

REFORMULATED COGNITIVE BEHAVIORAL TREATMENT FOR
OBESITY: A RANDOMIZED PILOT STUDY INVESTIGATING CHANGES
IN EXPECTATIONS FOR TREATMENT OUTCOME

By

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A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

2005

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ACKNOWLEDGMENTS

I thank my committee (Drs. Perri, Sears, Boggs, Hausenblas, and Martin) for their guidance during this process. I thank my parents for instilling in me the qualities of persistence and determination. I thank the very special friends (Gregg Selke, Lesley Fox, Natalie Blevins, and Mary Brinkmeyer) I have made over the last four years for their support and encouragement. Lastly, I thank my husband, Steve, for his caring, patience, understanding, and unwavering support of my journey to earning a Ph.D.

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Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

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August 2005

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Poor maintenance of treatment induced weight loss following behavioral treatment poses a significant problem in the long-term management of obesity. The maintenance problem may stem in part from the failure of standard behavioral treatment to address certain psychological factors, specifically, unrealistic weight-loss and appearance-related expectations for treatment outcome. Accordingly, this study tested the effectiveness of a reformulated cognitive behavioral weight-loss intervention (RCB) designed to address unrealistic expectations about treatment outcome and appearance-related motivation for weight loss compared to a standard behavioral weight-loss intervention (SB) in women ages 18-30 years. The study was conducted in three phases. Phase I included 10 group weight-loss sessions, which were identical for both conditions. Phase II included 10 additional sessions of either RCB treatment or SB treatment. Phase III was a 6-month follow-up period. Primary outcomes collected at the end of Phase II and Phase III were changes from baseline in expectations and appearance-related motivation for weight loss.

Secondary outcomes included changes in weight, body image, social physique anxiety, and self-esteem. Twenty-eight participants started Phase II and 26 were present at the conclusion of Phase III. Significant time X treatment interaction effects were observed for expectations for reaching “dream” body weight ($p = .02$), “disappointed” body weight ($p = .03$), motivation to lose weight to improve self-confidence ($p = .05$), and self-esteem ($p = .05$) at the end of Phase II. For all interaction effects, the RCB condition improved significantly compared to the SB condition. Equivalent weight losses were observed in the SB (6.2 kg) and RCB (5.5 kg) conditions ($p = .51$) at the end of Phase II. At the end of Phase III, SB participants regained 37% of lost weight (2.3 kg), while RCB participants regained 27% of lost weight (1.5 kg; $p = .44$). Thus, the RCB treatment was effective in changing unrealistic expectations and appearance-related motivation for weight loss compared to the SB treatment, but it did not produce significantly better maintenance of lost weight. Future studies with larger samples and longer follow-up periods are needed to determine whether changes in expectations and motivation for weight loss lead to improved long-term maintenance of lost weight.

CHAPTER 1 INTRODUCTION

The past two decades have witnessed an alarming increase in rates of overweight and obesity, and research indicates that the situation is worsening rather than improving (Centers for Disease Control and Prevention, 2004). Results from the 1999-2000 National Health Examination Survey (NHANES) indicated that an estimated 64.5% of adult Americans are overweight (Body Mass Index ≥ 25 [BMI]; defined as kg/m^2) and 30.5% are obese (BMI ≥ 30 ; Flegal, Carroll, Ogden, & Johnson, 2002). This represents a prevalence that is approximately 8% higher than overweight estimates obtained from NHANES III (1988-1994). The dramatic rise in prevalence of obesity appears to be due largely to environmental factors, particularly the increased availability of low cost, highly palatable, and energy-dense foods (e.g., fast food) in the context of decreased physical activity due to modernization (Hill, Wyatt, & Melanson, 2000).

The impact of obesity on health and longevity is substantial. Approximately 300,000 deaths per year are related to complications of obesity (Allison, Fontaine, Manson, Stevens, & VanItallie, 1999). Obesity-related conditions include heart disease, stroke, hypertension, hyperlipidemia, gallbladder disease, osteoarthritis, certain types of cancer, sleep apnea, and psychological disorders (e.g., binge eating, depression). The impact of obesity on life expectancy varies according to level of BMI. Specifically, when BMI reaches 30, the risk of death is elevated by 30%, and when BMI reaches 40, risk of death becomes 100 % higher than for a normal weight person (Manson et al., 1995). Premature death in obese persons is most often associated with cardiovascular disease,

Type 2 diabetes, and some cancers (National Heart, Lung, and Blood Institute [NHLBI], 1998).

In addition to its adverse impact on health and longevity, obesity significantly diminishes quality of life (Wadden, Womble, Stunkard, & Anderson, 2002). Obese persons experience prejudice and discrimination in work, school, and interpersonal situations as a consequence of obesity (Puhl & Brownell, 2002). One study (Roberts, Kaplan, Shema, & Strawbridge, 2000) found that approximately 16% of a community sample of obese individuals met criteria for Major Depressive Disorder, compared to 7.5% among normal weight individuals. These psychological consequences of obesity appear to be far worse for women than men in our society, due to the greater importance placed on appearance in women than in men. For example, for women, but not for men, the psychological consequences of obesity include higher rates of depression and increased risk for suicide (Carpenter, Hasin, Allison, & Faith, 2000).

Among obese women seeking treatment for weight loss, depressive symptoms are also related to body image dissatisfaction and low self-esteem (Foster, Wadden, & Vogt, 1997; Sarwer, Wadden, & Foster, 1998). Additionally, a subset (8%) of obese women report extreme body image dissatisfaction that causes clinically significant impairment or distress in social, work-related, or other areas of functioning (Sarwer et al., 1998). In the majority of overweight women seeking treatment, body image dissatisfaction appears to play a significant role in motivation to pursue weight loss (Sarwer, Grossbart, & Didie, 2001). Collectively, these findings suggest that obesity in women is associated with adverse psychological consequences such as body image dissatisfaction and poor self-esteem that influence motivation for seeking treatment as well as expectations for

treatment outcome. Moreover, overweight women may believe that the only way to improve their appearance and self-esteem is by achieving their “ideal” body weight (Cooper & Fairburn, 2002).

Behavioral Interventions for Weight Loss

Participants in behavioral interventions learn to modify their eating and physical activity patterns, so as to produce a negative energy balance and subsequent weight loss. The key components of a behavioral program include decreased energy intake (i.e., 1200-1500 kcals/day and $\leq 30\%$ kcals of total/day from fats for women) and increased physical activity (e.g., energy expenditure ≥ 1000 kcals/ week). The behavioral treatment procedures used to achieve changes in diet and physical activity typically include self-monitoring of eating and physical activity, arrangement of environmental cues and behavior reinforcers, goal setting, cognitive restructuring, problem-solving, and relapse prevention. Reviews of randomized trials have consistently demonstrated that a 15 to 26-week behavioral intervention produces an average of 8.5 kg weight loss, approximately 9% of body weight (NHLBI, 1998; Perri & Corsica, 2002).

The ability of weight-loss treatments to produce clinically meaningful outcomes has been well established. Randomized controlled trials of behavioral weight-loss treatments have demonstrated that decreases of $\geq 5\%$ of total body weight can produce significant health benefits (NHLBI, 1998; World Health Organization [WHO], 1998). Weight losses of this magnitude commonly result in lower blood pressure, in lower glucose levels, and in improved lipid profiles (NHLBI, 1998), as well as improvement in mood and psychosocial adjustment (Wadden et al., 2002). Recently, the results from the Diabetes Prevention Program (DPP) illustrated the ability of behavioral weight loss interventions to prevent disease onset compared with medication (DDP Research Group,

2002). The DPP lifestyle intervention for overweight persons at risk for diabetes involved goals of a 7% weight loss and 150 minutes of physical activity. The behavioral “lifestyle” intervention reduced the incidence of type 2 diabetes by 58% compared to placebo, whereas medication (Metformin) reduced the incidence by 31% compared to placebo, suggesting that risk reduction may be better achieved through lifestyle intervention rather than medication. However, the clinical utility of such health benefits is dependent on the long-term maintenance of lost weight.

Weight Regain Following Treatment

Poor maintenance of weight lost in a behavioral intervention represents a significant problem in the treatment of obesity. Participants in behavioral interventions typically regain 30-50% of lost weight during the year following treatment (Jeffery et al., 2000; Perri & Fuller, 1995), and they show a consistent pattern of continued weight regain 2-5 years after behavioral treatment (Perri, 1998). Over the past 15 years, researchers have examined a wide array of strategies to improve long-term outcome in obesity treatment. These strategies have included extended treatment, skills training (e.g., problem-solving, relapse prevention), exercise/physical activity, and multicomponent posttreatment programs. A review by Perri and Corsica (2002) documents that continuing treatment beyond 6 months through the use of weekly or biweekly sessions leads to significant improvement in the maintenance of lost weight.

Despite these mildly encouraging findings regarding long-term behavior therapy for obesity, several factors require consideration in the evaluation of extended treatment. First, ongoing professional contacts may only delay rather than prevent weight regain, as witnessed by the fact that a gradual regaining of lost weight typically occurs when professional contact ends (Perri & Corsica, 2002). Second, extended treatments primarily

consist of continuing behavioral strategies presented during the initial treatment period. Thus, extended treatments may fail over the long-term because they ignore the key psychological factors that may contribute to poor maintenance of lost weight, specifically unrealistic weight-loss expectations and lack of weight maintenance skills. These are further described next.

Psychological Contributors to Weight Regain

The ongoing problem of poor maintenance of weight loss has prompted researchers to examine psychological factors that contribute to poor maintenance of lost weight. Many individuals present for weight-loss treatment seeking to achieve their “ideal” body weight (Foster, Wadden, & Vogt, 1997). For the typical participant in behavioral treatment, reaching “ideal” weight often requires a reduction of 25-30% in total body weight, a loss 2-3 times greater than the norm for behavioral treatment (8-10%). In recent years, more achievable treatment goals (5-10% reduction in body weight) have been recommended by several prominent research groups (Institute of Medicine, 1995; NHLBI, 1998; WHO, 1998).

Despite recommendations advocating smaller amounts of weight loss and the substantial body of evidence to support the beneficial effects of such weight loss on health, the goals and expectations for weight loss in many obese persons remain unrealistically high. Foster and colleagues (1997) found that obese individuals entering a behavioral weight-loss treatment program expected to lose 25-37% of their total body weight. Similarly, Wadden et al. (2003) found that before treatment, obese women had unrealistically high expectations for weight loss (25% of body weight) even after being informed repeatedly that they could expect to lose 5 to 15% of initial weight (Wadden, Womble, Sarwer et al., 2003). Considering that behavioral treatments for weight loss

produce, on average, an 8-10% reduction in body weight, the disparity between how much participants expect to lose and how much they reasonably can lose is problematic. Such a discrepancy between expectations and actual achievement may lead to disillusionment and total abandonment of the weight control efforts (Foster et al., 1997; Cooper & Fairburn, 2002; Wadden et al., 2003).

In response to this problem, Cooper and Fairburn (2002) have formulated an innovative cognitive behavioral explanation of weight regain that addresses the impact of psychological factors on weight loss. Specifically, they hypothesize that two sets of interrelated factors are responsible for an overweight person's inability to maintain lost weight. First, overweight individuals present for treatment with "primary goals" or motivators for weight loss that include improving appearance or body image; improving attractiveness to others; improving self-confidence and self-esteem; improving interpersonal relationships; and to a lesser extent, improving health and mobility. At the end of treatment (typically 4-6 months), body weight is likely to be well short of the individual's expectation of reducing to ideal body weight (Foster et al., 1997; Wadden et al., 2003). Similarly, the perceived benefits of reaching desired weight such as improved attractiveness, self-esteem, and interpersonal relationships typically have not occurred (Cooper & Fairburn, 2002). Having achieved neither the weight loss nor the anticipated benefits, participants discount the significance of their modest weight loss, and abandon their weight-loss efforts. The second reason overweight persons are unable to maintain weight loss, according to Cooper and Fairburn (2002), is that they do not receive training in the maintenance of lost weight. For example, participants are not taught how to follow a weight-maintenance diet as opposed to a weight-loss diet. Furthermore, they

undervalue or discount the weight loss that they have achieved during treatment, and they are unable to consider or accept weight maintenance as a worthwhile goal.

In support of this theory Bryne, Cooper, and Fairburn (2003) have identified a range of behavioral, cognitive, and affective factors that discriminated between successful weight loss maintainers and weight regainers. They identified three groups of women.

- Weight maintainers—women with a history of obesity who had deliberately, through caloric restriction, lost at least 10% of their body weight in the last 2 years and maintained their lower weight within 3.2 kg for at least 1 year.
- Regainers—women who met the same weight loss criteria as maintainers but had regained weight to within 3.2 kg of original body weight.
- Stable healthy weight—women of healthy weight who had maintained their weight (within a range of 3.2 kg) for at least 2 years.

In terms of behavior, regainers were less likely to report adherence to a low-fat diet, regular exercise, and weight monitoring than maintainers. In terms of cognitive and affective factors, regainers were less likely than maintainers to have achieved their goal weights; and expressed dissatisfaction with their new lower weight. Furthermore, regainers placed greater importance on weight and shape evaluation and ate in response to negative moods and adverse events more often than maintainers. These results suggest that weight regain may in part be due to psychological factors that undermine weight control efforts.

Weight Loss Treatments Targeting Psychological Variables

Some studies have emphasized weight maintenance, size acceptance, and healthy eating and exercise habits in the absence of planned weight loss. For example, in one study, women who focused on self-acceptance, minimizing weight gain, and permanent

lifestyle change were successful in achieving modest improvements in body image dissatisfaction and self-acceptance, and lost approximately 2 kg (Rapoport, Clark, and Wardle, 2000). Notably, a 2 kg weight loss falls below the threshold required for significant health benefits in a moderately overweight person. Similarly, a study comparing nondieting versus dieting treatment for overweight binge-eating women showed that the nondieting intervention aimed at helping women manage psychological issues related to binge eating was not successful in producing short or long-term weight loss (Goodrick, Poston, Kimball, Reeves, & Foreyt, 1998). A successful weight loss intervention should involve two components. First, in order to achieve significant health benefits, a planned weight loss (i.e., through caloric restriction and increased exercise) of at least 5% of initial body weight is necessary. Second, addressing psychological factors such as unrealistic expectations for weight loss and changes in appearance may lead to better maintenance of lost weight following behavioral treatment.

Proposed Study

The proposed study tested the effects of a comprehensive, theoretically-based treatment program aimed at increasing the maintenance of lost weight by addressing psychological factors hypothesized to undermine the long-term effects of treatment. Using a 2-arm randomized design, participants were randomly assigned to one of two 20-session obesity treatment programs.

- A standard behavioral weight-loss intervention (SB).
- A reformulated cognitive-behavioral intervention (RCB).

The RCB treatment is based on the theoretical model proposed by Cooper and Fairburn (2002). The RCB differed from the standard behavioral intervention in that it

- Addressed unrealistic expectations and appearance-related motivation for weight loss.
- Provided training in the skills required for maintenance of lost weight.

Primary outcomes included expectations and appearance-related motivation for weight loss. Secondary outcomes included weight; and self-report measures of body image, self-esteem, social physique anxiety, and dietary intake. Outcomes were collected before treatment, and at the end of each of the three phases of the study. Phase I of the study included sessions 1-10, and served as a behavioral run-in period. Phase II of the study included 10 sessions of RCB treatment versus 10 sessions of SB treatment. Phase III of the study was a 6-month follow-up period. The primary and secondary aims of the trial, and its principal hypotheses, are listed next.

Primary Aim 1

The primary aim of this study was to evaluate the effects of the RCB intervention on motivation for weight loss and expectations about treatment outcome, compared to the SB intervention at the end of Phase II and III.

- **Hypothesis 1:** Compared to the SB intervention, the RCB intervention would produce significantly greater improvement in expectation for weight loss (i.e., decrease in percentage of total body weight loss necessary to reach “dream,” “happy,” “acceptable,” and “disappointed” weight).
- **Hypothesis 2:** Compared to the SB intervention, the RCB intervention would produce significantly greater improvement in motivation for weight loss (i.e., reduced concern about losing weight to improve appearance, attractiveness, self-confidence, and social anxiety) at the conclusion of Phase II and III.

Secondary Aim 1

A secondary aim of this study was to compare the effects of the SB intervention and the RCB intervention on changes in body weight, from the end of Phase II to the end of Phase III.

- **Hypothesis 3:** Compared to the SB intervention, the RCB intervention would produce significantly better maintenance of lost weight, from the end of Phase II to the end of Phase III.

Secondary Aim 2

An additional secondary aim of this study was to compare the effects of the SB intervention and the reformulated RCB intervention on changes in body image, social physique anxiety, self-esteem, and dietary intake, at the end of Phase II and Phase III.

- **Hypothesis 4:** Compared to the SB intervention, the reformulated RCB intervention would produce significantly greater improvements in body image, at the conclusion of Phase II and Phase III.
- **Hypothesis 5:** Compared to the SB intervention, the reformulated RCB intervention would produce significantly greater improvements in social physique anxiety, at the conclusion of Phase II and Phase III.
- **Hypothesis 6:** Compared to the SB intervention, the reformulated RCB intervention would produce significantly greater improvements in self-esteem, at the conclusion of Phase II and Phase III.
- **Hypothesis 7:** Compared to the SB intervention, the reformulated RCB intervention would produce significantly greater improvements in dietary intake (i.e., reduced fat intake), at the conclusion of Phase II and Phase III.

CHAPTER 2 METHODOLOGY

Participants

Participants were overweight women attending the University of Florida who had no medical contraindications for participation in a behavioral intervention for weight loss. Young women were chosen as our sample because of their susceptibility to extreme cultural pressure to be thin; as such they are more likely to be overly concerned with body weight, appearance, and attractiveness (Sarwer & Thompson, 2002). The inclusion and exclusion criteria are provided below.

Inclusion Criteria

- **Ethnicity:** All ethnic groups
- **Sex/Gender:** Women
- **Age:** 18-30 years
- **Body-Mass Index:** 28-40 kg/m²

Exclusion Criteria

- **Presence of serious diseases or conditions for which weight loss was contraindicated:** Cancer; diabetes; heart disease; liver disease; gastrointestinal disorders; chronic lung disease; or musculo-skeletal conditions that limit participation in moderate intensity physical activity.
- **Medication exclusions:** Antipsychotic agents; monamine oxidase inhibitors; systemic corticosteroids; antibiotics for Human Immunodeficiency Virus or Tuberculosis; chemotherapeutic drugs; or current use of prescription weight loss drugs.
- **Conditions or behaviors likely to affect the conduct of the trial:** Unwilling to provide informed consent; weight loss greater than 10 pounds in past 6 months; bulimia nervosa or other major psychiatric disorders; excessive alcohol intake; BMI > 40; unable to participate in treatment; or planned to relocate within 12 months.

Measures

Body weight and self-report measures were collected at baseline and at the end of Phase I (session-10), Phase II (session-20), and Phase III (6-month follow-up).

Weight was measured to the nearest .25 lb. A calibrated and certified balance beam scale was used for all weighing. Participants were weighed in indoor clothing, without shoes, and with pockets emptied. Height without shoes was measured to the nearest .25 inch.

Questionnaire of Eating and Weight Patterns-Revised (QEWP-R)

The QEWP-R is a 13-item self-report questionnaire developed to screen for symptoms of Binge Eating Disorder using American Psychiatric Association diagnostic criteria (Spitzer et al., 1993). Test-retest reliability of the BED diagnosis was shown to be stable over a 3-week period, and QEWP-R reliably identifies high and low probability binge eaters (Nagle, Johnson, Carr-Nangle, & Engler, (1994). In this study, the QEWP-R was used to screen for Binge Eating Disorder and Bulimia Nervosa. Participants who endorse the use of compensatory behaviors to facilitate weight loss (i.e. purging, laxative use) within the last 6 months were excluded from participation and were provided with a referral for psychological counseling.

Physical Activity Readiness Questionnaire (PAR-Q)

The PAR-Q is a screening questionnaire assessing an individual's risk for injury in beginning an exercise program (Thomas, Reading, & Shepard, 1992). Individuals who answered yes to one or more items were considered to be at increased risk for injury due to exercise and were excluded.

Beck Depression Inventory-II (BDI-II)

The BDI-II is a revision of the BDI, one of the most widely used and well-validated measures of depressive symptomatology (Beck, Steer, & Brown, 1996). In this study, the

BDI-II was used as a screen for moderate to severe symptoms of depression. Participants with a BDI-II score of 30 or greater were excluded and provided with a referral for psychological counseling.

Motivations for Weight-Loss Questionnaire (MWLQ)

Because no measure of this construct currently exists, this self-report questionnaire was designed specifically for use in this study. The 27-item questionnaire assessed women's motivations for weight loss including concerns about Appearance (4 items), Attractiveness (8 items), Self-confidence (3 items), Social Anxiety (9 items), and Health (3 items). High scores on individual scales indicate the degree to which the motivation for losing weight is to improve appearance, attractiveness, self-confidence, social anxiety, or health.

A sample of 80 women ages 18-30 years provided psychometric data for this questionnaire. The items demonstrated reasonable internal consistency with the following Cronbach's alpha coefficients: Appearance = .65, Attractiveness = .81, Self-confidence = .81, Social anxiety = .86, and Health = .62. The questionnaire had a high 1-week test-retest reliability .95 (test-retest reliability was determined using a separate sample [$n = 40$] of college-age women). To assess convergent and divergent validity, the MWLQ was correlated with measures of body image, social physique anxiety, and depression. The Appearance, Attractiveness, Self-Confidence, and Social Anxiety scales on the MWLQ demonstrated convergent validity with measures of body image and social physique anxiety. Additionally, the MWLQ Health scale demonstrated divergent validity with measures of body image, social physique anxiety, and depression. Table 2-1 contains correlations between the MWLQ scales and body image, social physique anxiety, BDI-II cognitive scale, and BDI-II somatic scale. The MWLQ is

included in Appendix A. To assess participants' expectation for weight loss at the conclusion of treatment, goal weights were adapted from the Goals and Relative Weights Questionnaire (Foster et al., 1997). Specifically, participants identified "dream," "happy," "acceptable," and "disappointed" body weights associated with treatment induced weight losses.

Multidimensional Body-Self Relations Questionnaire (MBSRQ)

Two subscales of the MBSRQ including the MBSRQ Appearance Scales (MBSRQ-AS) and MBSRQ Body Areas Satisfaction (MBSRQ-BAS) were used in this study. The MBSRQ-AS is a 22-item measure that consists of 5 subscales including Appearance Evaluation, Appearance Orientation, Overweight Preoccupation, Self-Classified Weight, and the Body Areas Satisfaction Scale (Cash, 1994). High scores on this measure indicate increased dissatisfaction with body image. The MBSRQ-AS is a well-validated self-report inventory for the assessment of body image. All scales have internal consistency and reliability values in the .85 range. The MBSRQ-BAS is a 10-item measure that requires participants to rate their satisfaction with specific body areas (e.g., stomach, thighs). Low scores on this measure indicate more dissatisfaction with specific body areas.

Rosenberg Self-Esteem Scale (RSES)

The RSES is a 10-item self-report scale, that measures global self-esteem (Rosenberg, 1965). High scores on this measure indicate lower levels of self-esteem. This scale has demonstrated high internal consistency with a Cronbach's alpha coefficient of .87 and adequate 2-week test-retest reliability.

Social Physique Anxiety Scale (SPAS)

The SPAS is a 12-item self-report measure that prompts individuals to indicate the amount of anxiety felt when others observe or evaluate their physique (Hart, Leary, & Rejeski, 1989). High scores indicated high levels of appearance-related anxiety in social situations. The internal consistency of the SPAS is .88 and the 8-week test retest reliability is .82.

Block Brief Food Questionnaire

This self-report questionnaire is a reliable and valid survey that asks respondents to estimate their daily consumption of a wide variety of foods including fats, fiber, fruits, and vegetables (Block et al., 2000). The Block Brief Food Questionnaire ranks participants well with respect to dietary intake of total fat, saturated fat, and percent of calories from fat (Spearman rank-order correlation coefficient = .6). In this study, the Block was used estimate macro-nutrient intake (i.e., carbohydrates, fat, protein). A schedule of data collection by visit is presented in Table 2-2.

Procedure

Participants were recruited by advertisements in student newspapers and the University of Florida Student Recreation Center website. Prospective participants were invited to learn more about the study by calling our laboratory, at which time the study was described and a brief telephone screening for eligibility was conducted (height, weight, medical history). After completing the telephone eligibility screening, potential participants were invited to attend an informational session. At this session, the weight loss program was described in detail, and written informed consent was obtained. Potential participants were then weighed individually in private. They completed a battery of standardized self-report measures with established psychometric properties.

Randomization

Individuals who met eligibility criteria were contacted by telephone. Those who did not meet eligibility criteria were contacted and provided with a referral to other weight-loss programs (e.g., Psychology Clinic at the University of Florida, Student Recreation Center). The requirements of the study protocol were reiterated so as to determine whether the participant was willing to proceed with the randomization.

Participants were randomized to one of two treatment conditions: SB or RCB.

Participants were stratified based on a median split, using BMI.

Interventions

Both weight-loss interventions were conducted with groups of 8-10 in 20 sessions over 6 months. Treatment objectives in both interventions were to decrease caloric intake, so as to produce a weight loss of 0.5-1.0 lb. per week. Identical weight loss sessions were presented in Phase I (sessions 1-10). At the start of Phase II (session 11), the RCB intervention was introduced. While the SB intervention provided more behavioral strategies for weight loss (e.g., use of social support, self-control strategies). It primarily consisted of materials recycled from sessions 1-10. A treatment manual developed for this study contains a session-by-session plan that entails specific learning objectives, methods to accomplish the objectives, and self-monitoring forms.

During the intervention period, behavioral weight management strategies were presented in a problem solving, interactional format used in previous studies (Fuller, Perri, Leermakers, & Guyer, 1998). Participants were instructed to follow a low-calorie, low-fat diet (e.g., 1200-1500 kcals; 45-55% primarily complex carbohydrates; 15% protein; 25% total fat with less than 7% saturated fat). Behavioral skills included self-monitoring, goal setting, stimulus control, self-control strategies, social support, and

relapse prevention. The weight-loss treatment sessions were conducted by psychology graduate students. Physical activity consisted of 30 minutes of moderate to high intensity activity on at least 5 days per week. Two of the 5 days were supervised group-based activities that consisted of aerobic exercise led by fitness instructors who were employees of the University of Florida Student Recreation Center. The physical activity recommendations are consistent with the Surgeon General (USDHHS, 1996) and the American College of Sports Medicine (ACSM, 2001). Reformulated Cognitive Behavioral Intervention

Sessions 1-10 of the RCB treatment were identical to those presented in the SB treatment. Participants were instructed to follow the dietary and exercise recommendations noted above. Beginning at session 11, the reformulated cognitive-behavioral intervention (modified from Cooper & Fairburn, 2002) focused on

- Establishing realistic weight goals and expectations for weight loss.
- Correcting faulty assumptions about appearance.
- Improving body image dissatisfaction.
- Establishing links between negative body image and weight regain.
- Enhancing self-concept by learning to value aspects of self unrelated to weight.
- Teaching acceptance of weight and body shape at the conclusion of treatment.
- Teaching cognitive and behavioral strategies for maintenance of lost weight.

Participants practiced maintenance of lost weight during spring break, which coincided with sessions 15 and 16 (e.g., increased caloric intake by 200 kcals per day and self-monitored body weight). Table 2-3 compares and contrasts the key elements contained in the two interventions. An outline of sessions 11-20 for the RCB treatment is given in Appendix B.

Group Leaders

The weight-loss treatment sessions were conducted by psychology graduate students, and group leaders were counter-balanced by treatment condition. Group leaders underwent training in the treatment protocols prior to the initiation of the weight-loss intervention and were monitored by a psychologist, Michael G. Perri, Ph.D., with extensive experience in the behavioral treatment of obesity. The supervised exercise portion of the weight-loss intervention was led by fitness instructors certified in cardio-pulmonary resuscitation and emergency procedures.

Table 2-1. Pearson correlations for baseline MWLQ scales scores and body image, social physique anxiety, and depression scores (n = 80).

Variable	MBSRQ-AS	SPAS	BDI-II Cog	BDI-II Som
Appearance (MWLQ)	.406*	.491*	.136	.064
Attractiveness (MWLQ)	.407*	.550*	.282*	.217
Self-Confidence (MWLQ)	.424*	.565*	.266*	.277*
Social Anxiety (MWLQ)	.486*	.509*	.321*	.321*
Health (MWLQ)	-.071	.049	-.035	.110

Abbreviations: MWLQ, Motivations for Weight Loss Questionnaire; MBSRQ-AS, Multidimensional Body-Self Relations Questionnaire-Appearance Scales; SPAS, Social Physique Anxiety Scale; RSES, Rosenberg Self-Esteem Scale; BDI-II Cog, Beck Depression Inventory II Cognitive scale; BDI II Som, Beck Depression Inventory Somatic scale.

* $p < .05$

Table 2-2. Schedule of data collection visits for both RCB and SB participants

Measures	Screening	End of Phase I	End of Phase II	End of Phase III
	Baseline	Sess-10	Sess-20	6-mo FU
Demographic information	X			
Medical and eating disorder history	X			
Informed consent	X			
Weight/height	X	X	X	X
Body image	X	X	X	X
Depression	X	X	X	X
Self-esteem	X	X	X	X
Motivation for weight loss	X	X	X	X
Social physique anxiety	X	X	X	X
Dietary intake	X	X	X	X

Table 2-3. Comparison of the key elements of each intervention

Key Elements of Intervention	SB	RCB
Reduce energy intake (1200-1500 kcals)	Yes	Yes
Exercise 5 days/week 30 minutes	Yes	Yes
Self-monitoring	Yes	Yes
Expectations for weight loss	No	Yes
Appearance assumptions	No	Yes
Body image dissatisfaction (3 sessions)	No	Yes
Weight loss vs. weight maintenance (2 sessions)	No	Yes
Self-esteem and weight	No	Yes
Enhancing self-concept (2 sessions)	No	Yes

CHAPTER 3 RESULTS

Initially 275 women were screened for participation in the study. One hundred ninety women were excluded for the following reasons: (a) had out of range BMI ($n = 125$), (b) had out of range age ($n = 7$), (c) were not University of Florida students ($n = 19$), (d) declined participation after initial telephone screening ($n = 25$), and (e) were not planning to be in Gainesville for the next 12 months ($n = 14$). Following screening, 80 women met eligibility criteria for randomization. Sixty-seven women accepted randomization and attended the first week of treatment. The participants were more ethnically diverse than the student population of the University of Florida in that the sample composition was approximately 49% white, 21% black, 21% Hispanic, 4% Asian, and 5% multi-ethnic. The racial and ethnic composition of the University of Florida is 76% Caucasian, 7% Black, 10% Hispanic, and 6.5% Asian.

Preliminary independent sample t -tests were conducted to determine if there were significant between-condition differences in baseline variables. There were no significant differences between conditions on baseline age, weight, BMI, or on any of the self-report measures. The proportion of Caucasian to non-Caucasian participants was not significantly different between conditions, $X^2(1, N = 67) = 2.3, p = .67$. Baseline characteristics for the 67 women who started treatment are presented in Table 3-1.

The study was divided into three phases. Phase I of the program included weight-loss sessions 1 through 10 and was essentially an extended run-in period. That is, weight loss sessions 1-10 were identical for both the SB condition and the RCB

condition. Participants who completed Phase I were eligible to proceed to Phase II. Phase II of the program included sessions 11-20 and represented the experimental phase of program. The RCB intervention was delivered during sessions 11-20 while the SB intervention provided additional behavioral strategies (e.g., self-control strategies, using social support, dealing with pressures to eat) and reviewed materials from sessions 1-10. Phase III of the program included a 6-month period following treatment.

Twenty-eight participants (42%) completed Phase I and entered Phase II of the study. Reasons for drop-out included lost interest in the study ($n = 7$), did not have time to continue participating ($n = 29$), left Gainesville ($n = 2$), and a partner relational problem ($n = 1$). During Phase I, attrition was not related to experimental condition because the weight loss sessions presented in Phase I were identical, and the rate of drop-out was equivalent across conditions. Twenty-six of the 28 participants who started Phase II of the program completed participation through Phase III. Thus, 92% of participants who started Phase II were present for Phase III data collection.

Baseline Analyses

Independent samples t -tests were conducted comparing the baseline characteristics of Phase I completers and noncompleters. Noncompleters had significantly higher BMIs ($p = .03$) and greater body image dissatisfaction ($p = .07$) than completers. Compared to Caucasian participants, a significantly greater proportion of minority participants (i.e., African-American, Hispanic, Asian, or multiethnic) did not complete Phase I of the study, $\chi^2(1, N = 67) = 6.66, p = .01$. Specifically, 74% of minority women (25 of 34) compared to 42% of white women (14 of 33) did not complete Phase I of the study. There were no other significant differences in self-report questionnaires between completers

and noncompleters. Baseline characteristics for the Phase I completers and noncompleters are presented in Table 3-2.

Independent samples *t*-tests were conducted comparing the baseline characteristics of SB and RCB Phase III completers ($n = 26$). There were no significant between-condition differences at baseline for SB and RCB participants for demographic variables, primary outcomes, or secondary outcomes. Baseline characteristics for Phase III completers are presented in Table 3-3 and 3-4.

Phase I Analyses

Primary Outcomes

Because Phase I was considered a run-in period where both conditions received the same weight-loss sessions, independent samples *t*-test were conducted to determine if there were between-condition differences in primary outcomes at the end of Phase I (session-10). Participants identified expectations for weight loss including “dream”, “happy”, “acceptable”, and “disappointed” body weights upon completion of the program. Weights identified as “dream,” “happy,” “acceptable,” and “disappointed” were converted to percentages of total body weight at baseline. For example, a baseline weight of 200 lbs with a “dream” weight identified as 150 lbs is equivalent to a 25% reduction in total body weight. There were no significant between-condition differences for “dream” weight ($p = .68$), “happy” weight ($p = .54$), “acceptable” weight ($p = .80$), or “disappointed” weight ($p = .98$) at the end of phase I. Additionally, there were no significant between-condition differences at the end of Phase I for the Motivations for Weight Loss Questionnaire (MWLQ) scales Appearance ($p = .33$), Attractiveness

($p = .20$), Self-Confidence, ($p = .92$), Social Anxiety ($p = .12$), or Health ($p = .42$).

Tables 3-5 and 3-6 present means for expectations and appearance-related motivation for weight loss at the end of Phase I, respectively.

Secondary Outcomes

At the end of Phase I, there were no significant between-condition differences in weight ($p = .70$) or on any of the self-report measures including the Beck Depression Inventory (BDI; $p = .54$), Multidimensional Body-Self Relations Questionnaire-Appearance Scales (MBSRQ-AS; $p = .81$), Multidimensional Body-Self Relations Questionnaire- Body Areas Satisfaction (MBSRQ-BAS; $p = .39$), Social Physique Anxiety Scale (SPAS; $p = .46$), or Rosenberg Self-Esteem Scale (RSES; $p = .76$). Table 3-7 contains secondary outcomes for at the end of Phase I by condition.

Phase II Analyses

Primary Outcomes

Of particular interest were comparisons of expectations and motivation for weight loss between Phase I and Phase II because the RCB intervention was delivered in sessions 11-20. Changes in expectations and motivation for weight loss were analyzed using repeated measures analysis of variance (ANOVA) with two time periods (end of Phase I and end of Phase II) and two treatment conditions (SB and RCB). For significant interaction and main effects, post hoc analyses including independent and paired samples t -tests, were conducted to determine where the differences occurred. Table 3-8 presents time X condition interaction effects and main effects for condition and time for primary and secondary outcomes.

Significant time X treatment interaction effects were observed at the end of Phase II for percentage of body weight loss necessary to reach “dream” weight ($p = .02$) and

percentage of weight loss necessary to reach “disappointed” weight ($p = .03$).

Participants in the RCB condition reported a significantly lower percentage of weight loss necessary to reach “dream” and “disappointed” weight suggesting they had more realistic expectations for weight loss at the conclusion of Phase II compared to SB participants. “Dream” weight and “disappointed” weight interaction effects are presented in Figures 3-1 and 3-2, respectively.

A main effect for condition was observed for “happy” weight ($p = .01$). Post hoc examination of the means (independent samples t -test) confirmed that participants in the RCB condition had more realistic expectations for achieving “happy” weight compared to participants in the SB condition at the end of Phase II ($p = .04$). A main effect for time was observed for “acceptable” weight ($p = .03$). Examination of the means (paired samples t -test) showed that participants in the RCB condition significantly improved their expectations for reaching “acceptable” weight at the end of Phase II ($p = .02$), while there was no significant change in “acceptable” weight observed for SB participants ($p = .40$). Means for “dream,” “happy,” “acceptable,” and “disappointed” weights at the end of Phase II are presented in Table 3-5.

A significant time X treatment interaction was observed for changes in motivation for weight loss to improve Self-Confidence ($p = .05$). The MWLQ Self-Confidence scale interaction effect is presented in Figure 3-3. A main effect for condition on the Appearance scale approached significance ($p = .08$). An independent samples t -test confirmed that the RCB condition showed decreased concern about losing weight to improve appearance at the end of Phase II compared to the SB condition ($p = .04$). Additionally, no main effects for the Attractiveness scale ($p = .15$), or the Social Anxiety

scale ($p = .18$) were observed. However, improvements in concerns about losing weight to improve attractiveness and social anxiety were observed in the RCB condition compared to the SB condition, but these improvements did not reach statistical significance. Participants' desire to lose weight to improve health status did not change significantly in either condition ($p = .40$). Taken together, these findings indicate that participants in the RCB condition were less motivated to pursue weight loss because of desires to improve self-confidence, appearance, and to a lesser extent social anxiety and attractiveness compared to the SB condition. Table 3-6 presents the means for MWLQ scale scores at the end of Phase II.

Secondary Outcomes

Weight loss was analyzed using a repeated measures ANOVA from baseline to the end of Phase II. There was a significant main effect for time ($p = .001$), for weight loss at Phase II. The average weight loss for each condition at Phase II was 6.2 kg ($SD = 4.5$ kg) for the SB treatment and 5.5 kg ($SD = 3.6$ kg) for the RCB treatment. Figure 3-4 shows weight change in kg by condition between baseline and Phase II.

A significant time X treatment interaction effect was observed for changes in self-esteem (RSES; $p = .05$). The RCB condition experienced significantly greater improvements in self-esteem compared to the SB condition at the end of Phase II. Among the remaining self-report measures, a significant main effect for time was observed for satisfaction with body areas (MBSRQ-BAS; $p = .001$). Participants in both the SB and ($p = .001$) and RCB ($p = .004$) conditions reported significantly improved satisfaction with body areas (e.g., thighs, stomach) at the end of Phase II. A significant main effect for time was observed for the social physique anxiety (SPAS; $p = .01$). Both the SB ($p = .09$) and RCB ($p = .08$) conditions experienced decreases in social physique

anxiety at the end of Phase II; however, these improvements only approached statistical significance. No significant effects were observed for body image (MBSRQ-AS; $p = .10$) or depression (BDI; $p = .15$) at the end of Phase II. Table 3-7 presents means for all secondary outcome measures at the end of Phase II.

Changes in dietary intake, as measured by the Block Brief Food Questionnaire, were analyzed using repeated measures ANOVA with two time periods (baseline and the end of Phase II) and two treatment conditions (SB and RCB). A main effect for time was observed for macro-nutrients including total calorie intake ($p = .001$), grams of fat ($p = .001$), grams of protein ($p = .006$), and grams of carbohydrate, ($p = .003$) per day. Examination of the means (paired samples t -tests collapsed across condition) showed that participants significantly reduced their total caloric intake as well as their intake of protein, fat, and carbohydrates from baseline to the end of Phase II. Furthermore, during the same interval, participants in both conditions significantly increased their number of fruit servings, and decreased the number of dairy servings and fat servings per day. Baseline and end of Phase II means for dietary intake on the Block Brief Food Questionnaire collapsed across condition are presented in Table 3-9.

Program Evaluation

All participants completed a program content evaluation following completion of Phase II. Both conditions completed 18 questions asking them to evaluate how effective the program was in helping them establish and maintain healthy eating and exercise habits. All items were rated on a likert scale 1= strongly disagree to 5 = strongly agree. There were no significant differences between conditions in terms of their program effectiveness ratings. The RCB condition completed 9 additional items that specifically addressed the RCB treatment content. Means for each item ranged between 4.0 to 4.6.

Phase III Analyses

Primary Outcome

All 26 women who completed Phase II participated in the 6-month follow-up assessment at end of Phase III. Changes in expectations and motivation for weight loss were analyzed using repeated measures ANOVA with two time periods (end of Phase II and end of Phase III) and two treatment conditions (SB and RCB). There were no significant interaction effects for expectations for weight loss including “dream,” ($p = .92$), “happy,” ($p = .94$), “acceptable,” ($p = .76$), and “disappointed,” ($p = .85$), body weights in the 6-months following the completion of treatment. However, participants in the RCB condition consistently endorsed lower expectations for weight loss compared to the SB condition suggesting that treatment effects persisted in the 6-months following treatment. Means for “dream,” “happy,” “acceptable,” and “disappointed” weights at the end of Phase III are presented in Table 3-5. Time X condition interaction and main effects for primary and secondary outcomes at the end of Phase III are presented in Table 3-10.

Similarly, there were no time X treatment interaction effects observed for changes in motivation for weight loss for the MWLQ scales Appearance ($p = .88$), Attractiveness ($p = .99$), Self-confidence ($p = .29$), Social Anxiety ($p = .47$), and Health ($p = .40$) at the end of Phase III. A main effect for time observed for the on the Self-Confidence scale ($p = .01$). Paired samples t -tests showed that participants in the SB condition reduced their desire to lose weight to improve Self-Confidence ($p = .02$) compared to the RCB condition ($p = .12$). Participants in the RCB condition consistently endorsed lower scores on this measure; however, no significant between-condition differences on the MWLQ

scales were observed at the end of Phase III. Table 3-6 presents the means for the MWLQ scale scores at end of Phase III.

Secondary Outcomes

Weight change was analyzed using an independent samples *t*-test of weight changes between the end of Phase II and the end of Phase III. The average net weight loss from baseline for each condition at Phase III was 3.9 kg (SD = 5.0 kg) for the SB condition and 3.9 kg (SD = 3.9 kg) for the RCB condition. Between Phase II and Phase III, the SB condition regained 37% of lost weight (2.3 kg) while the RCB condition regained 27% of lost weight (1.5 kg). Paired samples *t*-test showed that weight regain between Phase II and the end of Phase III was significant for both the SB ($p = .01$) and the RCB ($p = .01$) conditions. Figure 3-4 shows weight change in kilograms by condition between baseline and the end of Phase III.

A significant interaction effect was observed for the MBSRQ-BAS ($p = .05$) at the end of Phase III. Participants in the RCB condition endorsed reduced satisfaction with body areas compared to SB participants at the end of Phase III. For the remaining self-report measures no significant interaction effects were observed for the BDI ($p = .101$), MBSRQ-AS ($p = .181$), SPAS ($p = .531$), or RSES ($p = .705$). Table 3-7 presents the means for BDI, MBSRQ-AS, MBSRQ-BAS, SPAS, and RSES at Phase III.

Dependent Variable Pearson Correlations

To examine the relationship between the study variables and weight regain at the end of Phase III, changes in primary and secondary outcomes (between Phase I and II) were correlated with weight regain (percentage of lost weight that was regained) that occurred from the end of Phase II to the end of Phase III. No significant associations were observed between changes in primary and secondary outcomes at the end of Phase

II and weight regain at the end of Phase III. However, significant associations were observed for reductions in the MWLQ appearance and attractiveness scales and reductions in body image dissatisfaction ($p = .05$; MBSRQ-AS) and social physique anxiety ($p = .01$; SPAS). Correlations between changes in study variables between Phase I and II and weight regain at the end of Phase III are shown in Table 3-11.

Study Hypotheses

Many of the primary hypotheses and secondary hypotheses of this study were supported at the end of Phase II. As predicted, RCB participants significantly improved their expectations for weight loss, appearance-related motivation for weight loss, and self-esteem compared to SB participants. At the end of Phase III, many of the treatment effects were sustained in the RCB condition; however, contrary to what was predicted, the sustained effects were not statistically different when compared to the SB condition. Additionally, the RCB treatment was effective in changing unrealistic expectations and appearance-related motivation for weight loss compared to the SB treatment at the end of Phase II, but contrary to what was predicted, it did not produce significantly better maintenance of lost weight at the end of Phase III. Table 3-12 presents support, partial support, or no support for the study hypotheses.

Table 3-1. Mean and standard deviation baseline values for demographic variables and self-report measures for the Standard Behavioral (SB) condition compared to the Reformulated Cognitive Behavioral (RCB) condition.

Variable	SB (n=13)		RCB (n=13)		<i>p</i>
	M	(SD)	M	(SD)	
Age (yr)	21	(3.2)	21	(2.6)	.41
Weight (kg)	86.3	(12.2)	86.7	(15.5)	.68
Body Mass Index (kg/m ²)	32.4	(3.7)	32.1	(3.5)	.74
BDI	11	(8.9)	11	(7.0)	.88
MBSRQ-AS	62	(10.8)	64	(10.0)	.28
MBSRQ-BAS	21	(5.5)	21	(3.5)	.69
SPAS	33	(8.0)	34	(5.7)	.52
RSES	22	(7.7)	21	(4.7)	.50
Race/Ethnicity	%		%		
White	55		46		
Black	15		27		
Hispanic	17		21		
Asian	6		3		
Multi-ethnic	6		3		

Abbreviations: BDI, Beck Depression Inventory; MBSRQ-AS, Multidimensional Body-Self Relations Questionnaire-Appearance Scales; MBSRQ-BAS, Multidimensional Body-Self Relations Questionnaire-Body Areas Satisfaction; SPAS, Social Physique Anxiety Scale; RSES, Rosenberg Self-Esteem Scale.

Table 3-2. Mean and standard deviation baseline values for demographic variables and self-report measures for noncompleters compared to completers at the end of Phase I.

Variables	Noncompleters (<i>n</i> = 39)		Completers (<i>n</i> = 28)		<i>p</i>
	M	(<i>SD</i>)	M	(<i>SD</i>)	
Age (yr)	21	(3.2)	21	(2.2)	.49
Weight (kg)	89.9	(14.2)	84.1	(12.7)	.09
Body Mass Index (kg/m ²)	33.0	(3.8)	31.1	(2.8)	.03
BDI	12	(7.3)	10	(9.1)	.36
Appearance (MWLQ)	18	(1.7)	18	(1.8)	.85
Attractiveness (MWLQ)	33	(5.0)	32	(4.9)	.48
Self-Confidence (MWLQ)	13	(7.3)	13	(2.7)	.73
Social Anxiety (MWLQ)	31	(7.2)	31	(7.9)	.97
Health (MWLQ)	12	(2.3)	12	(7.3)	.77
MBSRQ-AS	65	(10.7)	61	(9.9)	.07
MBSRQ-BAS	21	(4.6)	21	(2.2)	.79
SPAS	33	(7.3)	34	(6.3)	.48
RSES	21	(5.6)	23	(7.1)	.37
Race/Ethnicity	%		%		<i>p</i>
White*	34		68		.01
African-American**	33		4		.01
Hispanic***	26		14		.08
Asian****	2		7		---
Multi-ethnic*****	2		7		---

Abbreviations: BDI, Beck Depression Inventory; MWLQ, Motivations for Weight Loss Questionnaire; MBSRQ-AS, Multidimensional Body-Self Relations Questionnaire-Appearance Scales; MBSRQ-BAS, Multidimensional Body-Self Relations Questionnaire-Body Areas Satisfaction; SPAS, Social Physique Anxiety Scale; RSES, Rosenberg Self-Esteem Scale.

* Chi Square comparison of White women to all other minority women combined

** Chi Square comparison of White women to African-American women

***Chi Square comparison of White women to Hispanic women

**** Groups not included in analysis due to small *n*

Table 3-3. Mean and standard deviation baseline values for the Standard Behavioral (SB) compared to the Reformulated Cognitive Behavioral (RCB) on demographic variables and primary and secondary outcomes for individuals who completed participation through Phase III.

	SB		RCB		<i>p</i>
	<i>(n = 13)</i>		<i>(n = 13)</i>		
Demographics	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age (yrs)	21	(2.3)	22	(2.1)	.83
Weight (kg)	83.6	(8.3)	85.4	(16.3)	.09
Body Mass Index (kg/m ²)	31.0	(2.6)	31.1	(3.0)	.77
“Dream” weight (%)	28	(6.2)	27	(9.9)	.72
“Happy” weight (%)	21	(8.1)	18	(6.9)	.19
“Acceptable” weight (%)	16	(7.0)	13	(6.6)	.35
“Disappointed” weight (%)	10	(7.3)	8	(3.8)	.37
Appearance (MWLQ)	18	(2.2)	18	(1.8)	.90
Attractiveness (MWLQ)	31	(6.2)	33	(4.4)	.35
Self-Confidence (MWLQ)	13	(2.7)	13	(1.6)	.21
Social Anxiety (MWLQ)	31	(9.3)	31	(7.9)	.89
Health (MWLQ)	13	(1.9)	13	(1.4)	.82
BDI	12	(10.9)	9	(7.0)	.68
MBSRQ-AS	60	(10.8)	60	(11.8)	.94
MBSRQ-BAS	20	(3.9)	21	(3.2)	.60
SPAS	34	(7.1)	34	(6.2)	.68
RSES	24	(8.4)	22	(5.5)	.23

Abbreviations: Dream weight % = percentage of body weight loss needed to reach “Dream” weight; Happy weight % = percentage body weight loss needed to reach “Happy” weight; Acceptable weight % = percentage of body weight loss needed to reach “Acceptable” weight; Disappointed weight % = percentage of body weight loss needed to reach “Disappointed” weight; MWLQ, Motivations for Weight Loss Questionnaire; BDI, Beck Depression Inventory; MBSRQ-AS, Multidimensional Body-Self Relations Questionnaire-Appearance Scales; MBSRQ-BAS, Multidimensional Body-Self Relations Questionnaire-Body Areas Satisfaction; SPAS, Social Physique Anxiety Scale; RSES, Rosenberg Self-Esteem Scale

Table 3-4. Baseline mean and standard deviation values for daily intake on the Block Brief Food Questionnaire for the Standard Behavioral (SB) condition compared to the Reformulated Cognitive Behavioral (RCB) condition for individuals who completed participation through Phase III.

Variable	SB (n = 13)		RCB (n = 13)		<i>p</i>
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	
Total Calories	1511	(586)	1680	(918)	.58
Fat (g)	51	(20)	59	(45)	.57
Protein (g)	68	(31)	72	(46)	.81
Carbohydrates (g)	188	(77)	202	(76)	.64
Grain Servings	4.5	(2.1)	4.7	(2.0)	.80
Fruit Servings	1.1	(1.0)	1.0	(0.5)	.76
Vegetable Servings	3.1	(2.3)	2.8	(2.5)	.33
Dairy Servings	1.5	(1.0)	2.0	(1.2)	.31
Fat Servings	1.3	(.9)	1.3	(.9)	.89

Table 3-5. Means and standard deviations for expectation of percentage of initial body weight loss at the end of Phases I, II, and III for the Standard Behavioral condition (SB) compared to the Reformulated Cognitive Behavioral (RCB) condition for individuals who completed participation through Phase III.

Measures	SB (<i>n</i> = 13)						RCB (<i>n</i> = 13)					
	Phase I		Phase II		Phase III		Phase I		Phase II	Phase III		
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>		
Dream Weight (%)	27	(6.9)	26	(6.1)	26	(7.3)	26	(9.8)	21 ^a	(10.7)	21	(8.3)
Happy Weight (%)	18	(4.3)	17	(4.6)	16	(3.7)	16	(7.2)	12 ^b	(6.0)	13	(7.6)
Acceptable Weight (%)	13	(4.3)	11	(4.8)	10	(5.9)	12	(6.3)	9 ^c	(4.6)	9	(5.7)
Disappointed Weight (%)	8	(3.2)	7	(5.1)	6	(5.6)	8	(5.0)	4 ^a	(2.3)	5	(4.4)

Abbreviations: Dream weight % = percentage of body weight loss needed to reach “Dream” weight; Happy weight % = Percentage body weight loss needed to reach “Happy” weight; Acceptable weight % = percentage of body weight loss needed to reach “Acceptable” weight; Disappointed weight % = percentage of body weight loss needed to reach “Disappointed” weight.

^a significant time X condition interaction at phase II ($p < .05$).

^b significant between-condition difference from Phase I to Phase II ($p < .05$).

^c significant within-condition difference from Phase I to Phase II ($p < .05$).

Table 3-6. Mean and standard deviation values for the Motivations for Weight Loss Questionnaire scales at the end of Phases I, II, and III for the Standard Behavioral (SB) condition compared to the Reformulated Cognitive Behavioral (RCB) condition for individuals who completed participation through Phase III.

Measures	SB (<i>n</i> = 13)						RCB (<i>n</i> = 13)					
	Phase I		Phase II		Phase III		Phase I		Phase II	Phase III		
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>		
Appearance	18	(1.7)	18	(1.8)	17	(2.6)	17	(2.5)	15 ^a	(2.8)	15	(3.4)
Attractiveness	33	(4.2)	32	(5.4)	31	(5.8)	31	(4.9)	29	(6.5)	28	(7.8)
Self-confidence	13	(1.6)	13	(2.2)	11	(2.9)	13	(2.2)	11 ^b	(3.0)	10	(3.1)
Social Anxiety	32	(5.3)	32	(7.2)	29	(8.1)	29	(8.4)	27	(7.6)	26	(10.2)
Health	13	(2.3)	13	(1.6)	13	(2.1)	13	(1.5)	13	(1.9)	13	(1.8)

^a significant between-condition difference from Phase I to Phase II ($p < .05$).

^b significant time X condition interaction from Phase I to Phase II ($p < .05$).

Table 3-7. Mean and standard deviation values for secondary outcomes at end of Phases I, II, and III for the Standard Behavioral (SB) compared to the Reformulated Cognitive Behavioral (RCB) for individuals who completed participation for through Phase III.

Measures	SB (<i>n</i> = 13)						RCB (<i>n</i> = 13)					
	Phase I		Phase II		Phase III		Phase I		Phase II		Phase III	
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Weight (kg)	79.8	(9.1)	77.4	(9.5)	79.7	(10.0)	81.8	(16.9)	80.1	(15.9)	81.7	(16.0)
BDI	5	(4.0)	4	(7.4)	7	(6.9)	6	(5.4)	4	(3.9)	5	(6.0)
MBSRQ-AS	60	(9.8)	58	(11.7)	56	(12.0)	59	(9.8)	56	(10.2)	54	(8.3)
MBSRQ-BAS	21	(4.2)	24 ^a	(4.0)	24	(4.6)	22	(3.9)	26 ^a	(3.6)	23	(4.1)
SPAS	33	(6.3)	30	(8.8)	30	(8.9)	31	(5.9)	28 ^a	(7.3)	26	(6.8)
RSES	19	(7.5)	19	(8.2)	18	(6.8)	20	(4.9)	16 ^b	(5.8)	18	(6.9)

Abbreviations: BDI, Beck Depression Inventory; MBSRQ-AS, Multidimensional Body-Self Relations Questionnaire-Appearance Scales; MBSRQ-BAS, Multidimensional Body-Self Relations Questionnaire-Body Areas Satisfaction; SPAS, Social Physique Anxiety Scale; RSES, Rosenberg Self-Esteem Scale.

^a significant within-condition difference from Phase I to Phase II ($p < .05$).

^b significant time X condition interaction from Phase I to Phase II ($p < .05$).

Table 3-8. Repeated Measures ANOVA time x condition interaction and main effects for primary and secondary outcomes at the end of Phase II.

Variables	Time X Condition			Main Effect Condition			Main Effect Time		
	Wilks' λ	<i>p</i>	direction	Wilks' λ	<i>p</i>	direction	Wilks' λ	<i>p</i>	direction
"Dream" weight %	.802	.02	RCB > SB				.615	.01	Ph II > Ph I
"Happy" weight %	.920	.16		.765	.01	RCB > SB			
"Acceptable" weight %	.966	.36					.823	.03	Ph II > Ph I
"Disappointed" weight %	.820	.03	RCB > SB	.723	.03	RCB > SB			
Appearance (MWLQ)	.923	.17		.883	.08	RCB > SB			
Attractiveness (MWLQ)	.998	.93		.897	.11				
Self-Confidence (MWLQ)	.858	.05	RCB > SB	.820	.02	RCB > SB			
Social Anxiety (MWLQ)	.985	.55		.943	.23				
Health (MWLQ)	.971	.41		.970	.40				
Weight	.991	.90					.310	.01	Ph II > Ph I
BDI	.973	.42		.917	.15				
MBSRQ-AS	.996	.75		.894	.10				
MBSRQ-BAS	1.00	.94					.386	.01	Ph II > Ph I
SPAS	1.00	.97					.784	.02	Ph II > Ph I
RSES	.844	.04	RCB > SB				.832	.03	Ph II > Ph I
Block total calories/day	.959	.30					.675	.01	Ph II > Ph I
Block fat (g)/day	1.00	.95					.610	.01	Ph II > Ph I
Block protein (g)/day	.992	.90					.724	.01	Ph II > Ph I
Block carbohydrate (g)/day	.991	.89					.691	.01	Ph II > Ph I

Table 3-9. Baseline and end of Phase II mean and standard deviation daily intake values on the Block Brief Food Questionnaire collapsed across conditions.

Variable	Baseline (n=13)		Phase II (n=13)		<i>p</i>
	M	(SD)	M	(SD)	
Total Calories	1596	(759)	1125	(786)	.001
Fat (g)	55	(35)	33	(36)	.001
Protein (g)	71	(32)	52	(39)	.005
Carbohydrates (g)	196	(76)	151	(66)	.003
Grain Servings	4.6	(2.0)	3.7	(1.9)	.068
Fruit Servings	1.0	(.80)	1.3	(.5)	.049
Vegetable Servings	3.0	(3.0)	2.6	(1.4)	.336
Diary Servings	1.7	(1.1)	1.3	(1.3)	.003
Fat Servings	1.4	(.9)	.6	(.8)	.001

Table 3-10. Repeated Measures ANOVA time x condition interaction and main effects for primary and secondary outcomes at the end of Phase III.

Variables	Time X Condition			Main Effect Condition			Main Effect Time		
	Wilks' λ	p	direction	Wilks' λ	p	direction	Wilks' λ	p	direction
"Dream" weight %	.999	.86		1.00	.92				
"Happy" weight %	.982	.51		1.00	.94				
"Acceptable" weight %	.985	.55		.996	.76				
"Disappointed" weight %	.919	.15		1.00	.85				
Appearance (MWLQ)	.999	.82		.997	.46				
Attractiveness (MWLQ)	1.00	.99					.831	.04	Ph III > Ph II
Self-Confidence (MWLQ)	.955	.30					.731	.01	Ph III > Ph II
Social Anxiety (MWLQ)	.979	.47		.879	.09				
Health (MWLQ)	1.00	.93		.999	.92				
BDI	.969	.39		.892	.10				
MBSRQ-AS	1.00	.97		.927	.18				
MBSRQ-BAS	.857	.06					.781	.01	Ph III > Ph II
SPAS	.954	.29		.983	.53				
RSES	.960	.33		.994	.70				

Table 3-11. Pearson correlations for change in study variables between Phase I and II and weight regain at phase III collapsed across condition ($n = 26$).

Variable	1	2	3	4	5	6	7	8
1. % weight regain	---							
2. Appearance (MWLQ)	-.119	---						
3. Attractiveness (MWLQ)	-.184	.506*	---					
4. Self-Confidence (MWLQ)	-.102	.655*	.409*	---				
5. Social Anxiety (MWLQ)	-.341	.299	.750*	.469*	---			
6. Health (MWLQ)	.005	.693*	.376	.599*	.296	---		
7. MBSRQ-AS	.017	.095	.463*	.337	.358	.152	---	
8. SPAS	-.229	.515*	.379	.252	.316	.293	.262	---
9. RSES	.151	.139	.004	.192	.169	.189	.246	.376

Abbreviations: % weight regain = percentage weight regained during the Phase III; MWLQ, Motivations for Weight Loss Questionnaire; MBSRQ-AS, Multidimensional Body-Self Relations Questionnaire-Appearance Scales; SPAS, Social Physique Anxiety Scale; RSES, Rosenberg Self-Esteem Scale.

Table 3-12. Support, partial support, or no support for the seven hypotheses proposed in this study

Hypothesis RCB > SB	End of Phase II			End of Phase III		
	Support	Partial Support	No Support	Support	Partial Support	No Support
1. Expectations for weight loss						
“Dream” weight	√					√
“Happy” weight	√					√
“Acceptable” weight	√					√
“Disappointed” weight	√					√
2. Motivation for weight loss						
Appearance	√					√
Attractiveness			√			√
Self-Confidence	√					√
Social Anxiety			√			√
Health			√			√
3. Weight regain during Ph III						√
4. Body Image		√				√
5. Social Physique Anxiety		√				√
6. Self-esteem	√					√
7. Dietary Intake			√			√

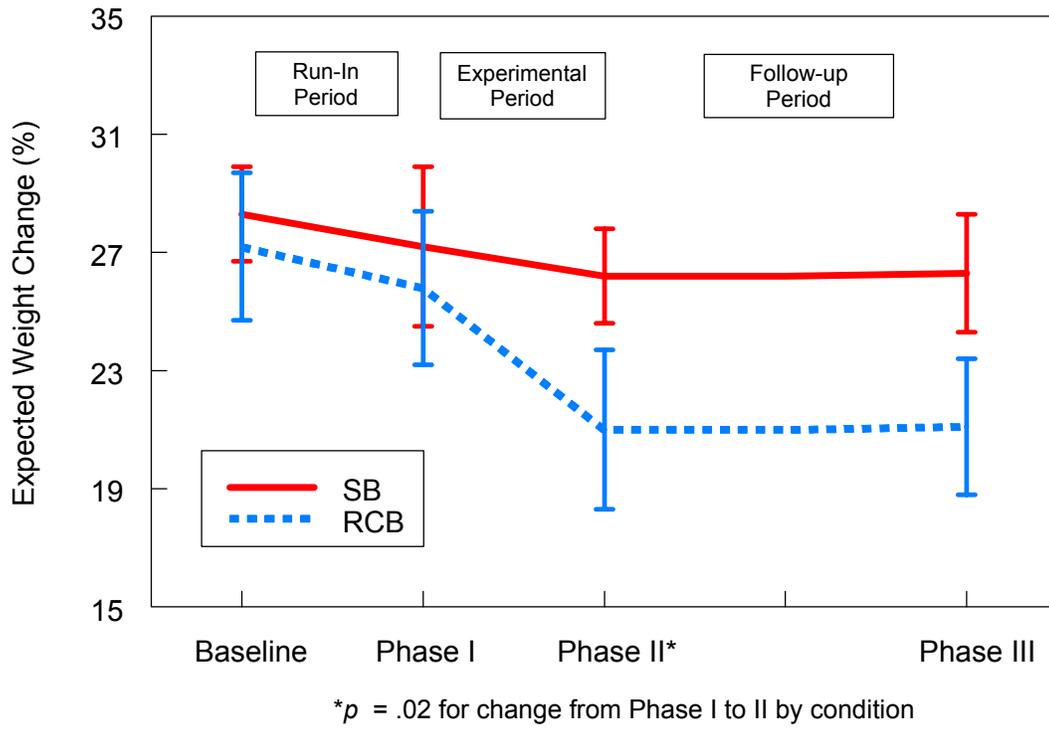


Figure 3-1. Percentage of weight loss necessary to reach “dream” body weight by conditions

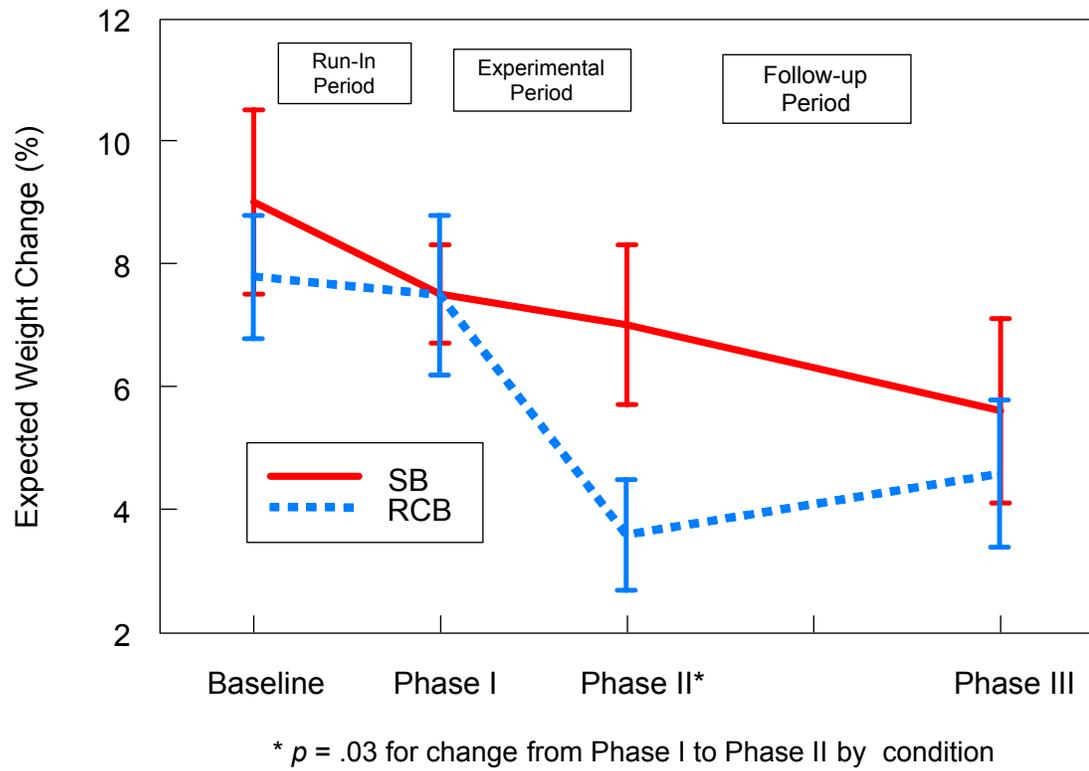


Figure 3-2. Percentage of weight loss necessary to reach “disappointed” body weight by conditions

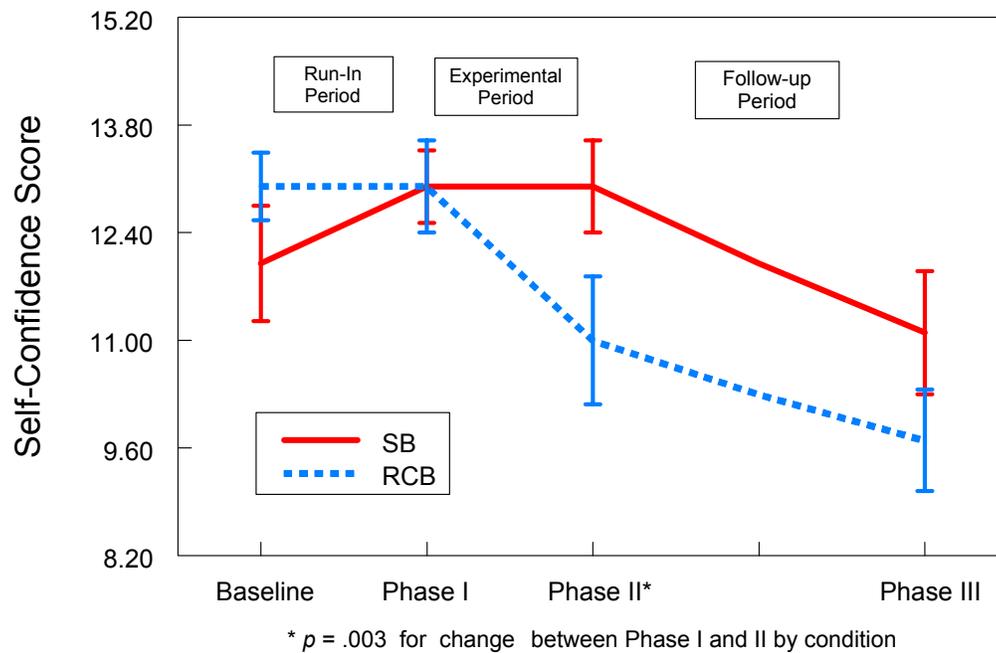


Figure 3-3. Change in motivation for weight loss Self-Confidence scale by conditions

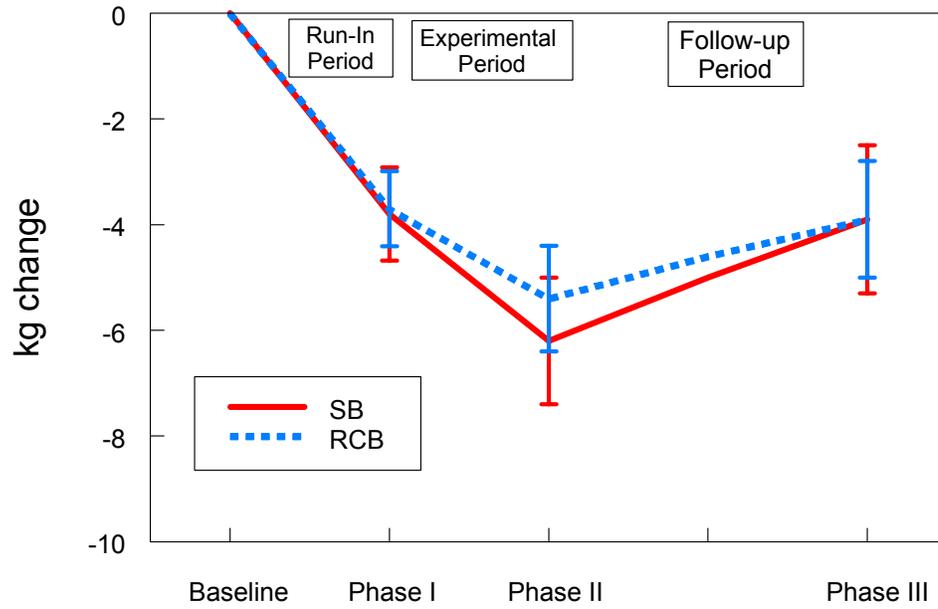


Figure 3-4. Weight loss in kilograms by condition from Baseline to Phase III

CHAPTER 4 DISCUSSION

This study represents a first attempt at using an intensive, theoretically-based cognitive behavioral intervention for modifying expectations and appearance-related motivation for weight loss in a group treatment format. The primary finding from this investigation was that the reformulated cognitive behavioral treatment (RCB) was effective in changing unrealistic expectations and appearance-related motivation for weight loss in college women compared to a standard behavioral treatment (SB). At baseline, participants' expectation that they would lose on average 28% of their initial body weight greatly exceeded their actual weight lost at the end of treatment, 7% on average of initial body weight. Because of the discrepancy between expected and actual weight lost, women are likely to be dissatisfied with treatment outcome. Along with unrealistic expectations for weight loss, women often enter treatment with the desire to achieve dramatic improvements in appearance. Because smaller amounts of weight loss are achieved by the end of treatment, the desired improvements in appearance are unlikely to occur. Some researchers suggest that unmet expectations for weight loss and improvements in appearance may lead to abandonment of efforts to control weight (Cooper & Fairburn, 2002). Thus, decreasing expectations for large weight losses and decreasing appearance-related motivation for weight loss may be important for improving satisfaction with treatment outcome. Moreover, increased satisfaction with treatment outcome may be associated with better maintenance of lost weight.

A 5-10% reduction in total body weight can produce significant health benefits (e.g., lower blood pressure, lower glucose levels, and improved lipid profiles; NHLBI, 1998). Since weight loss for the purpose of improving health status is recommended for many overweight individuals, achieving and maintaining a 5-10% weight loss should be considered a meaningful accomplishment (Wing & Hill, 2001). However, many overweight women enter weight loss treatment expecting to lose 25-30% of their body weight (Wadden et al., 2003; Foster et al., 1997). For many women, a 25% reduction in body weight is often similar to the lowest adult body weight ever achieved (Wadden et al., 2003). Overweight women may benefit from learning to *accept* and *value* an 5-10% reduction in body weight because of the positive impact it will likely have on health status. Furthermore, they may benefit from being informed that expectations for weight loss greater than 5-10% of initial body weight are likely to undermine satisfaction with treatment outcome and possibly long-term maintenance of lost weight.

Results from this study indicate that RCB participants reduced their expectations significantly more than SB participants for reaching “dream” weight from 26% to 21% of initial body weight and “disappointed” weight from 8% to 4% of initial body weight. Similarly, RCB participants significantly reduced their expectation for “happy” weight from 16% to 12% of initial body weight and “acceptable” weight from 12% to 9% of initial body weight, but no time by condition interaction effects were observed. These findings are encouraging in that “happy” and “acceptable” weights for the RCB participants dropped to a more reasonable 12% and 9% of initially body weight, respectively. Thus, at the conclusion of treatment, participants were moderately satisfied with losses well below their reported “dream” weight, which was 21% of initial body

weight. More importantly, their expectations were more consistent with what can be expected from the best behavioral interventions, which typically produce a mean loss of 8-10% of initial body weight (Perri & Corsica, 2002) and more consistent with the mean weight loss of 7% achieved in this program. Furthermore, at the conclusion of treatment, SB participants were “disappointed” with a 7% reduction in body weight, whereas RCB participants were “disappointed with a 4% reduction in body weight. Thus, SB participants were dissatisfied with the actual weight loss achieved at the conclusion of treatment.

As observed in this study, RCB participants’ weight loss expectations were modifiable, but perhaps a potentially more important issue is whether their reduced expectations for weight loss were clinically significant. That is, did they modify their expectations enough to be consistent with weight loss actually achieved during treatment. Results indicated that participants could be happy with or accept reasonable amounts of weight loss (i.e., 9-12% for RCB participants compared to 11-17% for SB participants). However, even though women’s expectations for weight loss were more reasonable following an intensive 10-session intervention, they continued to be somewhat unrealistic at the conclusion of treatment. During the RCB treatment, participants were repeatedly informed that the likelihood of achieving further weight loss after the conclusion of the program was small, and that they should concentrate on maintaining lost weight. One of the most consistent findings in behavioral weight loss treatment studies is that maximal weight loss is achieved at about 6-months (Wing, 2002). After receiving this message at the end of Phase II, RCB participants indicated that a 9% weight loss was “acceptable” even though they had actually lost only 7% of initial body weight. In order to meet their

weight loss expectations, RCB participants needed to lose an additional 1.8 kg to reach a weight they considered to be “acceptable,” 4.8 kg to reach a weight they would be “happy” with, and 12.4 kg to reach their “dream” weight after the conclusion of treatment.

Similarly, a recent investigation assessed whether overweight individuals would adopt more realistic expectations for weight loss if they were clearly informed, prior to a yearlong treatment, that they could expect to lose 5%-15% of initial body weight (Wadden et al., 2003). Results indicated that participants reduced their expectations from 28% to 25% of initial body weight following being informed they should expect much more modest weight loss. In other words, even after being informed to the contrary, participants still expected to lose 25% of their initial body weight. These investigators called for future research to evaluate whether a more sophisticated cognitive intervention would modify expectations for weight loss, or whether participants would benefit from being randomly assigned to a treatment condition that does not discuss expectations for weight loss compared to a treatment condition that discusses modest expectations for weight loss. As suggested by Wadden and colleagues (2003), this study randomized participants to an intensive 10-session intervention specifically addressing expectations for weight loss. However, in spite of statistically significant improvements in expectations for weight loss weight following the RCB treatment, participants continued to have unrealistic expectations for additional posttreatment weight loss.

Another important question for further study is whether people who expect more modest amounts of weight loss (e.g., 9-12%) are more successful at maintaining lost weight than those who expect to lose 25% or more of initial body weight during treatment

(Wadden et al., 2003). In this study, treatment effects in terms of reduced expectations for weight loss persisted and were evident at 6-month follow-up. However, no significant between-condition differences in weight regain were observed in this sample and correlations between weight regain during Phase III and changes in expectations for weight loss during Phase II were not significant. A possible explanation for these nonsignificant findings is that expectations for weight loss are not relevant to maintenance of lost weight (Linde, Jeffery, Finch, Ng, & Rothman, 2004). Additional research is needed to evaluate this question.

An issue related to expectations for weight loss is that many women enter weight loss treatment primarily to improve appearance, attractiveness, self-confidence, and reduce social anxiety (Cooper & Fairburn, 2002). Overweight women may believe that the only way to achieve such improvements is by reaching their desired or “dream” body weight. However, an 8-10% reduction in body weight induced by behavioral treatment is unlikely to have a substantial impact on appearance and attractiveness. Thus, weight regain in overweight women may be attributable to their inability to achieve ideal or “dream” weight and their inability to achieve the anticipated benefits of reaching “dream” weight, such as dramatic improvements in appearance (Bryne, Cooper, & Fairburn, 2003; Cooper & Fairburn, 2002). In support this theory, Bryne, Cooper and Fairburn (2003) compared the cognitive and affective characteristics of successful weight loss maintainers and weight regainers. They found that women who regained weight following substantial weight loss placed excessive importance on weight and shape in self-evaluation when compared to women who were able to maintain lost weight. Psychological factors such

as continued body image dissatisfaction and excessive concerns about appearance may in part undermine motivation to sustain efforts to control weight.

In this study, the RCB treatment was effective in reducing appearance-related motivation for weight loss. Specifically, at the end of Phase II, RCB participants significantly reduced their appearance related motivation for weight loss and reduced their desire to lose weight to improve self-confidence compared to SB participants. Additionally, RCB participants reduced their desire to lose weight to improve attractiveness and social anxiety more than SB participants but this reduction was not found to be statistically significant. Significant associations between reduced appearance-related motivation for weight loss and reduced concerns about body image and social physique anxiety during Phase II were observed and provide additional support for the Cooper and Fairburn model (2002). In other words, participants who were less concerned about losing weight to improve appearance and attractiveness also experienced decreased concern about body image and appearance-related anxiety in social situations.

Evaluation of the effects of the RCB treatment on motivation and expectations for weight loss was the primary aim of this investigation and the impact on weight loss was considered as a secondary outcome. Equivalent weight losses were observed between the SB (6.2 kg) and the RCB (5.5 kg) conditions at the end of Phase II. The mean weight loss achieved in this study was 5.8 kg, a 7% reduction in body weight, whereas behavioral weight loss trials of similar duration typically produce 8.5 kg weight losses (8–10% reduction in body weight; Perri & Corsica 2002). Smaller weight losses may be attributable in part to our sample because younger women aged, 18 to 30 years, who correspondingly tend to have lower baseline BMIs participated in this study. That is,

women in this study had a mean BMI (31.0), which is lower than the typical mean baseline BMI's in behavioral weight loss trials conducted with middle-age women (BMI = 33; Wing, 2002). Additionally, for many participants in this study, the program represented a first attempt at a structured weight loss program that included self-monitoring, attendance at weekly group treatment session, and attendance at two center-based exercise sessions per week. Specifically, the program required 3.5 hours of supervised contact per week, which participants found to be burdensome. Adherence to the study exercise requirements may have been improved with the use of a home-based program rather than a center-based program (Perri, Martin, Leermakers, Sears, & Notelovitz, 1997).

At the end of Phase-III, the SB treatment participants regained 37% of lost weight (2.3 kg) and the RCB treatment participants regained 27% of lost weight (1.5 kg). There was no significant difference between-conditions in weight regain at 6-month follow-up. During the year following behavioral treatment, overweight individuals typically regain 30-50% of their initial losses (Jeffery et al., 2000). Although weight regain at the 6-month follow-up period in this study was similar to weight regain in most behavioral weight loss treatment programs, SB participants appeared to be regaining weight slightly more rapidly than RCB participants. Conclusions about the effectiveness of the RCB treatment in preventing weight regain are not possible given the small number of treatment completers and low statistical power in this study.

Additional secondary outcomes in this trial included body image, self-esteem, and social physique anxiety. Participants in the RCB treatment significantly improved satisfaction with body areas (e.g., stomach, thighs) when compared to SB treatment

participants at the end of Phase II. While they reported greater overall satisfaction with body image than SB participants, the difference was not statistically significant. For self-esteem, significant improvements were observed for RCB participants compared to SB participants at the end of Phase II. Improvements in body image and self-esteem in RCB participants provide support for the effectiveness of the RCB treatment. Both treatments were associated with improvements in social physique anxiety, but again the changes did not reach statistical significance. At 6-month follow-up, some effects of treatment persisted as evidenced by lower levels of body image dissatisfaction and social physique anxiety compared to SB participants. However, the sustained effects did not reach statistical significance.

This study has a number of noteworthy strengths. These include the use of a randomized prospective design, state-of-the-art behavioral treatment for weight loss, and administration of process measures to identify components of treatment that participants felt were particularly helpful. Participants indicated that the program effectively addressed psychological factors such as expectations for weight loss and appearance motivation that, as noted earlier, may partly account for lack of ability to maintain weight control behaviors. Responses from participants suggest that the program was effective in helping them to value any weight loss achieved even if they not reached “dream” weight. Second, participants noted that treatment also helped them to recognize that maintaining weight already lost as a worthwhile goal. Furthermore, the RCB participants reported that the program was effective in helping them adopt a realistic weight range considering their height and body type. With regard to appearance-related motivation for weight loss, participants stated the program was effective in helping them identify and correct faulty

assumptions and about their appearance, helped them in being less critical of their bodies, and helped them concentrate on things they do like about their bodies regardless of weight. For weight-loss motivation, participants indicated that the program helped them reconsider their motivation for why they want to lose weight such as improving health and fitness.

On the other hand, there are several limitations of this study. First, there was a high rate of attrition during Phase I. The findings from this study are based upon data collected from 39% of participants who completed Phase III of the program. However, 92% of participants who started Phase II (the experimental phase of the study) were present for final data collection at Phase III. Participants who did not complete the study likely had less favorable outcomes in terms of expectations and motivation for weight loss; thus, the findings should be interpreted with caution. However, the rate of Phase I attrition is similar to another trial investigating the effects of exercise on weight loss in college-age participants and may reflect the intensity and duration of the study (Donnelly, Hill, Jacobsen et al., 2003). Donnelly et al. randomized 131 participants to either an exercise condition ($n = 87$) or control condition ($n = 44$) to examine the effects of exercise on body weight and composition over 16-months. The completion rate for the exercise condition was 47% while the completion rate for the control condition was 75%. The present investigation was unusually demanding on participants in that it required 3.5 hours of on-site contact with the research staff per week, which may have negatively impacted adherence to the program. Other potential variables that contributed to the high rate of attrition in this study were age of participants and minority status. Honas et al., (2003) found that age was the most significant determinant of drop-out rate in a

16-week clinic-based weight-loss program (group treatment format). In their cohort, 76% of 51-60 year old participants completed the program while 60% of participants under age 40 completed the program. Furthermore, an unusually high number of minority participants were recruited for participation in this study (51% of participants were Black, Hispanic, Asian, or multiethnic), and significantly more minority women dropped out of treatment in the first 10-sessions compared to Caucasian women. Lasco et al., (1989) conducted a 10-week community based weight-loss program where 72 women began treatment and 30 were present for final data collection at week-10 (42% completion rate). Kumanyika (2002) suggests that adherence problems in minority participants may associated with low perceived benefits of attending treatment, insufficient motivation for weight loss, increased barriers to adopting and maintaining reduced calorie intake and increased physical activity compared to Caucasian women.

A second limitation is the high rate of Phase I attrition and the consequent decrease in statistical power to detect interaction effects for weight regain at the end of Phase III. Specifically, the SB condition regained 2.3 kg (SD = 2.7 kg) and the RCB regained 1.5 kg (SD = 1.7 kg) at the end of Phase III, an effect size of .02. In order for the between-condition difference in weight regain to reach statistical significance, 148 participants would be needed in each condition.

A third limitation is that the study had a relatively short follow-up period of 6-months as opposed to a more typical 12-month follow-up period. Participants in behavioral interventions typically show a consistent pattern of continued weight regain 2-5 years after behavioral treatment (Perri, 1998). Therefore, the follow-up period in the

study was too short to make definitive conclusions about weight regain in either condition.

A fourth limitation is that this study tested only one part of the Cooper and Fairburn (2002) model, that is reducing expectations and appearance-related motivation for weight loss. The treatment provided limited instruction on cognitive and behavioral strategies for weight maintenance—the second part of the model—but no follow-up data were collected to determine if participants were using these strategies at the end of Phase III. The length of the follow-up period was too short to determine how well participants would be able to maintain lost weight.

A final limitation is that the follow-up contact during Phase III was generally limited to a single phone or E-mail contact 3-months posttreatment. Few participants in either condition (two RCB participants and one SB participant) requested assistance during the follow-up period. Those who requested help were provided with individual counseling, which consisted of problem solving related to diet and exercise behaviors. Future investigations might include a more intensive follow-up intervention such as biweekly group meetings focused on maintenance of lost weight for RCB participants or maintenance of diet and exercise behaviors for SB participants. Continuing treatment beyond 6 months through the use of weekly or biweekly sessions leads to significant improvement in the maintenance of lost weight (Perri & Corsica, 2002).

Findings from this study are encouraging in that expectations for weight loss in overweight women decreased in response to a 10-session intensive cognitive behavioral intervention focused on establishing realistic attainable weight goals. Reducing expectations for weight loss may potentially lead to patients being more satisfied with

treatment outcome and ultimately better maintenance of lost weight following treatment. Maintenance of modest amounts of weight loss should be encouraged in overweight women given that a 5-10% reduction in body weight will produce clinically significant improvements in health status (Wing & Hill, 2001). On the other hand, smaller weight losses will mean that women do not see dramatic changes in appearance and physical attractiveness they may be expecting by the conclusion treatment. Thus, if appearance-related motivation is reduced during treatment, women may be more likely accept modest amounts of weight loss as a meaningful accomplishment. Finally, decreasing women's appearance-related motivation for weight loss may lead to improvements in overall psychological well-being such as decreased body image concerns and improved self-esteem. Therefore, improved psychological well-being may improve motivation to maintain positive changes in diet and exercise habits achieved during treatment. Future studies with larger samples and longer follow-up periods are needed to determine if changes in expectations and motivation for weight loss lead to improved long-term maintenance of lost weight.

APPENDIX A
MOTIVATIONS FOR WEIGHT LOSS QUESTIONNAIRE

For each item, indicate how much each statement describes you. Please use the rating scale below.

1	2	3	4	5
Definitely Disagree	Mostly Disagree	Neither Agree Nor Disagree	Mostly Agree	Definitely Agree

- ___ 1. I am motivated to lose weight to improve my overall appearance.
- ___ 2. Reducing to my ideal body weight is *not* important to me.
- ___ 3. I am motivated to lose weight to increase my attractiveness to others.
- ___ 4. Losing weight will improve my self-respect.
- ___ 5. Losing weight will make me feel more attractive.
- ___ 6. Weight loss will reduce my fear of being rejected by others.
- ___ 7. Losing weight will reduce my distress about how my body looks in the mirror.
- ___ 8. I would like to lose weight to improve the sexual appeal of my body.
- ___ 9. Losing weight will increase my self-confidence.
- ___ 10. If I lose weight, my partner (or future partner) will find me more attractive.
- ___ 11. I am motivated to lose weight so that I can wear more attractive clothing.
- ___ 12. Weight loss will *not* improve my satisfaction with my interpersonal relationships.
- ___ 13. Losing weight will reduce my distress about being around other attractive people.
- ___ 14. I am motivated to lose weight to improve my health.
- ___ 15. Losing weight will reduce my distress about shopping for new clothing.
- ___ 16. I would like to lose weight to change the shape of my body (that is, to become less fat).
- ___ 17. Being able to wear a smaller clothing size is *not* important to me.
- ___ 18. Losing weight will make me less distressed when my partner sees me undressed.

- ___ 19. I am motivated to lose weight so that I will feel more comfortable in social situations.
- ___ 20. When I lose weight, I will stop putting off important events (applying for a new job, starting a new relationship, etc).
- ___ 21. I am motivated to lose weight so I can become more physically active.
- ___ 22. Losing weight will make me less distressed about having sexual relations with my partner or future partner.
- ___ 23. Being able to wear the clothes in my closet that are too small is *not* important to me.
- ___ 24. Changing my appearance through weight loss will improve my self-confidence.
- ___ 25. Losing weight will make me less distressed when my partner (or future partner) touches a part of my body I dislike.
- ___ 26. When I lose weight, I will be less avoidant of social situations.
- ___ 27. I am motivated to lose weight to reduce my physical discomfort such as shortness of breath.
28. What weight would you choose if you could weigh whatever you wanted (“dream” weight) _____?
29. After completing this program, what weight would you be “happy” with even though it is not your “dream” weight _____?
30. After completing this program, what is the weight you would not be particularly happy with but you would consider “acceptable” _____?
31. What is the weight you would be “disappointed” with if it was your final weight after the program (even though it is less than your current weight) _____?

APPENDIX B
OUTLINE OF RCB SESSIONS 11 TO 20

Session 11—Weight Goals

- Assessing your expectations
- What you can expect
- Origin and significance of weight goal
- Adopting a new weight goal

Session 12—Motivation for Weight Loss

- Assumptions about your appearance
- Reasons for seeking weight loss treatment

Session 13—Body Image (Part 1)

- What is body image
- What influences body image
- Body image checklist
- Overcoming a toxic environment
- Assessment of your body image

Session 14—Body Image (Part 2)

- Accepting your body
- Thoughts, feelings, and behaviors
- Improving appearance assumptions
- Affirmations

Session 15—Body Image (Part 3)

- Distressing situations
- Overcoming avoidance
- How to master your list
- Mirror desensitization exercise

Session 16—Weight and Self-Esteem

- Self-esteem
- Thinking errors
- Correcting errors

Session 17—Enhancing Self-Concept

- Thinking errors continued
- Self-concept inventory

Session 18—Weight Loss vs. Weight Maintenance (Part 1)

- Using weight maintenance skills
- Maintenance of lost weight: helpful vs. unhelpful
- Determine your maintenance calorie goal
- Determine your plan for exercise and weight monitoring

Session 19—Weight Loss vs. Weight Maintenance (Part 2)

- Imaginal exercise: confronting your worst fear
- Weight loss vs. weight maintenance
- What to expect when weight loss stops
- Weight maintenance behaviors
- Develop flexible guidelines for eating

Session 20—Remembering What You Have Learned

- Please come back for follow-up
- Remembering what you have learned
- To record or not to record
- Program summary

LIST OF REFERENCES

- Allison, D.B., Fontaine, K., Manson, J.E., Stevens, J., & VanItallie, T.B. (1999). Annual deaths attributable to obesity in the United States. Journal of the American Medical Association, 282, 1530-1538.
- American College of Sports Medicine (2001). Appropriate intervention strategies for weight loss and prevention of weight regain in adults. Medicine & Science in Sports and Exercise, 33, 2154-2165.
- Beck, A.T., Steer, R.A., & Brown, G.K. (1996). Beck Depression Inventory-Second Edition manual. San Antonio, TX: The Psychological Corporation.
- Block, G., Gillespi, C., Rosenbaum, E., & Jenson, C. (2000). A rapid food screener to assess fat and fruit, and vegetable intake. American Journal of Preventive Medicine, 18, 284-288.
- Bryne, S., Cooper, Z., Fairburn, C. (2003). Weight maintenance and relapse in obesity: a qualitative study. International Journal of Obesity, 27, 955-962.
- Carpenter, K.M., Hasin, D.S., Allison, D.B., & Faith, M.S. (2000). Relationship between obesity and DSM-IV major depressive disorder, suicide ideation, and suicide attempts: Results from a general population study. American Journal of Public Health, 90, 251-257.
- Cash, T.F. (1994). The Multidimensional Body-Self Relations Questionnaire user's manual. Norfolk, VA: Author.
- Centers for Disease Control and Prevention (2004). Overweight and obesity: Prevalence and trends. CDC website. Available at www.cdc.gov/nccdphp/dnpa/obesity/index.htm. Accessed April 2004.
- Cooper, Z. & Fairburn, C.G. (2002). Cognitive behavioral treatment of obesity. In T.A. Wadden & A.J. Stunkard, (Eds.), Handbook of obesity treatment (pp. 465-479). New York: Guilford Press.
- Diabetes Prevention Program Research Group. (2002). Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. New England Journal of Medicine, 346, 393-403.

- Donnelly, J.E., Hill, J.O., Jacobsen, D.J., Potteiger, J, Sullivan, D.K., Johnson, S.L., Heelan, K., Hise, M., Fennessey, P.V., Sonko, B., Sharp, T., Jakicic, J.M., Blair, S.N., Tran, Z.V., Mayo, M., Gibson, C., & Washburn, R.A. (2003). Effects of a 16-month randomized controlled exercise trial on body weight and composition in young overweight men and women. Archives of Internal Medicine, *163*, 1343-1350.
- Flegal, K.M., Carroll, M.D., Ogden, C.L., & Johnson, C.L. (2002). Prevalence and trends in obesity among US adults, 1999-2000. Journal of the American Medical Association, *288*, 1723-1727.
- Foster, G.D., Wadden, T.A., & Vogt, R.A. (1997). Body image in obese women before, during, and after weight loss treatment. Health Psychology, *16*, 226-229.
- Foster, G.D., Wadden, T.A., Vogt, R.A., & Brewer, G. (1997). What is a reasonable weight loss? Patients' expectations and evaluations of obesity treatment outcomes. Journal of Consulting and Clinical Psychology, *65*, 79-85.
- Fuller, P.R., Perri, M.G., Leermakers, E.A., Guyer, L.K. (1998). Effects of a personalized system of skill acquisition and an educational program in the treatment of obesity. Addictive Behaviors, *23*, 97-100.
- Goodrick, G.K., Poston, W.S., Kimball, K.T., Reeves, R.S., & Foreyt, J.P. (1998). Non-dieting vs. dieting treatment for overweight binge-eating women. Journal of Consulting Clinical Psychology, *66*, 363-368.
- Hart, E.A., Leary, M.R., & Rejeski, W.J. (1989). The measurement of social physique anxiety. Journal of Sport and Exercise Psychology, *11*, 94-104.
- Hill, J.O., Wyatt, H.R., & Melanson, E.L. (2000). Genetic and environmental contributions to obesity. Medical Clinics of North America, *84*, 333-346.
- Honas, J.J., Early, J.L., Frederickson, D.D., & O'Brien, M.S. (2003). Predictors of attrition in a large clinic-based weight-loss program. Obesity Research, *11*, 888-894.
- Institute of Medicine. (1995). Weighing the options: Criteria for evaluating weight-management programs. Washington, D.C.: National Academy Press.
- Jeffery, R.W., Drewnowski, A., Epstein, L.H., Stunkard, A.J., Wilson, G.W., Wing, R.R., & Hill, D.R. (2000). Long-term maintenance of weight loss: Current status. Health Psychology, *19*, 5-16.
- Kumanyika, S.K. Obesity treatment in minorities. In T.A. Wadden & A.J. Stunkard, (Eds.), Handbook of obesity treatment (pp. 416-441). New York: Guilford Press.

- Lasco, R.A., Curry, R.H., Dickson, V.J., Powers, J., Menes, S., Merritt, R.K. (1989). Participation rates, weight loss, and blood pressure changes among obese women in a nutrition-exercise program. Public Health Reports, *104*, 640-646.
- Linde, J.A., Jeffery, R.W., Finch, E.A., Ng, D.M., & Alexander, J.R. (2004). Are unrealistic weight loss goals associated with outcomes for overweight women? Obesity Research, *12*, 569-576.
- Manson, J.E., Willett, J.E., Stampfer, M.J., Colditz, G.A., Hunter, D.J., Hankinson, S.E., Hennekens, C.H., Speizer, F.E. (1995). Body weight and mortality among women. New England Journal of Medicine, *333*, 677-685.
- Nangle, D.W., Johnson, W.G., Carr-Nangle, R., & Engler, L.B. (1994). Binge eating disorder and the proposed DSM-IV Criteria: Psychometric Analysis of the Questionnaire of Eating and Weight Patterns. International Journal of Eating Disorders, *16*, 147-157.
- National Heart, Lung, and Blood Institute (1998). Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. Obesity Research, *6*, Supplement 2.
- Perri, M.G. (1998). The maintenance of treatment effects in the long-term management of obesity. Clinical Psychology: Science and Practice, *5*, 526-543.
- Perri, M.G. & Corsica, J.A. (2002). Improving the maintenance of weight lost in behavioral treatment of obesity. In T.A. Wadden & A.J. Stunkard (Eds.), Handbook of Obesity Treatment (pp. 367-389). NY: Guilford Press.
- Perri, M.G., & Fuller, P.R. (1995). Success and failure in the treatment of obesity: Where do we go from here? Medicine, Exercise, Nutrition, and Health, *4*, 255-272.
- Perri, M.G., Martin, A.D., Leermakers, E.A., Sears, S.F., & Notelovitz, M. The effects of group versus home-based exercise in the treatment of obesity. Journal of Consulting and Clinical Psychology, *65*, 278-285.
- Puhl, R. & Brownell, K.D. (2002). Stigma, discrimination, and obesity. In C.G. Fairburn & K.D. Brownell, (Eds.), Eating disorders and obesity: A comprehensive handbook (2nd ed.), New York: Guilford Press.
- Rapoport, L., M.C., Clark, M., & Wardle, J. (2000). Evaluation of a modified cognitive-behavioral programme for weight management. International Journal of Obesity, *24*, 1726-1737.
- Roberts, R.E., Kaplan, G.A., Shema, S.J., & Strawbridge, W.J. (2000). Are the obese at greater risk for depression? American Journal of Epidemiology, *15*, 163-170.
- Rosenberg, M. (1965). Society and the adolescent self-Image. Princeton, NJ: Princeton University Press.

- Sarwer, D.B., Grossbart, T.A., & Didie, E.R. (2001). Beauty and society. In M.S. Kaminer, J.S., Dover, & K.A. Arnt (Eds.). Atlas of cutaneous aesthetic surgery (pp. 48-59). Philadelphia: W.B. Saunders.
- Sarwer, D.B. & Thompson, J. K. (2002). Obesity and body image disturbance. In T.A. Wadden & A.J. Stunkard, (Eds.), Handbook of obesity treatment (pp. 447-464). New York: Guilford Press.
- Sarwer, D.B., Wadden, T.A., & Foster, G.D. (1998). Assessment of body image dissatisfaction in obese women: Specificity, severity, and clinical significance. Journal of Consulting and Clinical Psychology, 66, 651-654.
- Spitzer, R.L., Yanovski, S., Wadden, T., Wing, R., Marcus, M.D., Stunkard, A., Devlin, M., Mitchell, J., Hasin, D., & Horne, R.L. (1993). Binge eating disorder: It's further validation in a multisite study. International Journal of Eating Disorders, 13, 137-153.
- Thomas, S., Reading, J., & Shepard, R.J. (1992). Revision of the physical activity readiness questionnaire. Canadian Journal of Sports Science, 17, 338-345.
- US Department of Health and Human Services. (1996). Physical activity and health: A report of the surgeon general. Atlanta, GA: Centers for Disease Control and Prevention, National Centers for Chronic Disease Prevention and Health Promotion.
- Wadden, T.A., Womble, L.G., Sarwer, D.B., Berkowitz, R.I., Clark, V.L., & Foster, G.D. (2003). Great Expectations: "I'm losing 25% of my weight no matter what you say." Journal of Consulting and Clinical Psychology, 71, 1084-1089.
- Wadden, T.A., Womble, L.G., Stunkard, A.J., & Anderson, D. (2002). Psychosocial consequences of obesity and weight loss. In T.A. Wadden & A.J. Stunkard, (Eds.), Handbook of obesity treatment (pp. 144-173). New York: Guilford Press.
- Wing, R.R. (2002). Behavioral weight control. In T.A. Wadden & A.J. Stunkard, (Eds.), Handbook of obesity treatment (pp. 107-121). New York: Guilford Press.
- Wing, R.R. & Hill, J.O. (2001). Successful weight loss maintenance. Annual Reviews of Nutrition, 21, 323-341.
- World Health Organization. (1998). Obesity: Preventing and managing the global epidemic. Report of a WHO Consultation on Obesity. Geneva: Author.

BIOGRAPHICAL SKETCH

Desiring to learn more about health psychology and behavioral medicine, I was ecstatic about being accepted to the University of Florida's Clinical and Health Psychology program. The program at the University of Florida provided me with outstanding general mental health clinical training as well as training with diverse medical populations. Additionally, I have had the opportunity to conduct clinical research focused on weight-loss interventions with obese women, and exercise interventions for sedentary adults. I enjoy conducting treatment outcome studies, and hope to have the opportunity to continue my research, given the adverse impact of overweight and obesity on health and psychological well-being. Conducting treatment outcome studies is exciting, and challenging, and provides the opportunity to integrate the science and practice of psychology. My ultimate goal is to contribute significantly to the literature in the area of long-term behavioral management of obesity.