

Impact of a team-based group medical visit program on anxiety and depression for overweight and obese patients

Jalia K Tucker, Lynn Moll, Melanie Murphy, Jamila Miller, Heather Muxworthy, Travis Howlette,
Jennifer Carroll

Introduction

The percentage of obese and overweight individuals in the United States is one of the highest among developed nations and has steadily increased in the U.S. since the late 1980's [1]. According to the New York State Department of Health, Health Assessment for Monroe County, approximately 64.3% of adults are overweight or obese (NYS Health Dept.). Obesity is a risk factor for many other diseases such as diabetes, hypertension, coronary artery disease, and mental illness among others. For individuals who are both obese and have a mental illness, it is hard to decide whether the mental illness is impacting the obesity or whether the obesity is impacting the mental illness. Current methods used to treat individuals who are overweight and obese, particularly in underserved populations, have not shown to be very successful, because they often do not take into account many psychosocial or environmental factors that affect one's ability to make changes in one's life [2].

In response to the levels of obesity among their patients in Rochester, a team of clinicians at The Anthony L. Jordan Health Corporation (AJHC) developed The Healthy Weight and Wellness (HWW) program. This is a new team-based group medical visit program designed to help patients eat healthier, improve their physical activity, lose weight, and improve their energy and overall well-being. The clinical team is composed of a physician, nurse practitioner, registered dietician, a psychiatric nurse practitioner, a licensed practical nurse, and a social worker. The goal of the clinical pilot is to test the feasibility and effectiveness of a team-based group medical visit intervention to improve healthy diet, physical activity, weight loss, motivation, and quality of life.

Background

With the transition of healthcare from more acute treatments to management of chronic diseases, the group medical visit (GMV) model was developed to provide effective, comprehensive healthcare and support to individuals managing chronic diseases. The GMV model includes the same components of individual care visits but emphasizes more in-depth health education for patients. A GMV allows for a group of patients with common needs to be seen by a clinical team. GMVs encourage patients to ask questions and to share concerns and experiences among each other in a group setting [3]. They also allow for additional access for appointments, focused time with the clinical team around a specific issue, self-management skill building and peer support. Lastly, GMV's have been shown to significantly decrease mental health issues related to depression and anxiety and increase motivation and self-efficacy [2, 4].

It is well documented that higher levels of depression symptoms are inversely associated with quality of life and directly associated with health utilization and other poor health outcomes [2, 5]. Studies describing the relationship between socioeconomic status, mental health and obesity, found that individuals with a lower socioeconomic status tend to have higher depression and anxiety rates, and be more obese [6, 7]. Furthermore, Simon and colleagues reported that patients with higher depression screening scores tend to have higher BMI's, a higher caloric intake and more difficulty losing weight [5]. At the core of HWW is a focus on psychosocial, environmental, and/or socioeconomic issues surrounding diet and lifestyle. The use of the multidisciplinary clinical team provides a well-rounded model of care and allows issues external to physical health to be dealt with in real time. This is important considering that a significant portion of the AJHC population is socioeconomically disadvantaged.

There is a need for the development of innovative models to prevent and treat obesity in the community health care setting and which specifically address mental health issues as part of the overall "obesity care plan.". Studies have shown that achieving a healthy weight promotes a healthier lifestyle and also decreases risk for other comorbidities and can increase general health status overall [8]. Unfortunately,

the vast amount of research on group medical visits focuses on targeting one chronic disease with use of one facilitator. There is virtually no evidence on a GMV model for weight loss that incorporates psychosocial, environmental, and/or socioeconomic issues of health, especially at urban community health centers [3, 9, 10]. HWW was specifically developed to incorporate psychosocial and socioeconomic-sensitive practices into its model of care. The goal of this project was to evaluate the impact of a team-based group medical visit on lifestyle, anxiety and depression for overweight and obese patients.

Methods

Patient Recruitment and enrollment

Patients were eligible if they were aged 18 or older, were overweight or obese ($BMI \geq 25$), spoke English, had a history of two or more weight related conditions (i.e. diabetes, hypertension, dyspnea etc.) and were ready to commit to attending six bi-monthly sessions as measured by an initial survey. Eligible adults were referred by their provider from within AJHC to the HWW development team. Each patient was screened either over the phone or had a representative from the planning team meet with them in-person to determine eligibility. The enrollment goal was 20 individuals which accounted for 30% attrition to maintain financial feasibility.

Intervention

The intervention occurred at the AJHC, Kennedy Tower site, Rochester, NY. The sessions were held twice monthly for twelve weeks (6 visits). Each visit consisted of checking in, having their vitals and a focused review of systems, and then participating in a group centered education session focused on evidence based discussion topics. The session ends with a wrap up group exercise or action planning. Throughout the session patients met with the physician/nurse practitioner for brief individual visits about any concerns or issues they were having. Curriculum included USDA MyPlate, reading nutrition labels,

strategies for cravings, sampling raw fruits and vegetables, and exercise/instruction videos on physical activity. The curriculum is co-facilitated by the registered dietician, psychiatric nurse practitioner, and/or the social worker. The weekly Curriculum can be found in [Appendix A](#).

Data Collection

Patients were surveyed both pre intervention and at the third visit of the 6-visit GMV program to evaluate changes in depression (Patient Health Questionnaire-9 [PHQ-9]) and anxiety (Generalized Anxiety Disorder 7 [GAD-7]). Data on amounts of fruits and vegetables consumed per day, fast food/snacks/desserts, soda/sweet tea/shelf juice and butter/margarine consumed per week along with physical activity per week was also surveyed. Multiple measures were recorded but weight, waist circumference, and attendance are reported in this write up.

Analysis

Depression and anxiety scale scores were dichotomized as ≥ 10 (at or above a moderate level). A chi square was used to detect differences in PHQ-9 and GAD -7 scores. Paired *t* tests were used to test changes in weight loss and waist circumference, weekly fast food/snacks/desserts, soda/sweet tea/shelf juice and butter/margarine, daily fruit and vegetable consumption as well as changes in weekly physical activity.

Results

Attendance

Twenty one patients were initially enrolled for the first GMV, and 14 individuals actually attended. Of the 21, 20 were actual AJHC patients, with one individual being a resident of the site location. At the second and 3rd GMV, the attendance was 11 participants each time, therefore the attrition rate overall is

45%. The minimum number of participants needed for the group to be financially feasible is an average of 11, so the group is achieving its financial feasibility goal to date.

Baseline characteristics

Baseline characteristics of individuals who attended at least one GMV are represented in [Table 1](#). The majority of the group was both female (86%) and African American (79%). The average age was just above 54 years old with ages ranging from 39-69 years old. The average weight was 246lbs correlating to an average BMI of 40.32. Individuals diagnosed as having diabetes or who had an A1C in the pre-diabetes range (5.7-6.0), together had an average A1C of 6.63. As a requirement to be in the GMV, patients needed to have a BMI greater than 25 and also 2 or more comorbidities. On average patients in this group had at least 3 comorbidities, with diabetes, hypertension and joint pain being the most common.

Depression

Depression was measured by the Patient Health Questionnaire 9 (PHQ-9) and is represented in Table 2. PHQ-9 total score for the nine items ranges from 0 to 27. Scores of 5, 10, 15, and 20 represent cut points for mild, moderate, moderately severe and severe depression, respectively [11]. The baseline average score for individuals who attended at least one GMV was 9.5 a borderline mild/moderate amount of depression for the group when the group first started. At the midway point, depression scores for the group decreased slightly (8.23). Patients who scored above 10 or in the moderate, moderately severe, or severe ranges for depression at baseline had an average 15.14 or moderately severe depression. After 6 weeks, the average for the group decreased to 11 or moderate depression. Individual change scores can be seen in [Figure 1](#) in the appendix.

Anxiety

Anxiety was measured by the General Anxiety Disorder 7 (GAD-7) survey and is represented in [Table 3](#). GAD-7 total score for the seven items ranges from 0 to 21. Scores of 5, 10, and 15 represent cut points for mild, moderate, and severe anxiety, respectively [12]. Mean scores for patients attending at least one GMV was 7.86 indicating a mild amount of anxiety at baseline. At the midway point, anxiety scores for the group decreased slightly to 6.0 still remaining in the mildly anxious range. Patients who scored above 10 or in the moderate or severe ranges for anxiety at baseline had an average 12.67 or moderate anxiety. Midway through the program, the mean anxiety scores decreased to 7.6 or mild anxiety. Individual change scores can be seen in [Figure 2](#) in the appendix.

Weight and Waist circumference

Individual weights were recorded at each GMV. As a group (N=14) there was been an overall 5lbs weight loss in the first 6 weeks of the program. 7 people lost weight, 4 people gained weight and 3 people had no change in their weight. Waist circumference also decreased for both men and women. On average the men in the group lost approximately 1 inch in diameter. Women lost approximately 0.5 inches in diameter collectively.

Exercise

Exercise was assessed by asking participants how many days per week they exercised and for how long at each session and is represented in [Figure 3](#). The group average for days per week of exercise was 1.64 for approximately 13.7 minutes. Days per week of exercise and duration of exercise increased at the midway point to 3.83 days per week and 26.45 minutes. 21.4% of patients (n=3) exercised more than the recommended 3 times per week for 30 minutes or more were considered “high exercisers” and are included in Figure 3 along with individuals that did not participate in the recommended amount of exercise. High exercisers exercise on average 5 days per week for 57 minutes. Midway through the program, the number of days they exercised did not change but the duration increased to 64.17 minutes.

[Figure 4](#) represents the individuals who do not participate in the recommended amount of exercise per week and were considered “low exercisers”. There was a substantial increase in the number of times per week that these patients exercised. Before the intervention started “low exercisers” exercised on average 0.2 days per week and increased to 2.78 days per week. The duration of exercise also increased from 0 minutes per to 8.17 minutes per session.

Eating habits

[Figure 5](#) describes the changes in eating habits. Eating habits were evaluated by asking participants how many days per week they eat fast food, use butter or margarine to cook meals, or drink soda/sweet tea/shelf juice and how many fruit and vegetables they eat per day. The unhealthy eating habits, drinking soda, using butter to season or cook meals and fast food all decreased. Soda, butter, and fast food decreased by an average of 4.17, 2.27, 1.49 times per week respectively. Healthier eating habits (greater consumption of fruits and vegetables) increased collectively by 0.69 times per day.

Discussion

The goal of this project was to assess the use of a team-based group medical visit model to treat obesity by specifically addressing mental health and lifestyle issues in a community health care setting. For many group medical visits programs, recruitment and retention have been significant barriers especially for urban underserved populations. Of the 20 individuals who were originally signed up for the group medical visit half way through 55% percent are still in attendance. These numbers are consistent with other studies conducted in similar settings ³, Miller). There seemed to be an inverse association between depression, anxiety and participation in the group medical visits. Collectively, individuals scoring at moderately depressed or higher, dropped a clinical category from moderate severe to moderate depression. A similar finding occurred on the anxiety scores. Scores in the moderate and sever range decreased to the mildly anxious level. The one individual who scored the highest on both the PHQ-9 and GAD-7 was also the only individual to attend one visit. All other individuals who scored moderate or

above on either the GAD-7 or PHQ-9 had a no change or a decrease in their scores across the board.

Although many patients did not lose weight or decrease their waist circumference, the clinical significance of many of the findings from this project are particularly valuable. Overall healthier lifestyle changes (fruits and vegetable consumption and exercise) increased and unhealthy lifestyle changes (fast food, butter, soda) decreased.

The results from this project make it difficult to ascertain which aspects of the program are the most beneficial for participants. Baseline characteristics for the group are very diverse in terms of physical ability, financial status, social support, life circumstance etc. However of the 14 patients who have attended at least one group medical visit, 85.7% have attended 2 or more visits half way through the program. Patient feedback has been very positive about the group dynamic and patients feel that they can share and be open about their situations in that environment. For most participants, sharing stories and having a social exchange were important aspects of the GMV experience. Furthermore, responses indicate that participating in a group of individuals with similar goals allowed individuals to form connections among group members. Patients reported feeling more invested because they are able to add to the process rather than being “dictated to”, as one person described from traditional individual medical visits. The individuals who have consistently participated in the GMV seemed to have received the greatest benefit.

Recommendations

Administrative Support

Having an individual who can dedicate 10-15 hours week solely to support of the GMV would be significant. This project would be a great opportunity for a pre medical student, public health or a 1st year medical student to participate in for administrative duties. The surveying skills and patients interaction skills are invaluable and would definitely help them in preparation for their careers. It also may be a great opportunity to have a volunteer from the community, who has an interest in public health to participate as well. Recommendations for other aspect specific to administrative support are listed below.

1. Recruitment – A significant portion of what makes this program successful is having the time and flexibility to recruit the appropriate patients. Having someone who is able to dedicate at least half of their time (8-10 hours per week) to recruitment would be the most helpful and increase enrollment numbers. At the start of the program a PCLP scholar, and nurse and a dietician were the main individuals involved in recruitment. By having a person who can dedicate at least half of their time to enrolling patients, they would be able to review provider schedules prior to each session across sites to know which site to target for enrollment. This is also a great way to have a face to the program for providers at different sites to keep the program on their minds, and generate more referrals.
2. Retention - Intermediate phone calls one week after GMV to go over goals with patients was also an aspect of this program and the support that patients seemed to really enjoy. Some patients just needed an ear to talk to while others wanted to troubleshoot ideas to help better achieve their short term goals. It really served as another level of support outside of the GMV. This aspect of the program only took 1-2 hours per week and could be built in around the time of enrolling patients. Reminder calls one day before the class were very important for this project as well. Issues around transportation were resolved and just having a person remind you seemed to significantly impact attendance numbers. This aspect of the program took approximately 1 hour per week to do.

Database development and tracking

Standardizing the way in which data is both obtained and tracked is essential. Originally there was an attempt to use a google doc but without the proper encryption and predetermined ID's it made it difficult to organize the data. Given that the entire development team at some point provided an initial screen to a patient, having a template within the electronic medical record with the same questions as the initial screen and GMV survey that can be easily checked off, would be much more feasible. There is a template made in the electronic medical record but much of the information is entered free form which is

very time consuming and makes it difficult to run reports on the program at a later date. Development of a template to track initial screener information, and GMV pre-survey data will also prevent information from being misplaced.

Health Education Materials

Many of the patients enjoyed and appreciated the handouts that were provided at each session, but health literacy and literacy in general was an issue for some. Some of the handouts were very verbose with not a lot of pictures, so for some patients they were not helpful. In order to be able to provide patients with useful information, having a diverse set of education materials to provide for the different literacy levels if available seems like it would be the most helpful.

Conclusion

This project aimed to provide insight on the impact of a group medical visit model for obese and overweight individuals in underserved populations. The majority of individuals who participated in this group medical visit were affected by more than 3 comorbidities and were mainly African American women. The stable attendance record in conjunction with the decrease in their depression and anxiety scores midway through the program suggests that patients are benefitting from the program. The multidisciplinary approach appears to benefit patients the most provided that they were able to receive mental, physical and social support all in the same visit. Therefore, we conclude that a team based group medical visit built upon psychosocial, environmental, and/or socioeconomic issues surrounding diet and lifestyle may be affective at improving mental health and lifestyle for socioeconomically disadvantaged populations. Although the data did not reveal statistically significant differences, the clinical significance is evident and more programs are needed to provide more knowledge about how to best serve the difficult to reach populations.

References

1. Baskin, M.L., et al., Prevalence of obesity in the United States. *Obes Rev*, 2005. **6**(1): p. 5-7.
2. Geller, J.S., A. Orkaby, and G.D. Cleghorn, *Impact of a Group Medical Visit Program on Latino Health-Related Quality of Life*. *EXPLORE: The Journal of Science and Healing*, 2011. **7**(2): p. 94-99.
3. Jaber, R., A. Braksmajer, and J.S. Trilling, *Group visits: a qualitative review of current research*. *J Am Board Fam Med*, 2006. **19**(3): p. 276-90.
4. Williams, G.C., et al., *Motivational predictors of weight loss and weight-loss maintenance*. *J Pers Soc Psychol*, 1996. **70**(1): p. 115-26.
5. Simon, G.E., et al., *Association between obesity and depression in middle-aged women*. *Gen Hosp Psychiatry*, 2008. **30**(1): p. 32-9.
6. Heo, M., et al., Depressive mood and obesity in US adults: comparison and moderation by sex, age, and race. *Int J Obes (Lond)*, 2006. **30**(3): p. 513-9.
7. Teixeira, P.J., et al., *Motivation, self-determination, and long-term weight control*. *Int J Behav Nutr Phys Act*, 2012. **9**: p. 22.
8. Bischoff, S.C., et al., Multicenter evaluation of an interdisciplinary 52-week weight loss program for obesity with regard to body weight, comorbidities and quality of life--a prospective study. *Int J Obes (Lond)*, 2012. **36**(4): p. 614-24.
9. Wagner, E.H., et al., Chronic care clinics for diabetes in primary care: a system-wide randomized trial. *Diabetes Care*, 2001. **24**(4): p. 695-700.
10. Fitzgibbon, M.L., et al., Weight loss and African-American women: a systematic review of the behavioural weight loss intervention literature. *Obes Rev*, 2012. **13**(3): p. 193-213.
11. Kroenke, K., R.L. Spitzer, and J.B. Williams, *The PHQ-9: validity of a brief depression severity measure*. *J Gen Intern Med*, 2001. **16**(9): p. 606-13.
12. Spitzer, R.L., et al., *A brief measure for assessing generalized anxiety disorder: the GAD-7*. *Arch Intern Med*, 2006. **166**(10): p. 1092-7.
13. http://www.health.ny.gov/statistics/chac/chai/docs/obs_26.htm. Accessed 8/9/2014

Appendix A

Session 1: Introduction, initial goal setting

Objectives

1. Vital Signs
2. Introduce gmv model and obtain hipaa compliance
3. Introduce group, expectations, schedule and topics
4. What makes for successful health, wellness, and weight loss
5. Strategies for making change successful
6. Review goals and make a first action plan
7. Questions/concerns

Session 2: Healthy eating

Objectives

1. Vitals signs
2. Healthy eating
3. Create a healthy plate
4. Healthy portion sizes of foods
5. Fats and cholesterol; where they are and simple ways to cut unhealthy fats
6. Goal setting and action plans

Session 3: Being active

Objectives

1. Vital signs
2. Reflection: what is/isn't working?
3. Describe current level of physical activity and why physical activity is important to health
4. Discuss how to find the time to be active.
5. Discuss how to keep activity safe
6. Goal setting and action plans

Session 4: Reading nutrition facts labels and using them to make healthy choices

Objectives

1. Vital signs
2. Learn how to read a nutrition facts label to identify calories, fat, cholesterol, sodium and fiber
3. Learn which common foods have the most sugars
4. Physical activity
5. Goal setting and action plans

Session 5: Emotional eating, stress and problem solving

Objectives

1. Vital signs
2. How to stop negative thoughts and talk back with positive ones
3. The 5 steps to problem solving
4. Strategies for relaxation
5. How to stop negative thoughts and talk back with positive ones
6. Goal setting and action plans

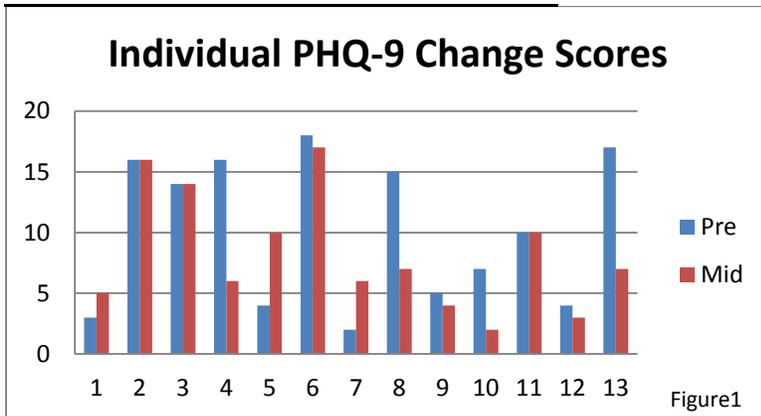
Session 6: Eating on a budget, shopping strategies, ongoing action plan

Objectives

1. Vital signs
2. Eating on a budget: plan! plan! plan!
3. Where to find fresh seasonal vegetables and fruits
4. On-going support from Jordan Health Center
5. Goal setting and action plans

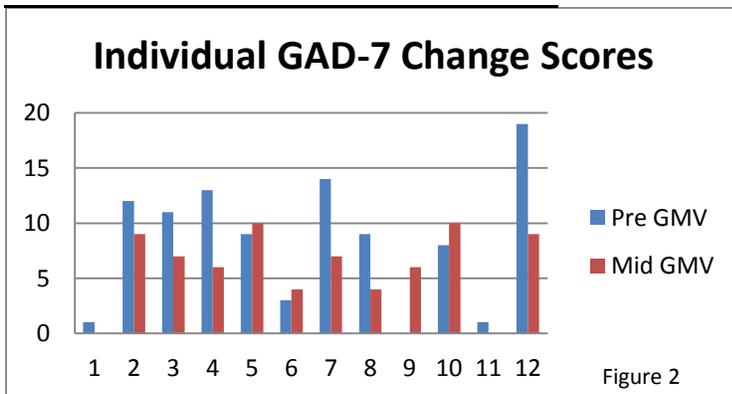
[Return to Intervention Section](#)

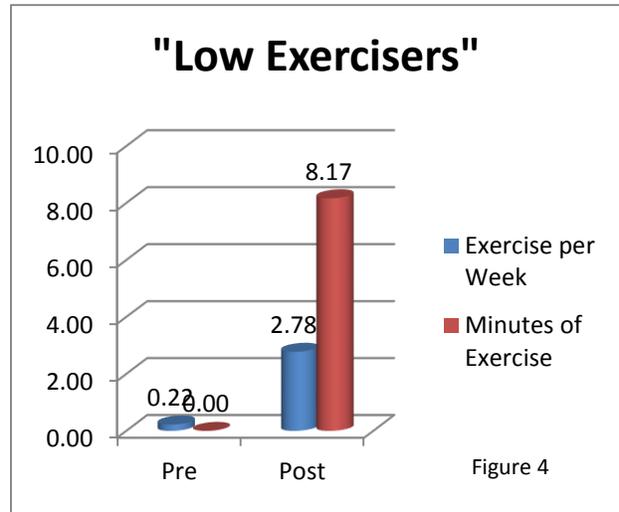
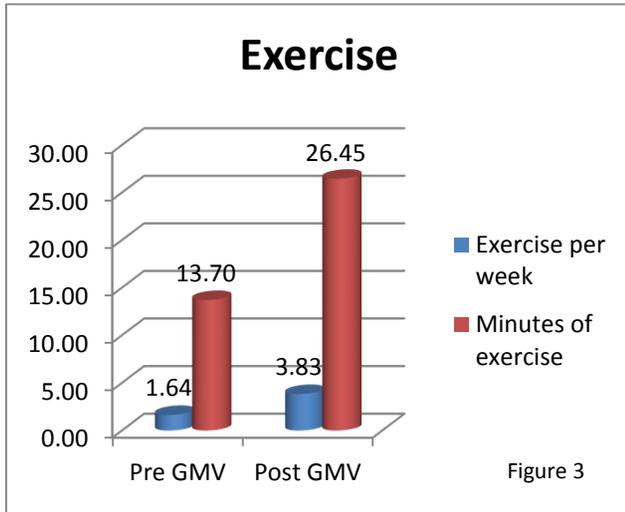
PHQ-9		Table 2
<i>Average Group score (N=14)</i>		
Pre GMV	9.5	
Mid GMV	8.23	
<i>PHQ-9 score > 10 (N=7)</i>		
Pre GMV	15.14	
Mid GMV	11	



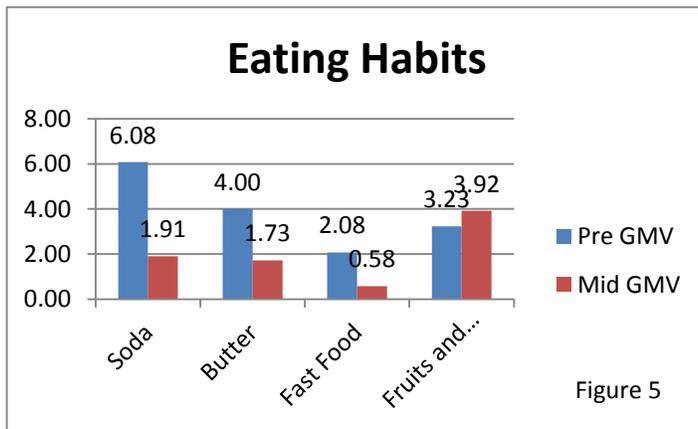
[Return to Surveys](#)

GAD-7		Table 3
<i>Average Group score (N=14)</i>		
Pre GMV	7.86	
Mid GMV	6.00	
<i>GAD-7 Score >10 (N=6)</i>		
Pre GMV	12.67	
Mid GMV	7.6	





[Return to Exercise](#)



[Return to Eating Habits](#)

Group Characteristics	
Table 1	N=14
Gender	
Female	86%
Ethnicity	
African American	79%
Caucasian	14%
Hispanic	7%
Age (yrs)	54.14
Weight (lbs)	246.08
BMI	40.32
Lipid Profile	
Total Chol (<200)	184.70
HDL (>40)	61.00
LDL(<100)	109.80
Triglycerides(<120)	120.70
Blood Pressure	128/80
A1C	6.66
# of Comorbidities	3.08

[Return to Baseline Characteristics](#)