	0 %	14%	86%
<b>Group Visit 4 n=6</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1. The amount of time for the program was good.</b>	0%	0%	0%	33%	67%
<b>2. This presentation was useful.</b>	0%	0 %	0%	17%	83%
<b>3. This presentation increased my knowledge.</b>	0%	0%	0%	0%	100%
<b>4. I feel empowered by today's presentation to make some changes.</b>	0%	0 %	0%	17%	83%
<b>5. There was adequate time for questions.</b>	0%	0%	0%	0%	100%
<b>6. My questions were answered satisfactorily.</b>	0%	0 %	0%	17%	83%
<b>7. I felt comfortable in the group.</b>	0%	0%	0%	0%	100%
<b>8. I would recommend this group medical visit.</b>	0%	0 %	0 %	0%	100%
<b>Group Visit 5 n=6</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1. The amount of time for the program was good.</b>	0%	0%	0%	33%	67%
<b>2. This presentation was useful.</b>	0%	0 %	0%	33%	67%
<b>3. This presentation increased my knowledge.</b>	0%	0%	0%	17%	83%
<b>4. I feel empowered by today's presentation to make some changes.</b>	0%	0 %	17%	33%	50%
<b>5. There was adequate time for questions.</b>	0%	0%	0%	33%	67%
<b>6. My questions were answered satisfactorily.</b>	0%	0 %	0%	33%	67%
<b>7. I felt comfortable in the group.</b>	0%	0%	0%	33%	67%
<b>8. I would recommend this group medical visit.</b>	0%	0 %	0 %	33%	67%

During the final visit an additional evaluation was administered using the same Likert scale. Additional assessment at this visit also included yes and no questions regarding improvement in health habits, query on how often participants felt the group visits should occur and some general questions regarding positive behavior changes made and continued struggles (see Appendix M). The mean of the 12 questions was 4.56 to 5.0 again indicating positive feedback (see Appendix O). An improvement in healthy habits was noted in all areas by the majority of participants with the exception of physical exercise. As a result of participation 66.7% (n=6) identified changes in food preparation, 55.6% (n=5) identified changes in how meals are planned, 77.8% identified that they were eating more fruits and vegetables and made changes in portion sizes and all nine (100%) were drinking more water. One participant stated “I am more aware of my diet” but still struggled with “temptation”. Another said “I am eating less junk food” but still struggle with “portion size”. Two individuals shared that they continue to struggle with exercise. The majority felt (66.7%/n=6) felt that the group visits should occur every two weeks.

Provider questionnaire was distributed on the last day of the group medical visits (See Appendix N). Although only five providers were involved in the group medical visit overall feedback was positive (See Appendix P). What was most valuable in this questionnaire were the comments to the questions of what went well, what did not go so well and what should be done differently.

The things that went well were that the group was very interactive and the identification of the development of peer bonds. Individuals were committed to succeeding and there was increased time for patient education. The things that did not go so well were the increased time for initial check in; obtaining vital signs, weight, BMI, waist circumference and medical visit

prior to starting the group. This was partly related to the desire for consistency and to have the same medical attendant complete the initial check in for each participant on the same scale at each visit. Recruitment was also a challenge identified. One suggestion was to move nutrition to the second session and have food logs reviewed while other individuals completed initial check in.

Each individual met privately with either the MD and/or NP student; these visits could have been divided into half before educational session and half after also. This ensured all individual needs were met as well as promoting the ability to bill for visits. The provider was able to bill for the group visits using a medical Evaluation and Management (E&M) code 99213 or 99214 with clear documentation that an individual medical evaluation and management components of care were provided in the context of a group visit. An important outcome was that participants were able to gain knowledge in a relaxed and less rushed atmosphere supported by the group medical visit model.

A reunion visit with a review of measures to assist in keeping a healthy lifestyle occurred 12 weeks after the group medical visits ended. Unfortunately, due to snow and ice weather conditions only three individuals were able to make it. A final questionnaire (Appendix O) was administered at that time. For those individuals that were not able to come to the visit a telephone interview was conducted. Continued positive outcomes remained. Six individuals (66.7%) identified that their eating habits had changed since attending the group. Some of the changes made involved increase in fruits, vegetable and water, portion control and less snacks. Changes to be more active occurred in 55.6% (n=5) mostly increased walking but one individual also is participating in chair yoga. Eight individuals (88.9%) lost weight during the group visits and six (66.7%) of individuals have been able to maintain weight loss.



Some of the barriers encountered were the holidays, weather and personal injuries. The majority felt they were able to make better choices about general health and have been better able to replace comfort eating with more healthful activities identified during the group visits (88.9%/n=8). The ability to share information and keep the same level of motivation was 66.7% (n=6). Many shared although they were able to stay motivated participating in the group and knowing they were coming in for a visit made this much easier. Lastly 100% (n=9) found the group visits more helpful than individual healthy lifestyle discussions and would participate in group medical visits again.

### **Discussion**

Overweight and obesity is a significant health issue in the United States. Primary care providers are in an ideal position for diagnosis, treatment and management of obesity. Obesity is a key risk factor for many chronic diseases. Chronic disease is a leading cause of mortality, morbidity, disability, pain, reduction in quality of life and increased health care costs (Jaber, Braksmajer & Trilling, 2006a). Even modest weight loss through improvements in physical activity and diet can positively impact overall health (Palaniappan et al., 2011).

Being overweight or obese is a complex health concern that requires sustained lifestyle and behavioral changes whose treatment requires a variety of skills, evaluation and treatment options. Consistent with the theoretical framework supporting this study the most effective management of obesity is based on collaboration between a motivated patient in the TTM preparation stage and a committed team of health professionals (Hamdy, 2015). Actively recruiting volunteers for participation ensured that individuals would be at the preparation stage with intention to take action within the next thirty days.

Implementation of action oriented strategies associated with each group learning session combined with goal setting and identification of potential challenges was an essential component of the group visits. Progression to the action stage was readily apparent through a demonstrated desire to initiate healthy lifestyle actions identified during the group visits as well as the open communication and support given to and received from other group members. The behavioral processes associated with this stage include self-liberation, helping relationships and counter conditioning. Self-liberation was evident as individual's verbalized belief in ability to change and commitment to act upon that belief. Counter conditioning was demonstrated throughout the group process as participants learned healthier lifestyle choices as a substitute for some of the problem behaviors that contribute to weight gain. The very construct of the group medical visit promotes the ability to support the development of helping relationships that are supportive to sustain changes.

Reinforcement management and stimulus control are the primary behavioral processes associated with the action stage and maintenance stages. Reinforcement management is the process that emphasizes rewards for healthy behaviors. One entire session was devoted to behavior changes and identification of both positive and negative rewards. Lastly, the stimulus control concept was reinforced through education on managing the environment. Participants learned the importance of removing triggers for unhealthy habits while promoting prompts that would encourage healthier choices to help reinforce and maintain newly acquired behaviors.

The maintenance stage with a commitment to maintaining the new behavior over time was the desired group outcome. Maintenance of behaviors was noted to be a challenge especially after group visits ended. Although 67% (n=6) identified that they were able to keep the same level of motivation since the group visits ended 89% (n=8) identified that coming to the group

visits made it much easier to maintain commitment to goals. Stage-specific interventions from the transtheoretical model can be highly effective in the management of overweight and obese adults utilizing the group medical visit model. This study adds additional support of the TTM as one of the most promising models for the support healthy habit behavior changes.

Obesity is complex with many contributing factors therefore support of healthy lifestyle modifications is essential in obesity treatment and management. With the U.S. health care system under increased scrutiny to generate better patient outcomes with limited resources, this project was designed to assess clinical outcomes in obesity management through the use of group medical visits. The group medical visit was determined to be a viable option in meeting this challenge.

The group medical visit educational sessions provided an opportunity to support in-depth education and discussion on aspects of obesity management that are essential for weight control but due to time and support limitations are not easily accomplished during routine medical visits. Many of the sessions stimulated further dialogue among participants, often leading to the ability to provide supplementary information and additional problem solving suggestions. Each group medical visit session provided important education but lacked a predetermined evidenced based specific curriculum that focuses on obesity since this is not yet been identified. This structure might have aided in improved visit flow. Evaluations identified patient reports of knowledge gained and ability to make behavior changes however a pre and post educational assessment utilizing the same questions would have added strength to this study.

Improved outcomes associated with group medical visits are multifactorial and thought to occur from enhanced self-management education, the use of motivational interviewing, group peer support, a focused environment for care of a common condition and removal of distractions

(Edelman et al, 2012). The outcomes from this project although not without limitations and opportunities for improvement offer additional support of the group medical visit an effective alternative to the standard medical visit to provide necessary and accurate information on nutrition, physical activity and emotional wellbeing in a supportive environment that not only improves outcomes in the management of obesity, but also leads to higher provider and patient satisfaction. Decreases in BMI, weight and waist circumference and improvements in ability to make healthier lifestyle choices and maintain them were appreciated. There were high rates of both patient and provider satisfaction. Further studies should examine the ideal number of participants, visit duration and frequency, the development of evidenced based curriculum, standard data collection and additional measures to determine comparative effectiveness of group visits versus traditional primary care visits.

### **Limitations**

Despite the positive results, there are identified limitations to the program that should be acknowledged. First, the sample size for this educational intervention program was relatively small. It was a struggle to enroll participants. The original goal was for 15 participants, which would have supported increased productivity for the designated time period compared to the usual individual appointment schedule. Further analysis is necessary of reimbursement to determine what number of participants would support group cost effectiveness. The addition of a control group and a larger study group are warranted. The group visits were held in the morning to meet medical provider need, which may have been a deterrent to participation for individuals that are employed and attracted an older population. Transportation availability to site may have also been a deterrent to participation.

Generalization of the results is limited due to a primarily middle age to older adult Caucasian population with a variety of chronic health conditions. Additional studies with younger populations would be beneficial to assess effectiveness in this age group. The lack of standardized measurement for comparison is a significant limitation for strength of support for this group medical visit intervention. The short duration of the study so it is not known if the positive results in weight, BMI and waist measurement will be sustained over time. Additional measures not appreciated in this project due to time limitations but for future consideration based on previous research include longer term health outcomes such as changes in lipid profile, HbA1C, blood pressure management and urgent service utilization.

### **Conclusion**

Overweight and obesity rates have reached epidemic proportions in the United States affecting more than two thirds of adults. It is a complex issue that is often undertreated in many primary care settings. Time, knowledge and frustration are all potential barriers. Effective obesity treatment plans provide support for a combination of life style modifications (Barnes et al., 2015; Cristobal et al., 2010). Additional resources beyond that which can be supported during a routine primary care visit are often needed.

Family practice providers are in an ideal position to facilitate group medical visits which offer all of the components of a clinical encounter with added ability to support health promotion, chronic disease management, health education and group support simultaneously (Wong et al., 2015). Group medical visits, which include group education, shared problem-solving, focused medical evaluations, individualized treatment plans and goal setting offer the perfect venue for obesity treatment in primary care for the motivated patient.

Positive peer support and connection described in existing literature (Burke & O'Grady, 2012; Cohen et al., 2012; Lavoie et al., 2013; Miller et al., 2004) was also noted to be a powerful motivator for the participants in this study. The existing evidence, although limited on group visits for overweight and obese patients shows great potential toward weight control. The systematic review of published studies between 1947 and 2002 of diabetic patients attending group medical visits conducted by Housden et al. (2013) identified slightly encouraging effects on weight.

This study appreciated positive results in weight, BMI and waist measurement. Similar positive outcomes were noted in relation to weight loss and waist circumference reduction in a VHA study of 17 veterans between 2011 and 2012 participating in group medical visits utilizing the MOVE program. The Palaniappan et al. (2011) study of 74 patients that attended at least one group medical visit for weight loss in 2006-2008 experienced an average mean change of  $-1.0\%$  (loss of 2.0 lb) from baseline weight and  $-1.1\%$  from baseline BMI. The pilot randomized trial of 29 patients to test a chronic care model program for obesity compared to usual care conducted by Ely et al. (2011) identified appreciable weight loss outcomes and further support of the group medical visit model as effective for obesity treatment in primary care settings.

Based on this project group medical visits appear to be a viable option to improve effectiveness in obesity care and management. Our group medical visit results were promising and supported the limited existing evidence of increased patient and provider satisfaction as well as improved outcomes. Further research in the obese patient population with larger groups, standard curriculum and well defined measurement tools is required to validate the cost effectiveness and longer term clinical outcomes compared to standard care practice.

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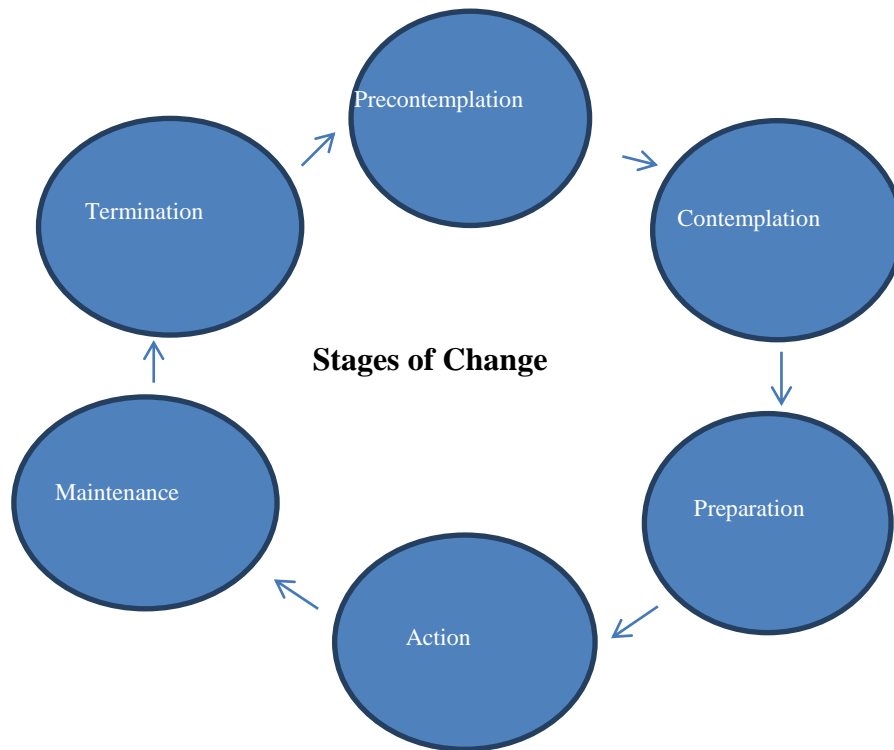
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## Appendix A

## Transtheoretical Model: Stages of Change



© 2014 Fleishman-Hillard Inc., all rights reserved. The image is reprinted here with permission. **Precontemplation Stage (Not Ready).**

Individuals in this stage are not planning to change their behavior within the foreseeable future, usually defined as the next six months (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014; Seals, 2006). A person may be in this stage due to being uninformed or under informed about the consequences of their behavior or they may have had multiple unsuccessful attempts at change and they become demoralized about their ability to change (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014). These groups often identified as not ready, resistant or unmotivated tend to avoid reading, talking or thinking about high-risk behaviors, although an alternate explanation may be that traditional health promotion program are not ready for such individuals (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014).

**Contemplation Stage (Getting Ready).**

Individuals in this stage intend to make a change in the next six months but may not yet be ready to take action (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014; Seals, 2006). These individuals are more aware of the pros and cons which can result in chronic contemplation or behavioral procrastination. These individuals are not ready for traditional action-oriented programs that expect participants to act immediately (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014).

**Preparation Stage (Ready).**

These are individuals that intend to take action in the immediate future to change a specific behavior, usually measured as the next month (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014; Seals, 2006). Typically, they have already taken some significant action in the past year. These individuals have a plan for action and should be recruited for action-oriented programs such as the weight loss group medical visits (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014). The expressed desire to participate in group medical visits obesity indicates that the individual patient is in the preparation stage.

**Action Stage.**

Individuals in this stage have made specific overt modifications in their lifestyles within the past six months (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014; Seals, 2006). Since actions are observable, the overall process of behavior change has often been equated with the action stage. However action is only one of six stages and limited modifications of behavior may not suffice as action. For most applications, individuals need to attain a criterion that scientists and professionals agree is sufficient to reduce risk of disease (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014).

**Maintenance Stage.**

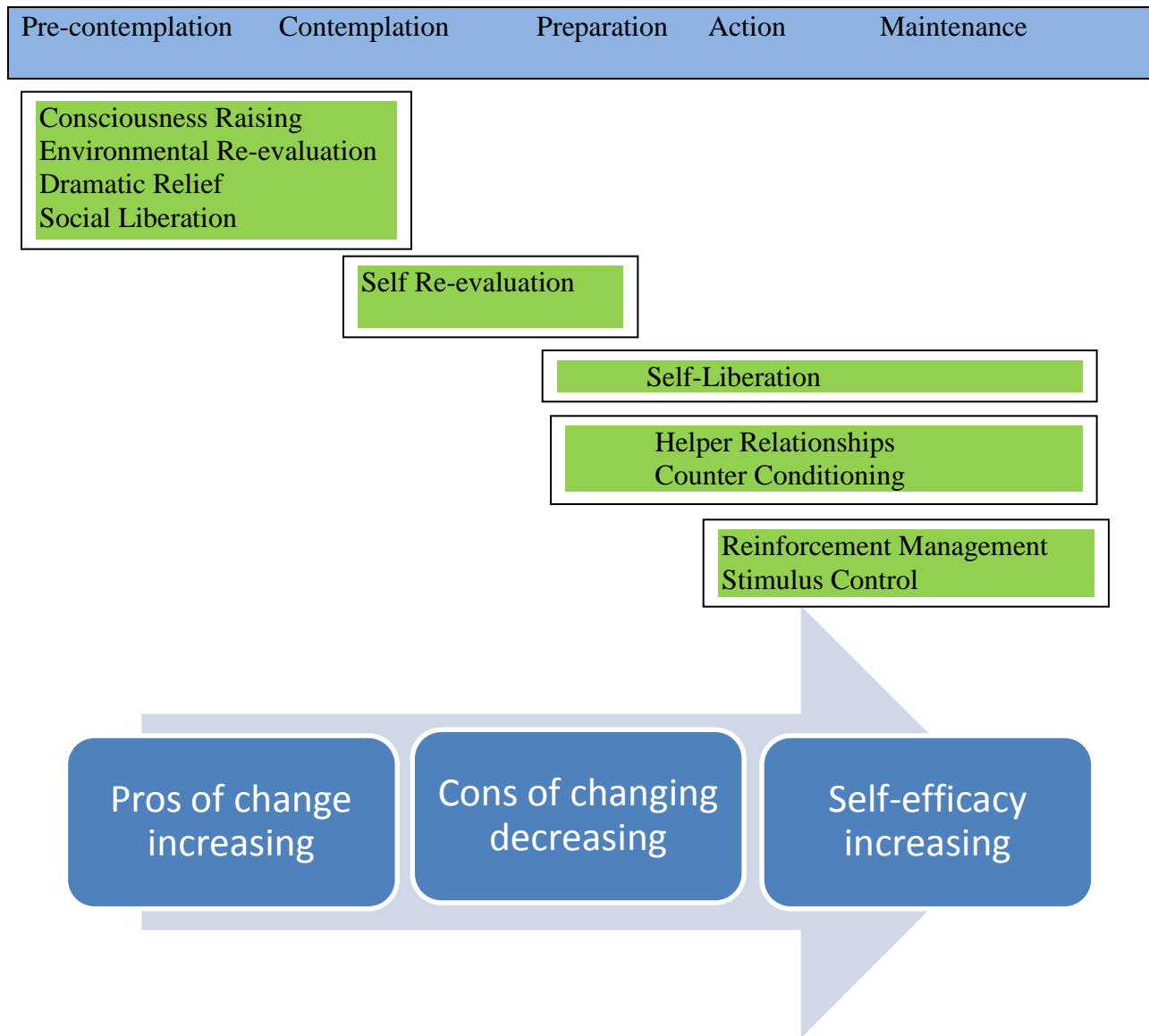
Individuals in the maintenance stage have changed their behavior for at least six months and are working on preventing relapse however; they do not apply change processes as frequently as do individuals in action (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014; Seals, 2006). While in this stage individuals are less tempted to relapse and gain confidence in the ability to continue changes (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014). The maintenance stage lasts from six months to about five years.

**Termination Stage.**

Individuals in this stage are no longer tempted and have 100% self-efficacy. No matter what the circumstance: depressed, anxious, bored, lonely, angry or stressed the individuals in this stage are sure they will not return to unhealthy habits as a way of coping. This 100 percent criterion of self-efficacy may be too strict or it may be an ideal goal for population health efforts (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014).

Appendix B

Stages by Principles and Processes of Change



**Stage Definitions**

1. Consciousness raising involves the increased awareness about the causes, consequences and cures for a particular problem behavior.
2. Dramatic relief initially produces increased emotional experiences followed by reduced affect or anticipated relief if appropriate action is taken.
3. Self-reevaluation combines both the cognitive and affective assessments of one's self-image with and without a particular unhealthy habit, such as one's image as a couch potato versus an active person.

4. Environmental reevaluation combines both affective and cognitive assessments of how the presence or absence of a personal behavior affects the social environment, such as the effect of smoking on others.
5. Self-liberation is the both the belief that one can change and the commitment and recommitment to act upon that belief.
6. Social liberation requires an increase in social opportunities or alternatives, especially for people who are deprived or oppressed.
7. Counter conditioning requires learning healthy behaviors as substitutes for problem behaviors.
8. Stimulus control removes cues for unhealthy habits and adds prompts for healthier alternatives.
9. Reinforcement/contingency management includes the consequences for taking steps in a positive direction.
10. Helping relationships combine caring, trust, openness, and acceptance, as well as support for healthy behavior change.

(Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014).

### Concept Definitions

**Processes of Change.** The processes of change are the covert and overt activities that are used to progress through the stages (Glanz, 2008). They help explain how changes occur. Different strategies are effective at different stages of change. These ten change processes need to be implemented to successfully progress through the stages of change and attain the desired behavior change (Pro-Change Behavior Systems, Inc., 2014).

**Decisional Balance.** This concept reflects the components of decisional balance; the pros and the cons. Decision making originally conceptualized by Janis and Mann (1977) included four categories of pros and four categories of cons however has since been simplified. Decisional balance occurs at each stage of the model (Glanz et al., 2008; Pro-Change Behavior Systems, Inc., 2014).

**Self-Efficacy.** This stage is the situation specific confidence that individuals can cope with high risk situations without relapsing to previous behaviors (Glanz et al., 2008).

**Temptation.** This reflects the opposite of self-efficacy or the urge to engage in a specific behavior during difficult situations (Glanz et al., 2008).

## Appendix C

## Group Visit Confidentiality Agreement/HIPAA Notice

**GROUP VISIT CONFIDENTIALITY AGREEMENT**

Group visits involve patients disclosing personal medical and social information. That information is private and confidential.

I have read and agree to the following statements:

- I agree to participate in the group visit. I understand that I have the right to be seen by the physician in this group or individually.
- I agree to respect the confidentiality of personal information shared by other group visit participants and will NOT share that information.

Name (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**GROUP VISIT HIPAA NOTICE**

During a group visit, it is possible that some of my personal health information will be disclosed. For example, at a group visit for obesity, it might be assumed all patients attending have obesity.

I have read and understand the following statements:

- I realize I have the option of being seen individually.
- I understand that I am not required to sign this form to receive health care treatment.
- I understand that my anonymous de-identified data might be used for study and quality improvement purposes.
- I understand that individually identifiable health information may be shared during group visit discussions.
- Although others in the group will also sign a confidentiality agreement it possible that information used or disclosed in a group visit may be shared by other group visit participants.
- I have been notified of this potential disclosure, and I voluntarily wish to participate in the group visit.
- This Group Visit HIPAA Notice supplements the HIPAA Notice of Privacy Practice originally provided to me.

Name (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix D

## Invitation Letter

July \_\_, 2015

Dear \_\_\_\_\_

You are invited to join Dr. \_\_\_\_\_ for a group physician medical visit. It is an innovative idea that other doctors around the country have found helps patients and physicians spend time together in more ways than just the usual office visit. When I researched this idea I was amazed at how much patients enjoyed group visits. This group medical visit program is specifically designed for patients that are overweight and whose medical conditions could be improved through healthy lifestyle changes. Most of the time when you come to the health center you are ill or have a specific medical concern making it difficult to discuss managing or improving overall health. Many studies have found that by participating in a group visit you can significantly increase your success in making lifestyle changes. As the first program of this type provided at the center we look to see how this group makes a difference in your health and your use of medical services therefore you will be also asked to help us evaluate this program.

The group session will include other patients, other professionals and me. Since this is a new concept we will be limiting to a small group of 15 individuals. This group will meet for six two hour sessions every other Wednesday morning starting on September 6, 2015. During each group visit, I will be able to answer questions, prescribe and refill medications, order tests, discuss test results, talk about side effects and treatment options and provide brief exams. In addition, there will be a group educational component followed by a question and answer period. Planned topics include: goal setting, nutrition, exercise/physical fitness, behavior changes, challenges/struggles and sustainment/future goals.

You may choose not to participate at any time and there may be times when you will need a regular one on one visit. Attending the group visit will not change this in any way. It is important to understand that this visit is similar to any other appointment and usual co-pays and insurance submission will apply. Of course these visits are completely voluntary. The goal is that in addition to meeting your routine medical needs that you will benefit from the education provided and learn from others dealing with similar health challenges.

It is a pleasure to recommend this new program to you. We hope it will be a warm, supportive and rewarding experience. I welcome your possible interest in this new opportunity. Since this is a new concept we will select a limited number of individuals to participate. If you are interested, please RSVP by Sept 9<sup>th</sup> by calling the health center at (XXX)-XXX-XXXX. Of course, if you decide not to participate you will continue to receive usual health care.

Sincerely,

Dr. \_\_\_\_\_

Appendix E

Pre-Visit Questionnaire

**Health Center**

Name: \_\_\_\_\_

DOB: \_\_\_\_\_

Email: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Welcome to our group medical visits! Thank you for participating. Please fill out this form and bring with you to the first visit on 9/9/15.

*Your answers to these questions will help us to better understand you. This form will become part of your confidential medical record. Please complete as many of the items as possible, but you do not need to respond to any question you cannot understand, prefer not to answer, or that does not apply to you.*

What are your goals in attending the group medical visits?

\_\_\_\_\_

Have you ever tried to lose weight before? If so, what have you tried?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Do you currently have or have you had in the past (please check yes or no):

	YES	NO
Arthritis		
Osteoporosis		
High Blood Pressure		
Diabetes		
Sleep apnea		
Respiratory Problems		



High Cholesterol		
Gallbladder disease		
Stroke		
Heart attack		
Shortness of breath		
Fatigue		
Chest pain		
Unexplained weight loss		
Unexplained weight gain		
Increased thirst		
Increased/ frequent urination		

1. Do you have or have you ever been diagnosed with cancer? \_\_\_\_\_

If yes, what type? \_\_\_\_\_

2. How many times have you been hospitalized in the past 6 months? \_\_\_\_\_

3. How many visits to the Emergency Room have you had in the past 6 months? \_\_\_\_\_

**Depression Screening**

1. Over the past month, have you felt down, depressed, or hopeless?

Yes                       No

2. Over the past month, have you felt little interest or pleasure in doing things?

Yes  No

**Habits**

1. Do you currently smoke cigarettes?     Yes                       No

If yes, number smoked per day: \_\_\_\_\_

2. Have you ever smoked regularly?     Yes                       No

If yes, for how many years? \_\_\_\_\_

3. How often do you drink alcohol?     Never                       Monthly or less

- 2 to 4 times per month
- 2 to 3 times per week
- 4 or more times per week

4. How often do you eat vegetables?  Never  Once daily  Twice daily  Weekly
5. How often do you eat fruits?  Never  Once daily  Twice daily  Weekly
6. Do you drink soda or other sugary drinks?  Never  Once daily  Twice daily  Weekly
7. Do you drink water? \_\_\_\_\_ If so, how much per day? \_\_\_\_\_
8. Do you exercise? \_\_\_\_\_ If so, what type of activity? \_\_\_\_\_ For how long? \_\_\_\_\_
9. Do you have any food allergies?

---

**Other**

1. How do you like to learn?  Seeing (pictures/videos)  
 Hearing (listening to people/audiotape)  
 Doing (hands-on)
2. Do you have any values or beliefs that we should consider when planning your care? (e.g. cultural or religious)  Yes  No  
 If yes, please explain:

---

3. In a few words, please describe the kind of person you are:

---



---

<b>Signature</b> (Patient or Authorized Person)	<b>Date</b>	<b>Relationship, if not patient</b>
---	-------------	-------------------------------------

Thank you for your responses. This form will be placed in your medical record.

- Patient unable to complete

## Appendix F

## Session Descriptions

<b>Session</b>	<b>Topic</b>	<b>Presenter</b>
Session 1	Introductory Session/Initial Goal Setting <ul style="list-style-type: none"> <li>- What to expect, introduction, guidelines, understanding the clinical assessment, treatment plan and self monitoring.</li> <li>- General overview of why a healthy weight is important</li> <li>- Food and activity diary</li> <li>- General nutrition and physical activity principles</li> </ul>	DNP Student
Session 2	Behavior Changes <ul style="list-style-type: none"> <li>- Motivational interviewing, self-monitoring, problem solving, cognitive restructuring, stress management and stimulus control</li> <li>- Understanding food related behaviors</li> </ul>	Social Worker/Mental Health Counselor
Session 3	Nutrition <ul style="list-style-type: none"> <li>- Eating healthy, food plate, healthy choices</li> <li>- Tips for eating out, special occasions, holidays</li> </ul>	Pharmacist/Dietician
Session 4	Physical Activity <ul style="list-style-type: none"> <li>- Importance of exercise, activity tips, reduction of screen time and controlling stress</li> </ul>	DNP Student
Session 5	Challenges/Struggles <ul style="list-style-type: none"> <li>- Open discussion of concerns as well as help identify innovative ways of meeting goals</li> <li>- What is going well, what is difficult</li> </ul>	Physician Champion
Session 6	Wrap up/Future Goals <ul style="list-style-type: none"> <li>- Sustainment of progress and how to prevent relapse</li> <li>- General review</li> <li>- SMART goals</li> <li>- Overall program feedback</li> </ul>	DNP Student/Entire Team

Appendix G

Project Costs

Item	Cost
<p>Personnel:</p> <ul style="list-style-type: none"> <li>- DNP Student</li> <li>- Community Center Staff</li> </ul> <p style="padding-left: 40px;">❖ Total estimated personnel costs: \$4,999.78</p>	<ul style="list-style-type: none"> <li>- No cost associated with DNP student</li> <li>- Community center staff support team includes:               <ul style="list-style-type: none"> <li>➤ Physician champion \$107.49/hr</li> <li>➤ Nurse \$35/hr</li> <li>➤ Social worker \$21.11/hr</li> <li>➤ Pharmacist \$56.96/hr</li> <li>➤ Dietician \$27.62/hr</li> <li>➤ Medical Assistant \$15.01/hr</li> <li>➤ Office assistant \$14.82/hr</li> </ul> </li> </ul> <ol style="list-style-type: none"> <li>1. Time includes eight 30-minute planning meetings. Will plan for every member however not every member may be present at each meeting. = \$1,124.04 To eliminate these costs meetings will be held over lunch and in conjunction with already scheduled team practice meetings.</li> <li>2. Time includes letter preparation and mailing. Coordinated with DNP student, medical and office assistant; plan two hours. = \$59.66</li> <li>3. Time includes scheduling. Office assistant: one hour =\$14.82</li> <li>4. Time includes telephone reminders. Office assistant: one hour =\$14.82</li> <li>5. Time includes material preparation. This will be coordinated by DNP student with an hour review planned by physician champion, social worker, dietician and pharmacist. =\$216.18</li> <li>6. Time includes six sessions set up: two hours. Set up by DNP student and medical assistant. =\$30.02</li> <li>7. Time includes six sessions: two hours. All group sessions include a medical review, education and group discussions. Although not every member will be in each session will plan on all with exception of office assistant. =\$3,194.28</li> <li>8. Time includes six sessions: documentation for two hours. This will include physician champion, DNP student and medical</li> </ol>

	<p>assistant. =\$1,470.00</p> <p>9. Time includes follow up participant evaluation. Conducted by DNP student.</p>
<p>Materials, Supplies &amp; Equipment:</p> <ul style="list-style-type: none"> <li>- Educational reinforcement: pedometer</li> <li>- Group visit supplies for blood pressure and weight monitoring</li> <li>- Handouts; power points, pens/pencils, pretest/posttest, evaluation surveys, etc.</li> </ul> <p style="text-align: center;">❖ \$473.00</p>	<ul style="list-style-type: none"> <li>- Pedometer for 15 individuals= (\$45.00)</li> <li>- Scale (present at facility)</li> <li>- BP cuffs and stethoscope (present at facility)</li> <li>- Laptops for electronic health record documentation (present at facility)</li> <li>- Paper (1 case @ \$50.00)</li> <li>- Postage stamps (\$98.00)</li> <li>- Pens/pencils (\$10.00)</li> <li>- Portable flip chart (\$200.00)</li> <li>- Colored markers (\$10.00)</li> <li>- Name tags (\$10.00)</li> <li>- Color copying for educational materials .06 a page approximate cost (\$50.00)</li> </ul>
<p>Food:</p> <ul style="list-style-type: none"> <li>- Healthy snacks for sessions</li> </ul> <p style="text-align: center;">❖ \$120.00</p>	<ul style="list-style-type: none"> <li>- Healthy snacks approximate cost (\$120.00)</li> </ul>
<p>Indirect Costs:</p> <ul style="list-style-type: none"> <li>- Health Center conference room. (space, lights, heat, a/c, etc.)</li> <li>- Telephone and internet access</li> </ul>	<ul style="list-style-type: none"> <li>- This cost is absorbed by the facility. No additional cost incurred since all facility use will be conducted during normal business hours.</li> <li>- Both wireless and direct internet access readily available at site and part of normal operations.</li> </ul>
	<p>❖ <b>Total \$5,592.78</b></p>

## Appendix H

## IRB Exception



University of Massachusetts Amherst  
108 Research Administration Building  
70 Butterfield Terrace  
Amherst, MA 01003-9242

**Human Research Protection Office  
Research Affairs**

Telephone: 545-3428  
FAX: 577-1728

**MEMORANDUM**

To: Brenda Jaeger, RN,

From: Human Research Protection Office

Date: July 28, 2015

**Project Title: Group Medical Visits for Obesity****IRB Number: 2015-001**

The Human Research Protection Office (HRPO) has evaluated the above named project and has made the following determination:

- The activity does not involve research that obtains information about living individuals.
- The activity does not involve intervention or interaction with individuals OR does not use identifiable private information.
- The activity is not considered research under the human subject regulations. (Research is defined as “a systematic investigation designed to develop or contribute to generalizable knowledge.)
- The activity is determined to meet the definition of human subject research under federal regulations, but may qualify for exemption. If uncertain as to whether the scope of the research falls within an exempt category, please contact the HRPO for guidance. Exempt determinations must be made by the IRB.
- The activity is determined to meet the definition of human subject research under federal regulations and is not exempt. The research must be reviewed and approved by the IRB and requires submission of applicable materials.

Information regarding **Types of Review** for human subject research protocols may be found at <http://www.umass.edu/research/irb-guidelines-levels-review>

For additional information, please contact the Human Research Protection Office at 545-3428.  
Cc: OGCA



Appendix J

Goals Worksheet

# Healthy Eating/Fitness Goals and Prescription

**1. My goal for healthy eating:**

-----  
-----  
-----

**2. My goal for physical activity:**

-----  
-----  
-----

**3. This goal is important to me because:**

-----  
-----  
-----

**4. Steps I'll take to reach my goal:**

-----  
-----  
-----

**5. Provider feedback:**

- a. Keep track of what you eat.
- b. Keep track of your physical activity.
- c. Note any difficulties.
- d. Remember it is not easy and sometimes we need more time to reach a goal!
- e. Other: \_\_\_\_\_

-----  
-----

<p><b>Next group visit scheduled:</b> _____</p> <p><b>Physician Signature:</b> _____</p> <p><b>Patient signature:</b> _____</p>
---



<p>Just like any other prescription, individuals should know what is being prescribed, why, how to take it and any side effects or warnings. With this in mind, consider these points.</p>
<p><b>BRAND NAME:</b> Fitness</p>
<p><b>GENERIC NAMES:</b> Physical activity, healthy eating, emotional well-being</p>
<p><b>INDICATIONS:</b> Effective for treating low energy, stress and boredom; prevents undesired weight gain; helps manage a healthy weight; helps improve long-term health conditions like high blood pressure or high cholesterol; helps prevent potential chronic health problems like diabetes and heart disease.</p>
<p><b>BENEFITS:</b> Increased energy, manage or maintain weight, more mindful decision-making, improved eating habits and appetite, better self-image and confidence, improved sense of well-being.</p>
<p><b>SIDE EFFECTS:</b> Be in charge of your life; feel stronger, healthier and more youthful; have a more positive outlook; find balance in all areas of your life; develop lasting, long-term changes for improved health.</p>
<p><b>PRECAUTIONS:</b> Talk to your family doctor before making any major changes.</p>
<p><b>DOSAGE:</b> Start small, increase slowly and repeat often. Adjust to fit your needs.</p>
<p><b>WARNING:</b> Likely to become habit-forming when used regularly!</p>

Adapted with permission from Am I Hungry? What To Do When Diets Don't Work  
 May M, Galper L and Carr J. 2005 Copyright by Michelle May, MD.

Appendix K

Individual Session Patient Satisfaction Survey

*Thank you for participating in our group medical visit. To help us improve please answer this short survey regarding today's visit.*

*Sincerely,*

*The Health Center group medical visit team*

Name (optional): \_\_\_\_\_ Date: \_\_\_\_\_

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1. The amount of time for the program was good.</b>	1	2	3	4	5
<b>2. This presentation was useful.</b>	1	2	3	4	5
<b>3. This presentation increased my knowledge.</b>	1	2	3	4	5
<b>4. I feel empowered by today's presentation to make some changes.</b>	1	2	3	4	5
<b>5. There was adequate time for questions.</b>	1	2	3	4	5
<b>6. My questions were answered satisfactorily.</b>	1	2	3	4	5
<b>7. I felt comfortable in the group.</b>	1	2	3	4	5
<b>8. I would recommend this group medical visit.</b>	1	2	3	4	5

Additional Comments:

## Appendix L

## Final Session Patient Satisfaction Survey

*Thank you for participating in our group medical visits. To help us improve please answer this short survey.*

*Sincerely,*

*The Health Center group medical visit team*

Name (optional): \_\_\_\_\_ Date: \_\_\_\_\_

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1. The amount of time for the program was good.</b>	1	2	3	4	5
<b>2. The time of day for the group medical visit was good.</b>	1	2	3	4	5
<b>3. The space of the group visit was comfortable.</b>	1	2	3	4	5
<b>4. The group medical visits increased my knowledge.</b>	1	2	3	4	5
<b>5. As a result of participating I feel that I better able to make healthier lifestyle choices.</b>	1	2	3	4	5
<b>6. There was adequate time for questions and they were answered satisfactorily.</b>	1	2	3	4	5
<b>7. I felt comfortable in the group.</b>	1	2	3	4	5
<b>8. Presenters were knowledgeable and taught in a way I could understand.</b>	1	2	3	4	5
<b>9. I felt more relaxed and less rushed in the group medical visit setting.</b>	1	2	3	4	5
<b>10. My personal needs were adequately met.</b>	1	2	3	4	5
<b>11. I would recommend this group medical visit.</b>	1	2	3	4	5
<b>12. I would participate in another group medical visit.</b>	1	2	3	4	5

1. What positive behavior change have you made as a result of participating in the group?

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2. What behavior change do you continue to struggle with?

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---

3. How often do you think group visits should occur? Circle one:

weekly      every two weeks      monthly      every other month

4. As a result of participating in the group medical visit did you make any changes in any of the following? Check “yes” or “no”

How you prepare food

Yes

No

How you plan your meals

Yes

No

More fruits and vegetables

Yes

No

Portion sizes

Yes

No

Drinking more water

Yes

No

Physical activity

Yes

No

5. What information did you find most valuable?

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---

6. How can we improve the group medical visit program?

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Appendix M

Provider Evaluation

*Since this was the first group medical visit it is important for us to reflect on what went well, what did not go so well and what we might do different in the future.*

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>No Opinion</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>1. The amount of time for the program was good.</b>	1	2	3	4	5
<b>2. Increased efficiency of patient care and follow-up.</b>	1	2	3	4	5
<b>3. Enabled more time with patients in a relaxed setting.</b>	1	2	3	4	5
<b>4. Noted increase in patient participation in their ongoing care.</b>	1	2	3	4	5
<b>5. Better ability to educate patients on healthy lifestyles and behaviors.</b>	1	2	3	4	5
<b>6. There was good collaboration among GMV team members.</b>	1	2	3	4	5
<b>7. The GMV enhanced productivity.</b>	1	2	3	4	5
<b>8. I would recommend the group medical visit as a standard practice.</b>	1	2	3	4	5

**1. What went well?**

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---

**2. What did not go so well?**

---



---



---

**3. What should be done differently?**

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---



---

Appendix N

Post Visit Questionnaire

*Thank you for participating in our group medical reunion visit. To help us improve please answer this short survey regarding today's visit.*

*Sincerely, The Health Center group medical visit team*

Name (optional): \_\_\_\_\_ Date: \_\_\_\_\_

1. Have your eating habits changed since attending group visits?  Yes  No  
 If yes what changes have you made to help make healthy food choices?

\_\_\_\_\_

\_\_\_\_\_

2. Have you made changes to be more active since attending group visits?  Yes  No  
 If yes what changes have you made or maintained to be more physically active?

\_\_\_\_\_

\_\_\_\_\_

3. Did you lose weight during the course of the group medical visit sessions?  Yes  No

4. If yes, have you maintained your weight loss?  Yes  No  N/A

If no, what barriers have you encountered?

\_\_\_\_\_

\_\_\_\_\_

5. Being mindful involves being aware of yourself and your surroundings physically, emotionally, and mentally. Have you been better able to replace comfort eating/stress/boredom, etc. with other more healthful pleasurable activities like reading, dancing, etc that were identified during the group visits?  Yes  No

6. Have you been able to share information learned during the visits to help others?

Yes  No

7. Are you better able to make better choices about your general health since attending group visits?  Yes  No

8. Have been able to keep the same level of motivation since the group visits have ended?

Yes  No

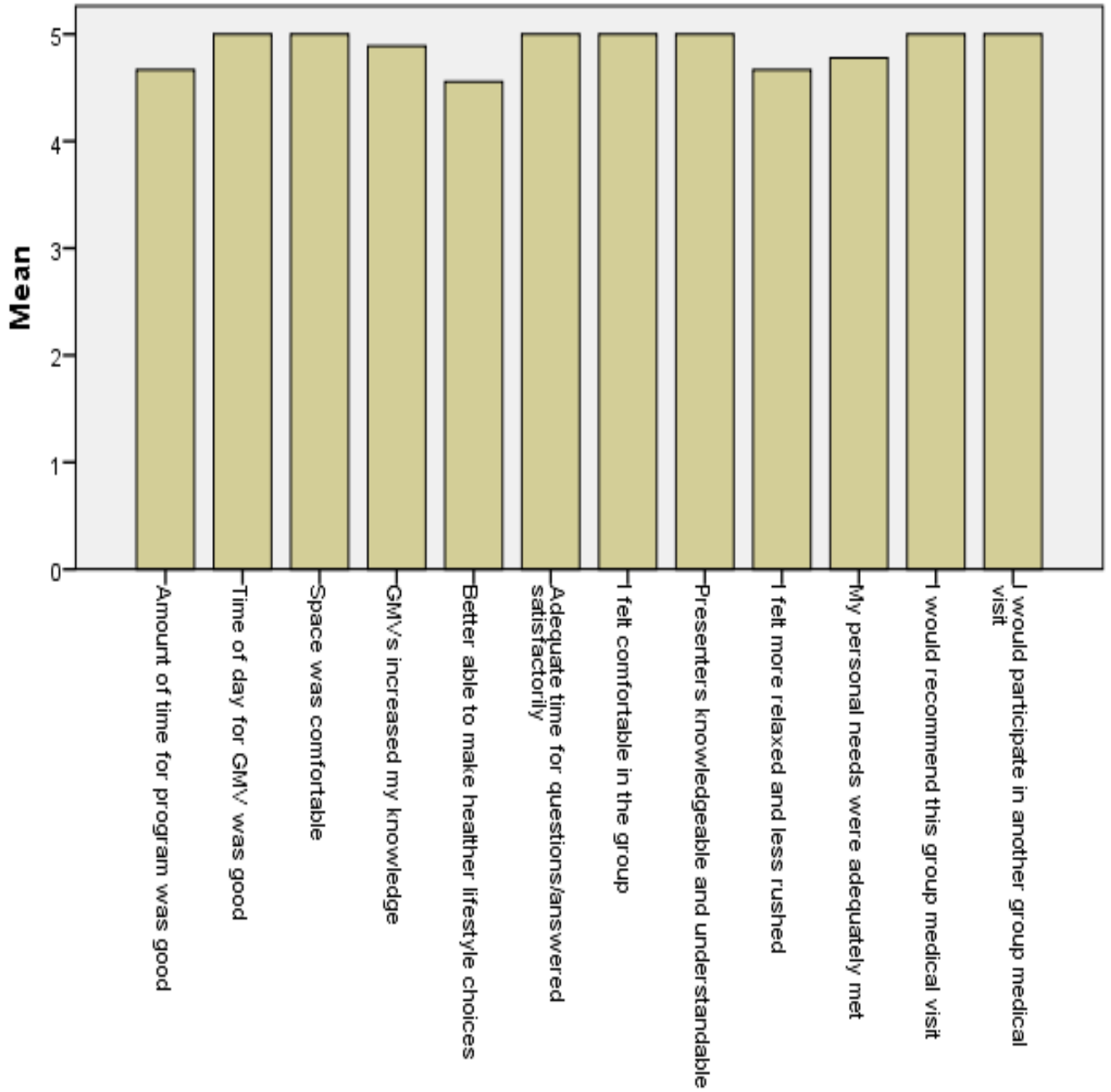
9. Did you find group visits more helpful than individual healthy lifestyle discussions?

Yes  No

10. Would you participate in this type of visit again?  Yes  N

Appendix O

Final Group Evaluation Graph



Appendix P

Provider Evaluation Graph

