

Psychiatric Complications of Weight Loss

Dennis Gage, MD, FACP

ABSTRACT

Although some patients report body dissatisfaction, binge eating, and depression following significant weight loss, the majority of patients report improved psychosocial scores even after moderate weight loss. Dissatisfaction with degree of weight loss and unrealistic expectations remain the main psychological factors hindering patient success in maintaining weight in the long term. Frequent “yo-yo” dieting sets patients up for failure. Only those patients who persistently work at weight maintenance and have more realistic expectations of their weight loss will ultimately succeed. This article discusses issues pertaining to body image and changes in binge-eating disorder and bariatric surgery as well as how such changes relate to psychological factors and patient behavior. The article also discusses behavioral strategies for achieving and maintaining weight loss and the negative effect of “crooked thinking” on the part of the dieter. More research is needed to define cognitive and other therapeutic treatment modalities that are necessary to support long-term weight loss and maintenance.

INTRODUCTION

The incidence of obesity and comorbid conditions, such as type 2 diabetes and metabolic syndrome, have increased to epidemic proportions in the United States and other Western nations.¹ While 75% of individuals attempting weight loss are initially successful at dieting, <5% manage to maintain

Needs Assessment: Although there is much literature describing psychiatric mood disorders associated with moderate-to-severe obesity, there has been little research concerning the effect of weight loss and long-term weight maintenance on psychological well-being. This area of study remains an elusive and active issue.

Learning Objectives:

- Give an example of three psychological complications of weight loss.
- Define “yo-yo” phenomena.
- List attributes that long-term successful dieters share.
- Define a “red alert defensive system.”

Target Audience: Primary care physicians and psychiatrists.

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This activity has been peer-reviewed and approved by Eric Hollander, MD, chair and professor of psychiatry at the Mount Sinai School of Medicine, and Norman Sussman, MD, editor of *Primary Psychiatry* and professor of psychiatry at New York University School of Medicine. Review Date: April 10, 2007.

Dr. Hollander reports no affiliation with or financial interest in any organization that may pose a conflict of interest. Dr. Sussman is a consultant to and on the advisory boards of GlaxoSmithKline and Wyeth; and has received honoraria from AstraZeneca, Bristol-Myers Squibb, GlaxoSmithKline, and Wyeth.

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Disclosure: Dr. Gage reports no affiliation with or financial interest in any organization that may pose a conflict of interest.

Acknowledgement: The author thanks Madeline Wald, MSN, for her excellent technical assistance and critical review of the manuscript.

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weight loss for extended periods of time.² Concomitantly, use of aggressive treatment modalities for weight reduction, including the use of appetite suppressing medications, weight loss surgery including gastric bypass and adjustable gastric banding, low calorie diets, and behavior modification therapy have also increased exponentially.

This wide range of alternative treatments have been touted as providing obese patients with successful weight loss with proven long-term maintenance. To date, only behavior modification and surgical intervention have proven valuable in long-term therapy for weight loss and maintenance treatments.

Most studies of patients who have lost significant amounts of weight have addressed physical improvements, such as decrease in blood pressure, blood sugar, and need for medication; improved ambulation; and resolution of sleep apnea syndrome. However, there is less clarity about the psychological consequences found in the weight loss patient, both before and after treatment, or conversely, relating to those factors that will have a bearing on long-term outcomes of treatment. There has been an effort to pre-screen patients prior to obesity surgery. Negative outcomes have been shown in patients with poor behavioral and cognitive skills, borderline personality, binge behavior, and nighttime eating syndrome. However, some of these patients can do well post-operatively in an aggressively supervised behavior modification program. Patients in surgical weight loss programs must deal with post-operative biological change and need supervised programs for behavior modification and cognitive counseling. Patients must develop anticipatory skills as well as avoid binge behavior and vomiting. They must also be prepared to handle issues related to changes in their body image, in particular continued dissatisfaction with body image despite medically successful weight loss.

ISSUES PERTAINING TO BODY IMAGE

Bariatric surgical patients have reported impressive improvements in psychological function associated with degree of weight loss, such as improvement in depressive symptoms and well being, improved mood, and self confidence.³ Despite this outcome, a significant number of patients who lose weight have poorer outcomes. Many patients anticipate unrealistic weight loss achievements and body images. Gingras and colleagues⁴ have shown that chronic dieters possess significantly lower appearance evaluations, body satisfaction, and higher self-classified versus actual body weight compared with control groups. The authors found that body image dissatisfaction may cause individuals to sabotage acquiring and using permanent behavioral techniques for more successful weight loss. In par-

ticular, women may be more apt to be critical of body weight and their self esteem while male esteem was not particularly affected by body dissatisfaction.⁵ Foster and colleagues⁶ studied effects of weight loss and unrealistic expectations in patients participating in a 40-week pilot study designed to facilitate obese patients' acceptance of a 5% to 10% reduction in initial weight, which is a number associated with significant improvement in medical comorbidity. Those patients with increased body weight satisfaction at the study end had significantly better maintenance of weight loss at follow up. In a study by Kinzl and colleagues,⁷ body dissatisfaction was measured by questionnaire. Patients in the study lost significant amounts of weight, yet many were concerned about negative consequences that occurred after weight loss, such as excess skin (53%), abdominal overhang (47%), and pendulous breasts (42%). The dissatisfaction with body and self after weight loss has led to increased plastic surgery to "resculpture" the body post weight loss. Lastly, by extrapolation from a study of women with persistent thinness, Slof and colleagues⁸ showed that persistent thinness was associated with lower rates of "yo-yo" dieting and binge eating as well as greater health satisfaction, higher self esteem, lower perfectionism, and body dissatisfaction. Clinicians should expect overall improvement in body image from their patients who lose weight but warn patients that they are likely to seek further resculpturing, especially for patients with redundant pendulous tissue.

BINGE-EATING DISORDER AND BARIATRIC SURGERY

Binge-eating disorder is known to occur more frequently in morbidly obese patients. Some investigators have feared that organized dieting would precipitate binge eating and other adverse behavioral consequences in obese patients who had not previously exhibited such behavior. Wadden and colleagues⁹ studied a total of 123 obese women who were randomly assigned to a 1,000 calorie diet that included four servings of liquid meal replacements. A second group of women were "non-dieters," who were not specifically restricted to meal replacement. All patients attended weekly group sessions for 20 weeks and biweekly sessions for the following 20 weeks. Though binge eating occurred significantly more often in the meal replacement group at week 20, there was no significant difference in the amount of binge behavior in the two treatment groups through weeks 40–65. Thus, the authors concluded that there did not appear to be any significant binge-eating disorder brought upon by having patients on a highly restrictive diet.

In a different study, Guisado and colleagues¹⁰ studied post-operative eating behavior in a group of morbidly obese patients who had already undergone gastric reduction surgery. Patients were divided into a psychiatric obese group and a group with pre-existing psychiatric disorders by *International Classification of Diseases (ICD-10)*¹¹ criteria (40% of all patients versus 60% who did not meet such criteria). The researchers concluded that surgically morbidly obese patients with a separate psychiatric disorder have a destructured eating pattern, with a predominance of binge eating and disinhibition than the non-psychiatric group. In a different study,¹² several patients with morbid obesity who had achieved weight loss, presented with an intense fear of regaining weight, thus developing anorexia-like symptoms. The authors stressed the need for more psychiatric pre-evaluation of patients entering an intense weight loss program, whether the program be based on surgery or a restricted calorie diet.

Larsen and colleagues¹³ studied 157 patients post-gastric banding by questionnaire, including a group of patients who exhibited external and emotional eating pre-operatively. This group later demonstrated the onset of binge eating. The researchers suggested that a stronger pre- and post-operative focus on management of binge eating as well as external and emotional eating could improve the post-operative course of these patients. In contrast to these studies, Latner and colleagues¹⁴ studied a group of 65 women before and after obesity surgery to determine psychiatric status and eating disturbance. They found that psychiatric disorder remained prevalent both before (37%) and after (41%) surgery. Nevertheless, binge-eating behavior dropped from 48% before surgery to none after surgery. Post-operative weight outcomes were similar in psychiatric and non-psychiatric patients. The authors concluded that eating and psychiatric disturbances did not inhibit weight loss and should not serve as contraindication for patients desiring bariatric surgery. Clinicians should be comfortable in recommending weight loss and weight loss surgery to the appropriate patients as most do not develop binge-eating disorder post weight loss.

BEHAVIORAL STRATEGIES FOR ACHIEVING AND MAINTAINING WEIGHT LOSS

Behavioral approaches were first applied to the problem of obesity in the late 1960's and early 1970's. Recent studies suggest that group intervention was more effective than individual intervention even among patients who expressed a preference for individual therapy.¹⁵ Problems with weight loss

techniques did not stem from inability to lose weight but the ability to successfully maintain weight for prolonged periods of time (>2 years). Wing and Phelan¹⁶ have shown that approximately 20% of overweight individuals are successful at long-term weight loss (as defined by losing $\geq 10\%$ initial body weight and maintaining this weight loss for at least 1 year). Of course, this suggests that 80% of the patients who are trying to lose weight either fail to lose it or have regained significant amounts of weight within the first year.

Phelan and colleagues² showed that patients who had regained weight from baseline level of loss by the end of the first year after the diet had an 11% chance of returning to that previously achieved level of weight loss by the end of another year. Indeed, of patients who relapsed (as defined by a weight regain of $\geq 5\%$ of total body weight at year 1) only 4.7% returned to their baseline weight or below at year 2. The authors concluded that, although patients successful at weight loss continued to maintain a large percentage of their weight losses over 2 years, recovery from even minor weight regain was uncommon. Therefore, strategies to maintain weight loss are critical.

Tate and colleagues¹⁷ compared weight loss success and maintenance using an Internet-based weight-loss program. Patients who received e-mail-based personal behavioral counseling lost more weight than the basic Internet group who received no specific counseling.

Wing and colleagues¹⁸ compared patients who received counseling via one of three different modalities: quarterly newsletters, Internet contact, and face-to-face counseling. The researchers found that face-to-face contact succeeded best at achieving and maintaining weight loss.

In another study of long-term weight loss maintenance, Wing and Phelan¹⁶ used the National Weight Control Registry (patients in the registry have lost an average of 33 kg and maintained the loss for >5 years) and then used a questionnaire to identify successful strategies. Most successful patients reported similar strategies: engaging in high levels of physical activity; eating a low calorie, low fat diet; eating breakfast regularly; self-monitoring weight; and maintaining a consistent eating pattern across weekdays and weekends. Patients who maintained their weight for 2–5 years had much greater chance of long term success, which suggests that weight loss maintenance may become easier over time. Other factors associated with long-term success included adherence to diet and exercise strategies and low levels of depression and disinhibition as well as responding to medical triggers to enhance further weight loss, such as physician diagnosis of high cholesterol, having a heart attack, or other medical events uncovered during treatment.

It is critical for the patient to develop cognitive strategies to maintain weight loss, independent of how weight loss is achieved. For patients to successfully maintain weight loss, they must set up their own “red alert defense system.” For every maintenance weight loss a patient seeks to achieve, the patient should create a “buffer zone” of 5–10 pounds. As soon as patients find their weight drifting beyond the limits of their “red alert number,” they are beyond their comfort zone and should intensify their behavioral techniques to continue to maintain their weight. Clinicians should encourage patients to choose moderate lifestyle changes to achieve long lasting weight control and maintenance. Overly intensifying these efforts can often overwhelm the weight loss maintenance patient.

OTHER FACTORS AFFECTING WEIGHT-LOSS

Structured diets can be very helpful in promoting dietary adherence.¹⁵ Thus, the more structured the diet, the more success can be expected when combined with behavior modification.

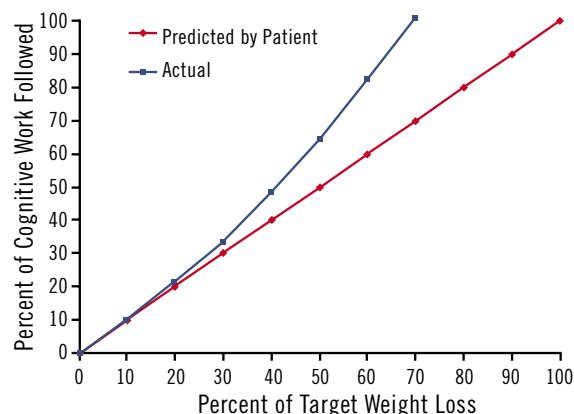
Low calorie diets combined with a cognitive behavioral program were found to be significantly more effective than low calorie diets alone for weight loss maintenance. Patients following very low calorie diets of <1,000 calories, and patients who followed a diet of 1,200–1,500 calories, whether combined with behavior modification or not, appeared to achieve the same levels of weight loss. However, patients who followed the very low calorie diet alone showed dramatic regain immediately after the diet ended. The higher calorie diet group had a more successful course of maintaining weight loss. Therefore, it is now recommended that patients who start a low calorie diet stop restricting calories at the 1,200–1,500 calorie level and combine this restriction with a cognitive behavioral program. Gorin and colleagues¹⁹ showed that partners support appeared to be effective in particular when the partners themselves lost weight. Interestingly, exercise has little effect on the weight loss phase of a program. This effect may have been due to the modest amount of exercise performed in these programs. The greatest benefit of exercise has been seen in the maintenance of weight loss.¹⁵ Clinicians should be comfortable in prescribing low calorie diets that are modular in their presentation and impress upon the patient the increased importance of exercise for weight maintenance.

CROOKED THINKING AND UNREALISTIC EXPECTATIONS

Literature is much less clear in defining why people “fail” on a diet. Some reports have indicated that weight cycling or recaptured bouts of weight gain and loss may be associated with psychological difficulties, particularly binge eating and depression in women. Others have failed to show this relationship.³

When examined overall, the most common psychological effect on the weight loser is the inability to combat environmental factors and intensify self motivation enough to maintain weight. We live in an era of food abundance and mechanical energy saving equipment. As humans, we have developed a defense against weight loss for purposes of survival; the human species has little defense against increases in body fat. There also has been little genetic pressure for our species to protect against food abundance and lack of activity. Thus, humans have been gaining .5–2 kg per year with little biological impact on survival. There are few biological forces to prevent a continuous increase in weight. In today’s environment, cognitive management is required to maintain a healthy body weight. The human species must work harder at weight loss and maintenance (Figure 1). Portion control, increased physical activity, and ability for cognitive control are necessary. There must also be domestic policy changes as a method of changing the environment. Examples include policies, such as banning trans fats and soft drinks in schools as well as adding walkways, bicycle paths, and parks to

FIGURE 1
AMOUNT OF COGNITIVE WORK COMPARED TO PERCENT OF TOTAL WEIGHT LOSS

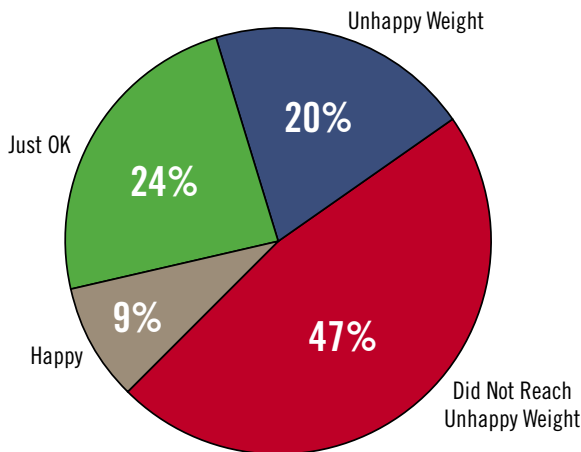


Hypothetical “law of diminishing returns” for weight loss patients as they approach weight maintenance.

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increase physical activity. Unfortunately, unrealistic expectations of individuals and society have made it nearly impossible to successfully maintain a healthy weight. Foster and colleagues²⁰ found in one successful behavioral program, patients lost 16.3 kg (standard deviation=7.2 kg) of body weight, which is considered excellent weight loss medically. Prior to the study period, patients were asked to label their feelings on various weight loss degrees. Categories included dream weight, satisfied, neutral, and disappointed. Forty seven percent of these patients who were successful labeled themselves as not reaching the disappointment level. Only 9% of these patients were happy, and 24% considered their weight loss acceptable (Figure 2).²¹ White and colleagues²² showed that even among a group of successful gastric bypass patients who lost significant weight, the group as a whole did not reach disappointment weight by 12 months post-operation (Figure 3).²² With these expectations, patients are set up for disappointment as the amount of work to achieve these goals becomes more difficult by almost exponential factors. Thus, patients likely have unmet expectations. Figure 4 demonstrates patient expectations, which is continuous weight loss for every degree of weight loss effort imposed. The biological reality represents the natural preservation of weight with slowing down of metabolic rate and conservation of energy. The widening gap between these two curves represents the increased degree of disappointment perceived by the patient. The end result is that patients are consciously setting themselves up for failure. It would also appear likely that repeated failures to maintain weight loss may cause emotional difficulty. Adding to the problem is a continuous bombardment of misdirected advertising

FIGURE 2
PERCENT ACHIEVING DEFINED WEIGHTS* AT WEEK 48²¹

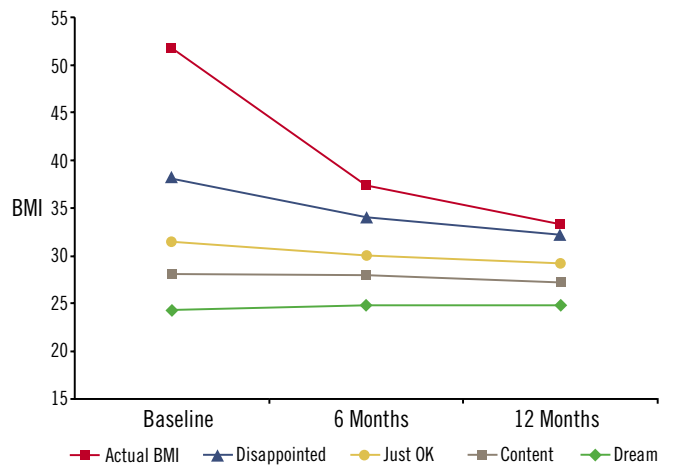


* (N=45); weight loss: 16.3 kg; standard deviation=7.2 kg.

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of “magical diets” and diet books that have little or no scientific basis. Our thinking and beliefs have been skewed to encourage a magical answer to weight loss. This enhances unrealistic goals most dieters have for themselves. Overall, clinicians are dealing with patients who expect the most weight loss with the least effort. Unfortunately, this situation is unrealistic. Burns²³ noted that it is twisted thinking that creates cognitive distortions, such as “all-or-nothing thinking,” or seeing only in black-and-white categories. He also noted that “if your performance falls short

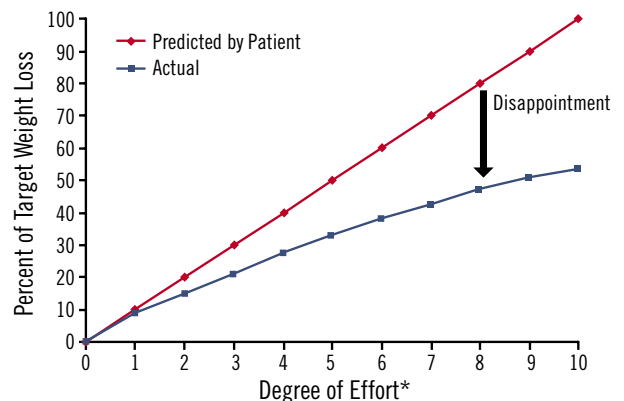
FIGURE 3
SATISFACTION WITH FINAL WEIGHT IN THE POST-GASTRIC SURGICAL PATIENT²²



BMI=body mass index.

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FIGURE 4
UNREALISTIC GOALS OF THE DIETING PATIENT



* Zero=no effort; 10=100% effort.

Effort consists of behavioral, cognitive, nutritional, and lifestyle changes based on different components, with the constant being degree or intensity.

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of perfect, you see yourself as a total failure.” Gage²⁴ describes these phenomena in dieters. The biologic norm is for one to eat, store calories, and conserve energy. Patients who lose weight should understand that they are “swimming upstream,” fighting the natural biology of their bodies. Most patients are unrealistic about long-term weight loss. They fatigue both physically and mentally and are ultimately doomed to failure. This “yo-yo” phenomenon of diet loss yields initial success with weight regain, which yields failure sets innumerable patients up for “failure spirals.” Patients remain resistant to healthy, realistic weight loss and this perhaps is the greatest psychological hurdle that clinicians should address.

CONCLUSION

Patients should be warned not to depend on a single procedure, magic technique, or “fad.” While gastric weight loss surgery has been extremely successful and behavioral programs have been improving over time, patients must be warned that they need to be realistic about their goal weight. Even patients who have had successful gastric surgery and lost considerable weight have unrealistic projections of what they consider ultimately to be successful weight loss.²¹ These patients should work with the various procedures that they have chosen for their health. Those patients with internal cues such as weight loss surgery need to cognitively understand the future of their weight loss is dependent on them working in an aggressive fashion with their bodies’ new method of eating as well as working with cognitive therapy over the long term. An understanding of the physiology of weight loss and weight maintenance is extremely necessary for all patients who are involved in a weight loss program. Without this, patients are doomed to fail and the recurrent revolving door of up and down weight gain and weight loss will continue. **PP**

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