

# IMPROVING WEIGHT MANAGEMENT SERVICES FOR FEMALE VETERANS: DESIGN AND PARTICIPATION FACTORS FOR A WOMEN ONLY PROGRAM, AND COMPARISONS WITH GENDER NEUTRAL SERVICES

Lindsey Eaton Bloor, Ph.D., ABPP<sup>1, 2</sup>

Jerren Weekes-Kanu, Ph.D.<sup>1</sup>

Kim Browning, RD<sup>3</sup>

<sup>1</sup>Department of Psychiatry, VA Ann Arbor Healthcare System, Ann Arbor, MI

<sup>2</sup>Department of Psychiatry, University of Michigan, Ann Arbor, MI

<sup>3</sup>Patient Care Services, VA Ann Arbor Healthcare System, Ann Arbor, MI

## REPRINTS AND CORRESPONDENCE:

Lindsey Eaton Bloor, Ph.D., ABPP, Department of Psychiatry, VA Ann Arbor Healthcare System, 2215 Fuller Road, Ann Arbor, MI 48105; Phone: 734-769-7100, ext. 54654; E-mail: Lindsey.bloor2@va.gov

Abstract Word Count: 290

## ABSTRACT

**Introduction**—With the sustained growth of women using Veterans Affairs (VA) healthcare, health promotion and disease prevention programs need to address women's unique bio-psychosocial concerns, encourage their engagement, and optimize program outcomes. This paper describes the development and evaluation of Women's MOVE!, a gender-modified weight management program at one VA medical center. Factors associated with female Veteran participation in the program are reported, as well as comparisons of participation rates and weight change between these women and women participating in the regular, gender-neutral MOVE! program.

**Methods**—The MOVE! class content was gender-modified and fifteen female Veterans participated in an 8-session program. Within this group, Student's t-tests were used to compare women who completed four or more sessions to those who participated less. The overall rate of participation of this group was compared to those of 14 women participating in the regular MOVE! program, as well as changes in weight.

**Results**—Among Women's MOVE! participants, seven (47%) engaged in four or more sessions, while eight (53%) participated less. Women who participated more fully had higher scores on the Weight Management Ability Scale ( $p = .00$ ) and the SF-36 mental health subscale (marginally significant,  $p = .07$ ) at baseline, compared to those who participated less. Between groups comparisons revealed a higher rate of participation among women enrolled in regular MOVE! ( $p = .007$ ) compared to those in the Women's MOVE!, and no difference in weight change.

**Conclusions**—Results revealed variable participation in a women-only weight management program, and lower participation rates compared to that of regular programming. Future research can formally assess factors that support as well as those that hinder female Veteran participation in weight management and other health promotion, disease prevention programs, in order to inform more optimal program development and engagement efforts.

*Keywords*—*Veteran, women, overweight, obesity, prevention, health promotion*

## 1. Introduction

Obesity significantly contributes to the development and burden of disease among civilians and Veterans alike (Das et al., 2005; Eckel & Krauss, 1998; Nelson, 2006; National Institutes of Health, 1998). As a hallmark of health promotion and disease prevention programs at the Veterans Health Administration (VHA), the Managing Overweight/Obesity for Veterans Everywhere! (MOVE!) weight-management program was implemented nationally in 2006 (Weiner et al., 2012) to address the high prevalence of obesity among Veterans (Kinsinger et al., 2009). MOVE! is multidisciplinary, utilizing curriculum from Nutrition, Primary Care, Psychology, Physical Therapy and Pharmacy to ensure participants receive education and support to modify health behaviors and effectively manage their weight. While the MOVE! program has yielded benefits for Veterans (Romanova et al., 2013), challenges remain, particularly for women Veterans who are among the fastest growing segment of VA users (Yano et al., 2010; Washington et al., 2006; Washington et al., 2007).

Participation rates overall for MOVE! are less than optimal to achieve clinically significant weight loss. For example, one study reported 50% of those who participated in MOVE! completed just one encounter (Littman et al., 2012). Furthermore, while some research suggests women Veterans are more likely to participate in MOVE! than their male counterparts, women may be less likely to achieve clinically significant weight loss than male participants (Littman et al., 2012). This is unfortunate since research indicates that female Veterans have a higher prevalence of obesity compared to male Veterans (Das et al., 2005).

Several factors may account for VA programs like MOVE! underserving female Veterans. Factors such as perceptions of poor quality care for women (Washington et al., 2006) and reports of discomfort with the male-dominated VA atmosphere (Washington et al., 2007) have been documented. In addition, generic program materials may fail to address women's unique bio-psychosocial issues (Washington et al., 2007), thus decreasing program relevance for these Veterans. Therefore, gender-specific programs can potentially address the specific needs as well as reduce barriers to care for female Veterans. Moreover, Transformation 21 Initiatives, set forth in 2009 to improve the quality of healthcare services to Veterans, specifically call for the development of programs for specialty and underserved populations. With this context in mind, we describe the development and implementation of a gender-modified MOVE! weight management program for female Veterans at a VA medical center, focusing on Veteran participation and factors related to participation in the intervention. Comparisons of participation and weight loss with women Veterans participating in regular, gender-neutral MOVE! program formats are presented as well.

### 1.1 Women's MOVE! Program Modifications

Women's MOVE! is a gender-modified weight management program that adheres to the premise and framework of MOVE!, while emphasizing the female weight management experience. In keeping with culturally sensitive guidelines for modifying interventions (Resnicow et al., 2000), this program incorporated both surface structure (i.e., superficial changes to observable characteristics of the intervention to fit the *target* group's culture) and deep structure (i.e.,

incorporating cultural, social, and psychological factors that influence the target behavior in the target group) modifications.

### 1.1.a. *Surface Structure Modifications*

With a women-specific IRB-approved flyer, we conducted outreach to the Women's Health Clinic and women Veterans events in addition to the established clinical protocol through Ambulatory Care. Additionally, the day and time of the class was adjusted to the participants' schedules (e.g., with work and/or childcare) to the extent possible. Lastly, all instructors for the Women's MOVE! program were women, in order to maintain a women-only group environment.

### 1.1.b. *Deep Structure Modifications*

The content for Women's MOVE! was drawn from literature that demonstrates associations between weight loss/gain and factors such as social stigma, body image, self-esteem, and mental health for women more so than men. This literature outlines the existence of powerful social stigma and cultural expectations of thinness that exist for women (Garner et al., 1980). For example, simply being female is a risk factor for body image distress (Cash & Roy, 1999). Furthermore, when women do not meet cultural weight standards, they tend to be judged as personally responsible for their weight status and may experience downward social mobility (Rothblum, 1992). Women are also more likely to perceive themselves as overweight (across body mass index or BMI categories) and to report a history of weight loss attempts compared to men (Lemon et al., 2009).

Regarding self-esteem, the literature documents a strong relationship between

decreased self-esteem and increased weight among men and women, but with larger effect sizes for women (Teixeira et al., 2002). Researchers have also found higher odds of attrition from weight loss programs for women with greater depression scores (Fabricatore et al., 2009) or poor psychological health (Teixeira et al., 2004), but has found less consistent results supporting these associations for men (Linde et al., 2004). Taken together, this body of literature supports the importance of incorporating and discussing these salient psychosocial issues with women in weight loss programs.

The Women's MOVE! curriculum included two sessions devoted to the topic of body image and self-esteem related to weight loss. Discussion centered on the transition of social standards of beauty, and participants were encouraged to explore issues of social stigma and cultural expectations of thinness and identify non-food related methods of coping with these issues. Another session was devoted to mental health and emotional distress related to weight management for women, and provided psycho-education on stress management. Additionally, instructors were encouraged to tailor materials and discussions to their topics of nutrition, medication and physical exercise to the weight management experience of women. Motivational interviewing (MI) training equipped facilitators with important skills to respond to the content and context of participants' comments and "meet them where they are at," in terms of the MI spirit (Miller & Rose, 2009).

## 2. *Methods*

### 2.1. *Course Structure*

Women's MOVE! consisted of 8, 90-minute sessions held weekly. Sessions 1, 4, and 5

were led by a registered dietician and addressed issues of label reading, budget friendly meals, principles of healthy eating, and cooking for self and others. Sessions 2, 3, 6, and 8 were facilitated by a Health Psychologist (and/or psychology fellow) and focused on making SMART goals (i.e., simple/specific, measureable, action-oriented, realistic/reasonable, and timely), emotional distress and emotional eating, body image/self-esteem, and planning ahead. Session 7 was facilitated by a pharmacist and focused on medication side effects, and all sessions incorporated discussions on being physically active.

## 2.2. Study Participants

Consistent with the overall MOVE! program, female Veterans with established care and a body mass index (BMI) of  $\geq 30$  kg/m<sup>2</sup>, or  $\geq 25$  kg/m<sup>2</sup> with one obesity related condition (e.g., diabetes or heart disease) were eligible for the study. Twenty-one women were recruited for the gender-modified group between October 2012 and February 2014, and 15 agreed to participate and attended at least one session. Fourteen women who participated in one of the regular MOVE! program formats (e.g., in-person 11-session MOVE!, TeleMOVE! a phone-based program) agreed to participate in the comparison group of the study.

## 2.3. Study Procedures

Veterans were self-referred or referred by their medical provider to the program. The MOVE! Coordinator met with each Veteran for an intake, informed Veterans of the participation options (e.g., in-person MOVE!, TeleMOVE! a phone-based program), and, if female, the women's MOVE! group. Women participating in a regular, gender-neutral MOVE! format agreed to have their participation and weight

data compiled for the study's comparison group. Women who opted for the gender-specific group were contacted by a research staff member, enrolled in the women's MOVE! group, and offered the research study option. These women also completed the measures outlined below as part of the study in addition to collecting data on participation and weight change. All participants provided written informed consent. This study was approved by the hospital's Institutional Review Board (IRB) and participants did not receive any incentive or payment for their participation.

## 2.4. Measures – Participation and Change in Weight

Both the women-only and comparison group participation rates were calculated by dividing the number of sessions (or telephone contacts) in which they participated by the total number of sessions (or telephone contacts) for the particular program format (e.g., 8 sessions for Women's MOVE!, 11 sessions for regular MOVE!, 60 contacts for TeleMOVE!). Weights were abstracted from the medical record at the beginning and end of each woman's participation in the program.

For the Women's MOVE! program, additional demographic and health variables such as age, race, low-density lipoprotein cholesterol (LDL), and medical diagnoses were obtained via chart review as outlined to participants in the study consent form.

### 2.4.a. Women's MOVE! Self-Report Measures

*Nutritional Knowledge:* A brief, 4-item, nutritional knowledge questionnaire was developed for this study to assess knowledge of key nutritional information provided in the MOVE! curriculum. This

questionnaire was scored on a 0 to 10 scale with higher scores indicating greater knowledge. Item 1 (scored 0 to 3 points) assessed participant knowledge of sources of nutrients in food such as carbohydrates, fats, proteins, vitamins, minerals and/or water. Items 2 and 3 (scored 0 or 1 point) assessed participant knowledge of the recommended frequency of eating and exercise. Item 4 assessed participant knowledge of the components of a S.M.A.R.T. behavioral goal and was scored from 0 to 5 points.

*Health-Related Quality of Life:* The 36-item Short Form Health Survey (SF-36) was used to measure health-related quality of life (QOL) in this study. This measure is well established and validated for diverse populations to document the burden of disease (such as arthritis, chronic pain, diabetes, obesity [Doll, Petersen, Brown, 2000]) and the health effects of relevant treatments and interventions. There are 36 items on this measure with response scales varying from yes/no, to 3 and 5-point Likert scales. The items are summed to generate 8 subscales that fall under the domains of Physical Health and Mental Health (Ware, 2007). The Physical Health subscales include physical functioning, role-physical, bodily pain, and general health. The Mental Health subscales include vitality, social functioning, role-emotional, and mental health. The items are summed to create subscale and total scores that range from 0-100; higher scores indicate better quality of life. Cronbach's alpha values ranged from .71 (general health) to .94 (mental health) for each of the SF-36 subscales, which indicates acceptable to excellent reliability in this sample of female Veterans.

*Self-Efficacy:* The Weight Management Ability Scale (WMAS), an 8-item questionnaire adapted from the Diabetes

Empowerment Scale – Short Form (DES-SF)

(Anderson et al., 2003) was used to assess psychosocial self-efficacy. Items were modified to use language for weight-loss, for example, “I can overcome barriers to my weight-loss goals” and “I can ask for support for my weight-loss goals when I need it.” The DES-SF is a well-validated measure of diabetes-related psychosocial self-efficacy ( $\alpha = .85$ ) and the WMAS obtained an alpha value of .73, which indicates acceptable reliability in this sample.

### 2.5. Data Analysis

StataMP (StataCorp.2013 Stata Statistical Software: Release 13. College Station, TX: Stata Corp LP) was used to conduct the within group (Women's MOVE!) and between groups analyses. For within group analyses, descriptive statistics and Student t-tests were used to summarize the Women's MOVE! sample characteristics. Differences in participation, QOL, knowledge, and self-efficacy scores between those who completed four or more of the 8 women's MOVE! sessions and those who participated less were evaluated. For the between groups comparisons, additional Student t-tests were used to compare participation rates and changes in weight between women participating in the Women's MOVE! to a sample of women participating in other MOVE! programs. Given small sample sizes, tests for equal variances were performed and the t-test for unequal variances and Kruskal-Wallis test for nonparametric data were evaluated when indicated.

## 3. Results

### 3.1. Demographics of Women's MOVE!

Sixty-seven percent ( $n = 10$ ) of the sample self-identified as White, while 33% self-identified as either Hispanic ( $n = 1$ ), Black/African American ( $n = 3$ ) or biracial (Black and White;  $n = 1$ ). Age in this sample ranged from 36-71 years, with a mean age of 52.93 years ( $SD = 8.68$ ).

Baseline weight and LDL for the overall sample was 205.8 (SD = 33.69) pounds and 128 mg/dL (SD = 38.57), respectively. Women who participated in four or more sessions had a higher

average weight and BMI at baseline than those who participated less (see Table 1). However, no significant differences in baseline weight, BMI, or LDL were found between the two groups.

**Table 1.** Descriptive Statistics for the Demographic and Health Characteristics of the Veterans in the Women’s MOVE! (n=15), October 2012-February 2014

Variables		Actual Range
Age, mean (SD)	52.93 (1.7)	36 – 71
Race/Ethnicity, Number (%)		
White	10 (67%)	
African American	3 (20%)	
Hispanic	1 (.07%)	
Other	1 (.06%)	
Weight, mean (SD)		
Overall	205 (33.69)	157 - 274
≥4 sessions	217 (41.55)	174 - 259
≤3 sessions	195 (23.31)	157 - 235
Body Mass Index, mean (SD)		
Overall	33.81 (4.97)	25.38 - 42.31
≥4 sessions sub-group	35.43 (4.50)	28.33 - 42.31
≤3 sessions sub-group	32.40 (5.31)	25.38 - 39.81
LDL, mean (SD)		
Overall	128 (38.57)	40 – 196
≥4 sessions sub-group	133 (32.75)	81 – 163
≤3 sessions sub-group	124 (43.56)	40 – 196

Abbreviations: SD, standard deviation; LDL, low-density lipoprotein cholesterol.

*3.2. Participation and Baseline Quality of Life, Self-Efficacy, and Knowledge (Women’s MOVE!)*

Of the 15 participants, 7 (47%) participated in 4 or more sessions and 8 (53%) attended three or fewer sessions (see Table 2). Women who participated in four or more sessions had higher scores on the Weight Management Ability Scale ( $t[13] = -3.19, p = .00$ ) at baseline, indicating higher weight-loss self-efficacy compared to those who participated less. Additionally, participants who attended four or more sessions had

higher scores on the SF-36 mental health subscale (marginally significant difference;  $t[13] = -2.01, p = .07$ ), indicating higher mental health-related quality of life. These participants also had a higher average for nutritional knowledge ( $M = 4.60; SD = 2.99$ ) compared to those who attended 3 or fewer sessions ( $M = 2.50; SD = 1.77$ ), at baseline. However, this difference was not statistically significant ( $p = .12$ ). Finally, no significant differences were found between groups on self-reported physical health or other SF36 subscales (see Table 3).

**Table 2.** Participation Rates of the Sample of Veterans in the Women’s MOVE!, (n=15), October 2012 – February 2014

Number of completed sessions	Number (%) of Veterans
1	2 (13)
2	3 (20)
3	3 (20)
4	2 (13)
5	2 (13)
6	2 (13)
7	0 (0)
8	1 (6)
Sub-group	Number (%) of Veterans
≥ 4 sessions	7 (47)
≤ 3 sessions	8 (53)

**Table 3.** Clinical Characteristics of the Sample of Veterans in Women’s MOVE!, (n=15), October 2012-February 2014

Domain	Sub-Group	
	≥ 4 sessions, mean (SD)	≤ 3 sessions, mean (SD)
Health Related QOL		
Physical Functioning	46.43 (25.28)	67.50 (31.62)
Role-Physical	39.28 (45.32)	50.00 (40.08)
Bodily Pain	51.43 (30.57)	41.50 (23.51)
General Health	57.14 (10.11)	49.13 (21.40)
Vitality	42.14 (19.55)	30.00 (18.71)
Social Functioning	52.79 (33.41)	46.88 (39.39)
Role-Emotional	71.43 (40.50)	33.34 (39.85)
Mental Health	69.71 (22.01) <sup>a</sup>	44.00 (26.79)
Nutritional Knowledge	4.6 (2.99)	2.5 (1.77)
Self-Efficacy (WMAS)	34 (3.02)	29 (3.42)

Abbreviations: QOL, Quality of Life; SD, standard deviation; WMAS, Weight Management Ability Scale.

<sup>a</sup> Marginally significant difference ( $t[13] = -2.01, p = .07$ ).

*3.3. Comparisons between Women’s MOVE! and Women in Regular MOVE!*

The 15 women in Women’s MOVE! had a lower average rate of participation (M=45.53%; SD=25.43) compared to the 14 women participating in a regular MOVE! program format (M=70.00%;

SD=19.39) ( $t[27] = -2.90, p = .007$ ). Participants in the Women’s MOVE! gained an average of 0.67 pounds (SD=3.35) whereas women in regular MOVE! lost an average of 2.43 pounds (SD=9.67) ( $t[27] = -1.17, p = .27$ ) (see Table 4). We did note that one participant in each group (1 of 15 and 1 of 14, or 7%) achieved a 5% (or more)



of initial weight loss with their participation, one of the program’s

quality measures.

Table 4. Participation and Weight Comparisons for Women’s MOVE! and Women in Regular MOVE!, (n=29), October 2012-February 2014

Comparison	Women’s MOVE! Mean (SD) (n=15)	Women in Regular MOVE! Mean (SD) (n=14)	
Participation rate	45.53% (25.44)	70.00% (19.39)	$t=-2.90$ ( $p=.007$ ) <sup>a</sup>
Changes in weight (lbs)*	-0.67 (3.35)	2.43 (9.67)	$t=-1.17$ ( $p=.27$ ) <sup>b</sup>

Abbreviations: SD=standard deviation, lbs=pounds

<sup>a</sup> ( $t[27] = -2.90, p = .007$ )

<sup>b</sup> Non-significant, Two-sample t test with unequal variances and Kruskal-Wallis rank test \* reported as pounds (lbs), negative number indicates weight gain, positive number indicates weight loss

#### 4. Discussion

Female Veterans are increasingly establishing care at the VHA and deserve effective health promotion and disease prevention programs that address their unique bio-psychosocial issues. Programs targeting weight management are an important priority given research demonstrating higher rates of obesity and potentially less benefit from interventions among female Veterans compared to their male counterparts (Das et al., 2005). This paper described the development and implementation of one female Veteran weight management program, along with findings on participation, quality of life and self-efficacy. Initial comparisons between this group and women participating in regular, gender-neutral MOVE! programming were also explored.

Efforts were made to modify both structural and deeper level factors of the program to appeal to and enhance female Veteran participation. In fact, informal feedback from participants suggested that the women greatly appreciated these modifications. Nevertheless, while 86% of our participants attended at least two sessions, only seven (47%) women completed four or more sessions of the 8-session program. This level of participation appears low, and it was significantly lower compared to women in regular MOVE!. It is important to note, however, that the women’s MOVE! participation rate is comparable to other reported participation rates for the MOVE! program. For example, Romanora and colleagues (2013) included participants

who completed 3 or more of the 8 session format for their analyses. Another study clarifies that only 5% of those Veterans eligible actually participated, and 50% of these attended just one session (Littman et al., 2012). Future implementation research can continue to refine the MOVE! program and improve rates of engagement for women as well as other populations.

Within the women's only group, our results suggest that women with higher weight management self-efficacy and greater mental health quality of life attended more sessions of the Women's MOVE! program compared to women who reported lower self-efficacy and mental health quality of life. These findings are consistent with existing literature that reveals greater attrition from weight loss programs for women with higher depression scores (Fabricatore et al., 2009; Anton et al., 2008) or poorer psychological health (Teixeira et al., 2002). Fabricatore and colleagues (2009) suggest that participants with depression may struggle with reduced motivation and energy and thus may perceive participating in a weight loss program as burdensome. Further, they suggest that participants with mental distress may need additional support from their weight loss program to maximize participation.

This study included a session targeting depression and psychosocial distress in the context of weight management. However, it is possible that the timing of this session was not ideal, and could have been one of the first sessions. Another possibility is that multiple sessions on managing distress were needed throughout the course to provide more substantial support. Or, perhaps enhancing integrated models of care for both physical (e.g., weight management)

and mental health was needed. For mental health services for female Veterans more broadly, more research on interventions is needed (Runnals et al., 2014).

Regarding weight management self-efficacy, our results indicate that women with greater weight management self-efficacy were more likely to participate. According to the literature, self-efficacy is essential to the behavioral change process and is strongly linked with health behaviors. However, literature on the role of self-efficacy and weight loss is more equivocal (Linde et al., 2006). Some studies have identified self-efficacy as a factor that facilitates program attendance and weight loss, while other studies failed to support those findings (Fontaine & Cheskin, 1997). That said, our finding is consistent with existing literature on health behavior change that notes a positive association between women's attendance in a weight loss intervention and weight-related self-efficacy (Chao et al., 2000) as well as general personal self-efficacy (Bernier, 1986).

Exploring factors such as self-efficacy and mental health in association with engagement in each MOVE! format (in-person, TeleMOVE!, etc.) is important. In the initial comparisons between groups (women's only and women in regular MOVE!) in this study, change in weight was not optimal for women in either group. Therefore, how self-efficacy and mental health factors modify or mediate weight management program outcomes seems an important next exploration as well. These efforts could then inform future MOVE! program modifications and developments for subpopulations such as women Veterans or Veterans with mental health conditions or significant comorbidity.

The findings and commentary of this

study must be considered in the context of its limitations. Foremost, the sample size of this pilot study was quite small. This is related to challenges with reaching a sample size adequate for analyses among a subpopulation of Veterans. There are efforts underway to utilize multi-site designs in order to address this particular barrier and improve research for women Veterans. Secondly, there were limited conceptual measures employed in the study. The intent was to: (1) conduct implementation or translational research; (2) remain as close to the established clinical protocol of MOVE!; and, (3) not burden participants with multiple measures. This approach limited our ability to evaluate convergent validity and compare our findings with other studies (e.g., with self-efficacy for weight loss).

Despite these limitations, the present study contributes to the existing literature on weight loss interventions for female Veterans. To our knowledge, this is among the first studies to design, implement and evaluate participation in a VA gender-modified weight management program. This is important because literature suggests underutilization or effectiveness of VA programs for female Veterans (Washington et al., 2006; Washington et al., 2007) and few studies have examined actual interventions for women Veterans (Runnals et al., 2014). Given our findings, quality improvement efforts will continue to evaluate gender neutral services, including TeleMOVE! and newer phone internet applications of the national MOVE! program, for women's participation and weight goal achievements. Future studies can formally assess barriers with women Veterans participating in traditional, tele-health, and gender-specific weight management programs, and among women who do not present for treatment.

Finally, access to and participation in mental health services in conjunction with health promotion, disease prevention programs are areas to expand this exploration as well.

#### ACKNOWLEDGEMENTS

This study was supported by a faculty SEED grant from the Institute for Research on Women and Gender (IRWG) at the University of Michigan (PI: Bloor; grant number, not applicable). This study was approved by the VAAAHCS Institutional Review Board and Research & Development Committees (Project # 001). We would also like to recognize and thank Olga Slavin-Spenny, PhD, Mandy Coffelt, RD and the VAAAHCS MOVE! staff, Cheryl Allen, RN, Caroline Richardson, MD and Wyndy Wiitalia, PhD for their support. And we especially thank the female Veterans who participated and shared their stories with each other and to this VA's program.

## REFERENCES

- Anderson RM, Fitzgerald JT, Gruppen LD, Funnell MM, Oh MS. The diabetes empowerment scale-short form (DES-SF). *Diabetes Care* 2003;26:1641-2.
- Anton SD, Martin CK, Redman L, York-Crowe E, Heilbronn LK, Han H, et al. Psychosocial and behavioral pre-treatment predictors of weight loss outcomes. *Eating and Weight Disorders* 2008;13:30-7.
- Bernier M, Avard J. Self-efficacy, outcome, and attrition in a weight-reduction program. *Cog Therapy Res* 1986;10(3):319-338.
- Cash TF, Roy RE. Pounds of flesh: Weight, gender, and body images. In: Sobal J, Maurer D, editors. *Interpreting Weight: The Social Management of Fatness and Thinness*. Hawthorne (NY): Aldine de Gruyter; 1999.p.209-28.
- Chao D, Farmer DF, Sevick MA, Espeland MA, Vitolins M, Naughton MJ. The value of session attendance in a weight-loss intervention. *Am J Health Behav* 2000;24(6):413-421.
- Das SR, Kinsinger LS, Yancy Jr WS, Wang A, Ciesco E, Burdick M, et al. Obesity prevalence among veterans at Veterans Affairs medical facilities. *Am J Prev Med* 2005;28(3):291-4.
- Doll HA, Petersen PEK, Stewart-Brown SL. Obesity and physical and emotional well-being: associations between body mass index, chronic illness, and the physical and mental components of the SF-36 questionnaire. *Obes Res* 2000;8(2):160-170.
- Fabricatore AN, Wadden TA, Moore RH, Butryn ML, Heymsfield SB, Martin Nguyen A. Predictors of attrition and weight loss success: results for a randomized controlled trial. *Behav Res and Ther* 2009;27:685-691.
- Fontaine KR, Cheskin LJ. Self-efficacy, attendance, and weight loss in obesity treatment. *Addict Behav* 1997;22(4):567-570.
- Eckel RH, Krauss RM. American Heart Association call to action: obesity as a major risk factor for coronary heart disease. *Circulation* 1998;97(21):2099-100.
- Garner DM, Garfinkel PE, Schwartz D, Thompson M. Cultural expectations of thinness in women. *Psychol Rep* 1980;47(2):483-491.
- Grossi E, Dalle Grave R, Mannucci E, Molainari E, Compare A, Cuzzolaro M, et al. Complexity of attrition in the treatment of obesity: clues from a structures telephone interview. *Int J Obesity* 2006;30(7):1132-7.
- Kinsinger LS, Jones KR, Kahwati L, Harvey R, Burdick M, Zele V, et al. Design and dissemination of the MOVE! Weight-Management Program for Veterans. *Prev Chronic Dis* 2009;6(3):A98. [http://www.cdc.gov/pcd/issues/2009/jul/08\\_0150.htm](http://www.cdc.gov/pcd/issues/2009/jul/08_0150.htm). Accessed May 1, 2014.
- Lemon SC, Rosal MC, Zapka J, Borg A, Andersen V. Contributions of weight perceptions to weight loss attempts: differences by body mass index and gender. *Body Image* 2009;6:90-6.
- Linde JA, Jeffery RW, Levy RL, Sherwood NE, Utter J, Pronk NP, et al. Binge eating disorder, weight control self-efficacy, and depression in overweight men and women. *Int J Obesity* 2004;28:418-425.
- Linde JA, Rothman AJ, Baldwin AS,

Jeffery RW. The impact of self-efficacy on behavior change and weight change among overweight participants in a weight loss trial. *Health Psychol* 2006; 25(3):282-291.

Littman AJ, Boyko EJ, McDonell MB, Fihn SD. Evaluation of a weight management program for veterans. *Prev Chronic Dis* 2012;9:110267. <http://dx.doi.org/10.5888/pcd9.110267>. Accessed March 22, 2014.

Miller WR, Rose GS. Toward a theory of motivational interviewing. *Am Psychol* 2009; 64(6):527.

National Institutes of Health. Clinical guidelines of the identification, evaluation, and treatment of overweight and obesity in adults. Report of a National Heart, Lung, and Blood Institute Committee. NIH Publication; 1998. No.98-4083.

Nelson KM. The burden of obesity among a national probability sample of veterans. *J Gen Intern Med* 2006;21(9):915-9.

Resnicow K, Soler R, Braithwaite RL, Ahluwalia JS, Butler J. Cultural sensitivity in substance use prevention. *J Community Psychol* 2000;28(3):271-290.

Romanova M, Liang L, Deng ML, Li Z, Heber D. Effectiveness of the MOVE! multidisciplinary weight loss program for veterans in Los Angeles. *Prev Chronic Dis* 2013;10:120325. <http://dx.doi.org/10.5888/pcd10.120325>. Accessed March 22, 2014.

Rothblum ED. The stigma of women's weight: social and economic realities. *Fem Psychol* 1992;2(1):61-73.

Runnals JJ, Garovoy N, McCutcheon SJ,

Robbins AT, Mann-Wrobel MC, Elliott A. Systematic Review of Women Veterans' Mental Health. *Women's Health Issues* 2014; 24-5:485-502.

Teixeira PJ, Going SB, Houtkooper LB, Cussler EC, Martin CJ, Metcalfe LL, et al. Weight loss readiness in middle-aged women: psychosocial predictors of success for behavioral weight reduction. *J Behav Med* 2002;25(6):499-523.

Teixeira PJ, Palmeira AL, Branco TL, Martins SS, Minderico CS Barata JT, et al. Who will lose weight? A reexamination of predictors of weight loss in women. *Int J Behav Nutr Phys Act* 2004; 1:12 [10.1186/1479-5868-1-12](https://doi.org/10.1186/1479-5868-1-12).

Ware Jr JE. SF-36 health survey. In: Maruish ME, editor. *The use of psychological testing for treatment planning and outcomes assessment*. 2nd edition. Mahwah (NJ): Lawrence Erlbaum Associates Publishers; 2007.p.1227-46.

Washington DL, Kleimann S, Michelini AN, Kleimann KM, Canning M. Women veterans' perceptions and decision-making about Veterans Affairs health care. *Mil Med* 2007;172(8):812-

Washington DL, Yano EM, Simon B, Sun S. To use or not to use. *J Gen Intern Med* 2006; 21(S3):S11-8.

Weiner BJ, Haynes-Maslow L, Kahwati LC, Kinsinger LS, Campbell MK. Implementing the MOVE! Weight-Management Program in the Veterans Health Administration, 2007-2010: a qualitative study. *Prev Chronic Dis* 2012;9:110127. <http://dx.doi.org/10.5888/pcd9.110127>.

Accessed March 22, 2014.

Yano EM, Hayes P, Wright S, Schnurr PP, Lipson L, Bean-Mayberry B, et al. Integration of women veterans into VA quality improvement research efforts: what researchers need to know. *J of Gen Intern Med* 2010;25(S1):56-61.