Weight Loss Expectations in Obese Patients Seeking Treatment at Medical Centers

Riccardo Dalle Grave, Simona Calugi,* Flavia Magri,† Massimo Cuzzolaro,‡ Elisabetta Dall'Aglio,§ Lucio Lucchin,¶ Nazario Melchionda,** Giulio Marchesini,** and the QUOVADIS Study Group††*

Abstract

DALLE GRAVE, RICCARDO, SIMONA CALUGI, FLAVIA MAGRI, MASSIMO CUZZOLARO, ELISABETTA DALL'AGLIO, LUCIO LUCCHIN, NAZARIO MELCHIONDA, GIULIO MARCHESINI, AND THE QUOVADIS STUDY GROUP. Weight loss expectations in obese patients seeking treatment at medical centers. *Obes Res.* 2004;12:2005–2012.

Objective: To investigate weight loss expectations (expected 1-year BMI loss, dream BMI, and maximum acceptable BMI) in obese patients seeking treatment and to examine whether expectations differ by sex, weight, diet and weight history, age, psychological factors, and primary motivations for weight loss.

Research Methods and Procedures: 1891 obese patients seeking treatment in 25 Italian medical centers (1473 women; age, 44.7 ± 11.0 years; BMI, 38.2 ± 6.5 kg/m^2) were evaluated. Diet and weight history, weight loss expectations, and primary motivation for seeking treatment (health or improving appearance) were systematically recorded. Psychiatric distress, binge eating, and body image dissatisfaction were tested by self-administered questionnaires (Symptom CheckList-90, Binge Eating Scale, and Body Uneasiness Test).

Results: In 1011 cases (53.4%), 1-year expected BMI loss was ≥9 kg/m^2, dream BMI was 26.0 ± 3.4 kg/m^2 (corresponding to a 32% loss), and maximum acceptable BMI was 29.3 ± 4.4 kg/m^2 (−23%). BMI and age were the strongest predictors of weight goals. Weight loss necessary to reach the desired targets was largely in excess of weight loss observed during previous dieting. Psychiatric distress, body dissatisfaction, and binge eating did not predict weight loss expectations. The primary motivation for weight loss was concern for future or present health; women seeking treatment to improve appearance had a lower grade of obesity, were younger, and had first attempted weight loss at a younger age.

Discussion: Obese Italian patients had unrealistic weight loss expectations. There were significant disparities between patients' perceptions and physicians' weight loss recommendations of desirable treatment outcome.

Key words: dream BMI, maximum acceptable BMI, psychiatric distress, body image, binge eating

Introduction

Theoretically, the goal of obesity treatment is to reduce body weight to normal, as indicated by height-weight charts (1). Since the 1980s, many nonsurgical interventions designed to achieve a large weight loss have been carefully evaluated (e.g., pharmacotherapy, very-low-calorie diets, low-calorie diets, behavior therapy, and combined treatments). Unfortunately, in the large majority of obese patients, no treatment is effective in achieving the desired goal to normalize body weight (2). Unsatisfactory results have prompted a change in the final outcome from large weight loss to moderate weight loss and control of obesity-related risk factors, namely hypertension, dyslipidemia, and diabetes. These studies have shown that the morbidity related to obesity-associated risk factors is significantly decreased by a 5% to 10% reduction in weight, even if patients remain in the obesity range (2–5). The difficulties in normalizing body weight, combined with the healthy effects of moderate weight loss, led experts, in the early 1990s, to introduce the concept of "reasonable" weight loss (6). In

Received for review December 29, 2003.
Accepted in final form October 12, 2004.
The costs of publication of this article were defrayed, in part, by the payment of page charges. This article must, therefore, be hereby marked "advertisement" in accordance with 18 U.S.C. Section 1734 solely to indicate this fact.

*Department of Nutritional Rehabilitation, Villa Garda Hospital, Garda, Italy; †Department of Internal Medicine, University of Pavia, Pavia, Italy; ‡Department of Psychiatry, "La Sapienza" University, Rome, Italy; §Diabetes Unit and Obesity Center, University of Parma, Parma, Italy; ¶Unit of Dietetics and Clinical Nutrition, General Hospital, Bolzano, Italy; **Unit of Metabolic Diseases, "Alma Mater Studiorum" University of Bologna, Bologna, Italy; and ††A complete list of participants in the QUOVADIS study has been previously published (*Diab Nutr Metab* 2003;16:115–24).
Address correspondence to Giulio Marchesini, Unit of Metabolic Diseases, "Alma Mater" University of Bologna, Policlinico S. Orsola, Via Massarenti, 9, I-40138 Bologna, Italy.
E-mail: giulio.marchesini@unibo.it

1998, the National Heart, Lung and Blood Institute recommended a 10% weight loss as the general goal of obesity management (2).

While the feasability of achieving a stable 10% weight loss in obese patients with available treatments has not yet been shown (7), studies carried out in the United States have found that a 10% weight loss is considered a highly unsatisfactory goal by the majority of obese patients, both in the absence (8,9) and in the presence of binge eating (10).

Several studies on goal setting have observed that, when goals are not reached or the progress toward them is unsatisfactory, people have negative emotions (11,12) and impaired performance (13), and often tend to abandon their attempt to achieve the unreachable goals (14). In the field of obesity, a recent cognitive behavioral analysis of weight regain has highlighted the importance of weight loss goals in the failure of obesity treatment (15).

All data on weight goals of obese subjects have come from selected samples of American patients, enrolled in research studies or in specific clinical programs (behavioral or surgical treatment of obesity or treatment of binge eating disorder). To improve our understanding of the weight loss expectations of obese subjects and of the factors that influence them, we analyzed the data of a large observational study that was recently established in Italy for a comprehensive measurement of health-related quality of life, psychological distress, and eating behavior in obese patients seeking treatment at 25 Italian medical centers (16). At the time of planning, treatment goals based on patients' perspectives were specifically considered and prospectively collected.

Research Methods and Procedures

Quality of Life in Obesity: Evaluation and Disease Surveillance Study Planning and Protocol

The Quality of Life in Obesity: Evaluation and Disease Surveillance (QUOVADIS)[1] study planning and protocol have been described in detail previously (16). QUOVADIS is an observational study on quality of life in obese patients seeking treatments at medical centers accredited by the Italian Health Service for the treatment of obesity. Twenty-five centers scattered throughout Italy, from the north (Turin, Bolzano, Udine) to the south (Catania, Messina), participated in the study. The study was purely observational. Accordingly, centers were expected to treat patients along the lines of their specific programs, including dieting, cognitive behavioral therapy, drugs, and bariatric surgery (<2% of patients).

All obese subjects (BMI $\geq$ 30 kg/m^2) consecutively seeking treatment were eligible for the study, provided they were not on active treatment at the time of enrollment, were 25 to 65 years of age, agreed to fill out a set of self-administered questionnaires, and signed an informed consent to participate.

Data collection included, among other forms, a detailed case report form and a set of questionnaires for psychological distress and eating behavior disorders.

The case report form was filled out by physicians at the time of enrollment by directly interviewing patients, and it included demographic data and a detailed diet history, with specific information on the number and results of previous attempts to lose weight, age at first dieting, expected 1-year weight loss, maximum acceptable weight, and dream weight. Expected 1-year loss was defined as "the weight loss that patients were expecting to lose with treatment in the following 12 months." To help subjects indicate their expectations, this value was categorized in multiples of 10 kg. Maximum acceptable weight was defined as "the heaviest body weight that patients could accept and tolerate to reach after treatment," whereas dream weight was defined as "the body weight that they were dreaming to achieve with treatment, however unrealistic it was."

The case form also included a question on the reasons for seeking treatment. For this specific purpose, patients were asked to choose the main reason for losing weight among three different answers: 1) improving appearance, 2) improving future health, or 3) improving present health.

Specific questionnaires were used to detect psychiatric distress, binge eating, and body image dissatisfaction. The Symptom CheckList-90 (SCL-90) (17) is an easy tool to identify psychopathological distress. For the 90 items of the test, patients score how much a problem distressed them during the previous week, with responses ranging from 0 (not at all) to 4 (extremely). The items are summarized into nine domains (somatization, obsessive-compulsive thoughts, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid conceiving, and psychotic behavior) and a general symptom index, which is used as an indicator of the overall psychological distress (18).

The Binge Eating Scale (BES) (19) includes 16 items measuring the severity of the binge eating. It examines both behavioral manifestations (eating large amounts of foods) and feeling/cognition during a binge episode (loss of control, guilt, fear of being unable to stop eating).

The Body Uneasiness Test (BUT) (20) is a self-administered, rapid questionnaire specifically developed to evaluate concern for physical appearance, body image awareness (34 items, Part I), and body parts that most severely contribute to body dissatisfaction (37 items, Part II). The scores of Part I, ranging from 0 (never) to 5 (always), are combined into a Global Severity Index and into five subscales resulting from factorial analysis (weight phobia, body image concerns, avoidance, compulsive self-monitoring, depersonalization). The five subscales discriminate subjects with eating disor-

[1] Nonstandard abbreviations: QUOVADIS, Quality of Life in Obesity: Evaluation and Disease Surveillance; SCL-90, Symptom CheckList-90; BES, Binge Eating Scale; BUT, Body Uneasiness Test.

Table 1. Data of patients included in the analysis (mean ± SD)

	All cases (n = 1891)	Men (n = 418)	Women (n = 1473)	p*
Demographic variables				
Age (years)	44.7 ± 11.1	44.1 ± 10.7	44.9 ± 11.0	NS
BMI (kg/m^2)	38.2 ± 6.5	38.0 ± 6.7	38.2 ± 6.4	NS
Historical variables				
BMI at age 20 (kg/m^2)	25.8 ± 5.2	27.0 ± 5.1	25.5 ± 5.2	<0.001
Maximum BMI (kg/m^2)	39.3 ± 7.0	39.2 ± 7.2	39.3 ± 6.9	NS
Age at first dieting (years)	27.6 ± 11.5	29.2 ± 11.3	27.3 ± 11.5	<0.01
Maximum weight loss (%)	18.8 ± 9.40	17.6 ± 9.5	18.8 ± 9.4	0.05
Weight loss expectations				
Maximum Acceptable BMI (kg/m^2)	29.3 ± 4.4	30.2 ± 4.1	29.0 ± 4.4	<0.001
Dream BMI (kg/m^2)	26.0 ± 3.4	27.3 ± 2.7	25.7 ± 3.5	<0.001
Expected 1-year BMI loss (kg/m^2)	10.2 ± 3.8	8.8 ± 3.3	10.6 ± 3.9	<0.001

*Significant difference between sexes.
NS, not significant.

ders from nonclinical controls (Wilk's $\lambda = 0.62$, $p = 0.0001$) (20). The scores of Part II are arranged into a Positive Symptom Total and a Positive Index Distress Symptom. BUT reliability is good (Cronbach α value: weight phobia, 0.85; body image concern, 0.92; avoidance, 0.75; compulsive self-monitoring, 0.81; depersonalization, 0.77) (20).

All data were stored in a large database, provided by CINECA (Casalecchio di Reno), an Inter-university Consortium of 15 Italian universities, through an extranet system. Participating centers accessed the system using a personal user identification and password and inserted patients' data into the database through electronic forms.

This report is based on the analysis of the complete records of 1891 patients seeking treatment: 1473 women (age, 44.9 ± 11.0 years; BMI, 38.20 ± 6.39 kg/m^2) and 418 men (age, 44.1 ± 10.7 years; BMI, 44.1 ± 10.7 kg/m^2).

The protocol was approved by the ethical committees of the individual centers, after approval by the ethical committee of the coordinating center (Azienda Ospedaliera di Bologna, Policlinico S. Orsola–Malpighi). All subjects gave written informed consent for participation.

Statistical Analyses

All weight data (in kilograms) were transformed into BMI units to improve comparison between genders (10). A first descriptive analysis was used to obtain a qualitative evaluation of clinical data, response to questionnaires, and patients' outcomes. ANOVA was used to test the significance of differences between men and women, and within these subgroups, for differences in relation to the main reason for seeking treatment. Correlation analysis was also performed to establish links between dream and maximum acceptable BMI and principal continuous variables of this study. Simultaneous regression analyses were used to identify the determinants of dream and maximum acceptable BMI, as well as expected 1-year loss.

Data are reported as mean ± SD. Three sets of variables were simultaneously tested: anthropometric data, weight history, and psychometric data. Accordingly, the limit of significance was adjusted according to Duncan's multiple range (21). The final critical value of significance was, therefore, set at 0.025.

Results

Demographic and BMI History Variables

No differences were shown between men and women in age, BMI, and maximum BMI (Table 1). Men had a significantly higher BMI at age 20 [$F(1,1883) = 27.61$; $p < 0.001$], whereas women reported an earlier age at first dieting [$F(1,1553) = 7.28$; $p < 0.01$] and a moderately higher maximum weight loss [$F(1,1553) = 3.96$; $p = 0.05$].

BMI Loss Expectations

The patients reported a dream BMI of 26.0 ± 3.4 kg/m^2 and maximum acceptable BMI of 29.3 ± 4.4 kg/m^2. These goals could be achieved only by losing, on average, 32% and 23% of their present weight, respectively (Table 2). Both values were significantly higher

Table 2. Outcome evaluation according to obesity grade

Variables	Obesity grade			*p*
	I	II	III	
Men	$N = 171$	$N = 113$	$N = 130$	
Dream BMI (kg/m^2)	26.0 ± 1.8	27.5 ± 2.5	29.0 ± 2.7	<0.001
Percent reduction	19.6 ± 6.2	26.4 ± 7.0	36.4 ± 8.6	<0.001
Maximum acceptable BMI (kg/m^2)	28.0 ± 2.2	30.2 ± 3.3	33.2 ± 4.7	<0.001
Percent reduction	13.5 ± 6.9	19.1 ± 8.7	27.3 ± 10.5	<0.001
Womens	$N = 544$	$N = 414$	$N = 502$	
Dream BMI (kg/m^2)	24.5 ± 2.3	25.7 ± 2.9	26.9 ± 4.4	<0.001
Percent reduction	24.3 ± 7.2	30.6 ± 8.1	40.2 ± 10.2	<0.001
Maximum acceptable BMI (kg/m^2)	26.8 ± 2.6	28.7 ± 3.1	31.6 ± 5.4	<0.001
Percent reduction	17.1 ± 7.8	22.5 ± 8.6	29.9 ± 11.3	<0.001

Values are means ± SD.

than the maximum percentage of the reported intentional weight loss obtained by previous dieting attempts (on average, 18.8%).

When stratified according to percentiles of BMI at entry into the study, both maximum acceptable and dream BMI were progressively higher with increasing BMI (Figure 1). Female patients had significantly higher weight loss expectations than male patients [31.6% vs. 26.7% for dream BMI and 23.0% vs. 19.4% for maximum acceptable BMI; $F(1,1883) = 67.4$ and $F = 38.3$; $p < 0.001$] and higher expected 1-year BMI loss at all grades of obesity ($p < 0.001$). Dream BMI was not different from BMI at age 20 in both men ($p = 0.189$) and women ($p = 0.384$). Dream BMI fell within the overweight range for both women and men. Women with grade I obesity reported an average dream BMI within the normal weight range.

The expected 1-year BMI loss was significantly related to the maximum BMI loss during previous attempts ($r_s = 0.30$, $p < 0.0001$; Figure 2). In particular, only 213 subjects (11.3%) had an expected BMI loss <5 BMI units (kg/m^2), with 35.2%, 31.0%, and 22.5% expecting a weight loss of 5 to 9, 9 to 13 and >13 kg/m^2, respectively.

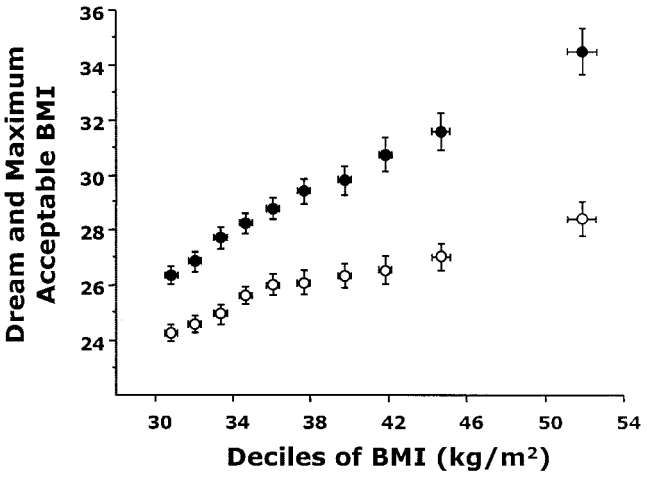

Figure 1: Dream (○) and maximum acceptable BMI (●) in relation to deciles of BMI at entry into the study. Data (in kilograms per meter squared) are presented as mean ± 2 SE.

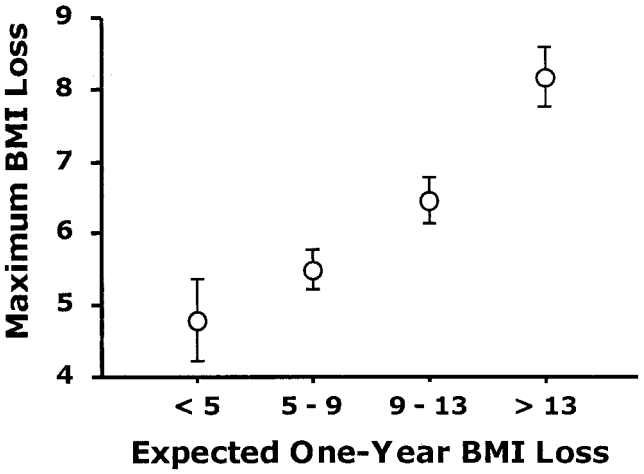

Figure 2: Relation of maximum BMI loss during previous dieting (mean ± 2 SE) to expected 1-year BMI loss, as reported by patients at entry into the study. All data are in kilograms per meter squared.

Table 3. Psychometric testing in obese subjects, according to sex

	Men	Women	*P*
BES (% and 95% CI)			
Score	28.1 (23.9 to 32.5)	42.2 (39.6 to 44.7)	<0.0001
SCL-90 (% and 95% CI)			
Somatization	26.6 (22.4 to 30.9)	55.4 (52.8 to 57.9)	<0.0001
Obsessive-compulsive thoughts	22.9 (19.0 to 27.1)	39.9 (37.4 to 42.4)	<0.0001
Interpersonal sensitivity	19.3 (15.6 to 23.2)	38.2 (35.7 to 40.7)	<0.0001
Depression	18.3 (14.7 to 22.2)	43.7 (41.1 to 46.2)	<0.0001
Anxiety	18.3 (14.7 to 22.2)	35.4 (32.9 to 37.9)	<0.0001
Hostility	23.7 (19.7 to 27.9)	27.9 (25.6 to 30.2)	0.101
Phobic anxiety	5.6 (3.7 to 8.1)	14.1 (12.4 to 15.9)	<0.0001
Paranoid conceiving	26.1 (22.0 to 30.4)	36.9 (34.4 to 39.3)	<0.0001
Psychotic behavior	9.8 (7.1 to 12.9)	16.1 to 14.3 to 18.1)	0.001
Global Severity Index	15.1 (11.9 to 18.8)	33.3 (30.9 to 35.7)	<0.0001
BUT (median and range)			
Weight phobia	1.12 (0 to 5)	2.12 (0 to 5)	<0.0001
Body image concern	1.33 (0 to 5)	2.44 (0 to 5)	<0.0001
Avoidance	0.17 (0 to 4.8)	1.00 (0 to 5)	<0.0001
Compulsive self-monitoring	0.33 (0 to 4.2)	0.83 (0 to 5)	<0.0001
Depersonalization	0.20 (0 to 5)	0.80 (0 to 5)	<0.0001
Global Severity Index	0.73 (0 to 4.15)	1.59 (0 to 4.91)	<0.0001
Positive symptoms total	6 (0 to 37)	12 (0 to 37)	<0.0001
Positive symptom distress index	2.11 (0 to 5)	2.85 (0 to 5)	<0.0001

Data are presented as prevalence and 95% confidence interval of scores exceeding the upper limit of norm (BES and SCL-90), or as median and range (BUT).

Psychiatric Symptoms, Body Image Dissatisfaction, and Binge Eating

The SCL-90 (both the Global Severity Index and all subscales) and the BES scores were in a pathological range in a remarkable proportion of patients, more frequently in women (Table 3). Similarly, the BUT scales were all higher in women. Dream or maximum acceptable BMI and psychometric scales were scarcely correlated (Table 4). The significance of correlations markedly increased after adjustment for present BMI. BUT scales showed a remarkable association with outcome measures, the highest values being observed for the correlation between dream BMI and the Global Severity Index ($r = -0.26$), weight phobia ($r = -0.26$), and body image concern ($r = -0.28$).

Determinants of BMI Goals

Hierarchical regression analyses revealed that the strongest predictor of dream BMI and maximum acceptable BMI was BMI ($\beta = 0.37$, $t = 16.4$, $p < 0.001$ for dream weight and $\beta = 0.55$, $t = 26.9$, $p < 0.001$ for maximum acceptable BMI). Age and BMI at age 20 were entered in the second and third steps, respectively. The remaining predictors were sex, maximum BMI, maximum BMI loss, and age at first dieting. The overall R^2 of these predictors was 0.31 [$F(7,1504) = 95.39$, $p < 0.001$ for dream BMI) and 0.39 [$F(6,1504) = 160.12$, $p < 0.001$ for maximum acceptable BMI).

Although a heavier initial BMI predicted the acceptance of higher dream and maximum acceptable BMIs, the percentage of weight loss required to achieve these goals increased with increasing BMI (Table 2).

Primary Motivation for Weight Loss

The primary motivation for weight loss, according to sex, is reported in Table 5. Over 50% of patients were motivated to lose weight to improve present health, 33.4% to improve future health, and only 15.2% to improve appearance.

An ANOVA test showed that women whose primary motivation for weight loss was improving appearance had a significantly lower BMI [$F(2,1470) = 10.14$; $p < 0.01$], had

Table 4. Correlation between scores of SCL-90, BUT, and BES and dream and maximum acceptable BMI in our obese population

	Dream BMI		Maximum acceptable BMI	
	Unadjusted	**BMI adjusted**	**Unadjusted**	**BMI adjusted**
SCL-90				
Somatization	−0.00	−0.06*	0.06*	−0.04
Obsessive-compulsive thoughts	−0.00	−0.03	0.03	−0.01
Interpersonal sensitivity	−0.04	−0.11‡	0.03	−0.06*
Depression	−0.04	−0.09‡	0.02	−0.05
Anxiety	−0.03	−0.07*	0.02	−0.04
Hostility	−0.03	−0.04	0.01	−0.02
Phobic anxiety	−0.01	−0.08*	0.04	−0.06
Paranoid conceiving	−0.02	−0.06*	0.06*	−0.01
Psychotic behavior	−0.02	−0.06*	0.03	−0.04
Global severity index	−0.02	−0.07*	0.04	−0.04
BUT				
Weight phobia	−0.15‡	−0.26‡	−0.06*	−0.19‡
Body image concern	−0.14‡	−0.28‡	−0.02	−0.20‡
Avoidance	−0.07†	−0.19‡	0.01	−0.14‡
Compulsive self-monitoring	−0.12‡	−0.17‡	−0.06*	−0.12‡
Depersonalization	−0.10‡	−0.21‡	−0.01	−0.15‡
Global severity index	−0.15‡	−0.26‡	−0.03	−0.19‡
Positive symptoms total	−0.06	−0.14‡	0.02	−0.08†
Positive symptom distress index	−0.06*	−0.14‡	0.02	−0.08†
BES				
Total	−0.02	−0.06*	0.03	−0.04

Both unadjusted values and values adjusted for present BMI are reported.
*$p < 0.025$; †$p < 0.005$; ‡$p < 0.001$.

lower maximum acceptable and dream BMIs [$F(2,1469) = 24.51$, $p < 0.01$; $F(2,1470) = 24.29$ $p < 0.01$], were significantly younger [$F(2,1470) = 71.56$); $p < 0.01$], and first attempted to lose weight at a younger age [$F(2,1249) = 24.06$; $p < 0.01$] compared with women motivated to lose weight to improve present or future health.

In male patients, no significant differences were found in relation to primary motivations for weight loss.

Table 5. Primary motivation for entering the weight-reducing program in treatment-seeking obese patients

		Motivation for weight loss		
		Appearance	**Present health**	**Future health**
Men	No. of cases	31	234	153
	Percent within sex	7.4%	56.0%	36.6%
Women	No. of cases	256	739	478
	Percent within sex	17.4%	50.2%	32.5%
Total	No. of cases	287	973	631
	Percent within total	15.2%	51.5%	33.4%

Discussion

This study confirms a large disparity between physicians' recommendations and patients' expectations of outcomes in the treatment of obesity, a disparity that might account for the high drop-out rate.

The study has two strengths. First, it presents data of a large and heterogeneous sample of obese patients seeking treatment in 25 obesity medical centers scattered throughout Italy, which have different recruitment protocols. Second, it evaluates a set of weight goal determinants, namely expected 1-year weight loss and maximum acceptable and dream BMIs, prospectively collected in the largest sample of obese men and women examined thus far.

In treatment-seeking obese Italian patients, weight loss expectations to achieve the maximum acceptable and dream BMIs were 32% and 23%, respectively—values that are similar to the dream and acceptable weight loss expectations observed in American samples (8–10). Such expectations are over twice as large as the 10% weight loss usually achievable by both behavior therapy (22,23) and pharmacotherapy (24).

Present BMI was the strongest determinant of dream and maximum acceptable BMIs. Despite choosing higher BMI, heavier patients pursued a weight loss percentage significantly greater than that sought by less obese patients. While obese patients classified as having grade I obesity reported a mean maximum acceptable BMI loss of 16.2%, not very far from the 10% weight loss achievable by the gold standard treatments of obesity, obese patients with grade II and III obesity reported mean maximum acceptable and dream BMI losses of 21.1% and 29.4%, respectively. Similar differences in weight goals between heavier and less obese patients have been observed in American patients (9). Unrealistic weight loss expectations were previously reported in a small group of obese women and were scarcely reduced after subjects were clearly informed that only a minor weight loss would probably be achieved (25).

Weight loss during previous dieting was poorly effective in modulating weight loss expectations. The relationship between previous results and expected 1-year weight loss was not maintained throughout the whole sample. Subjects with more realistic weight loss expectations (<9 kg/m^2) had experienced, on average, similar weight loss during previous dieting, whereas subjects who aimed at a weight reduction >9 kg/m^2 did so despite remarkably lower weight loss on previous dieting. These data suggest that the majority of patients do not correctly internalize individual experience; a few of them still maintain expectations largely exceeding their previous diet history.

The desire to improve present and future health was reported as primary motivation for weight loss in this sample of obese patients; the desire to improve appearance had a low prevalence. This probably stems from a selection bias not completely canceled by differences among recruiting centers. All patients entering the study were seeking treatment at medical centers that were preferentially treating obese patients with medical comorbidities. This could also explain the poor correlation with psychiatric symptoms, body image, or binge eating, which might be partly ascribed to a selection effect. Alternatively, patients may state health as their primary motivation for weight loss because it may be more socially desirable in a medical setting than stating appearance. Only women with a low level of obesity had a high prevalence of concern for appearance as a primary motivation to lose weight, as well as young patients and those who had started their dieting history at an earlier age.

These data have clinical implications. Women with a low grade of obesity, who primarily seek to modify their appearance through weight loss, need help to improve their body image and to accept their shape and body weight if they do not achieve their weight loss goals. Patients with higher grades of obesity, principally seeking to improve present and future health, need to be educated that it is not necessary to strive for a 30% to 40% weight loss to achieve a significant health improvement. Setting an unreachable goal may be the cause for stopping the weight loss attempt and weight loss maintenance strategies (15). They need to know that a significant improvement of risk factors associated with obesity can be achieved by a reduction of only 5% to 10% of body weight, a goal they can easily achieve and possibly maintain (2–5). Particular assistance to accept a more realistic weight loss must be supplied also to younger obese patients, to patients who report a large weight loss in a previous diet, to those who had a lower weight at the age of 20, or to those who began dieting at a younger age, all factors significantly associated with lower dream and acceptable body weight.

The study also has some limitations. First, our findings are restricted to obese subjects seeking treatment in a medical setting and, therefore, do not provide information on the large number of obese subjects who do not seek treatment or who seek help in nonmedical settings. It is largely possible that obese subjects referring to a nonmedical center are principally motivated to improve appearance and that obese subjects not seeking treatment have different, unexpressed weight goals.

Second, the study did not examine several unmodifiable (e.g., family history of obesity, age at onset of obesity, critical comments received in the past on shape and weight) and modifiable (e.g., frequency of self-weighing, attitudes toward exercise) determinants of weight goals.

Third, the data of this study did not provide information about longitudinal changes in weight goal expectations and whether unrealistic weight expectations influence the outcome.

Fourth, the study did not use the Goals and Relative Weight Questionnaire (8) (not yet available in the Italian language at the time of the study) that has become the standard instrument for obtaining weight loss expectations. The definitions of maximum acceptable weight and dream weight were slightly different from those used in the Amer-

ican studies (6,8–10). This limits the use of our data for cross-cultural comparison with other non-Italian obese samples.

Future research should evaluate how weight loss expectations may vary across different settings (e.g., commercial weight loss programs or esthetic weight loss centers). More research is also needed to evaluate whether weight loss obtained by the end of treatment changes the level of acceptable and dream weight, although this is not supported by very recent data (25).

Because only retrospective studies have suggested that having unrealistic weight goals promotes a cognitive process associated with weight regain and with poor weight loss maintenance (24,26–29), it is mandatory to carry out prospective studies to evaluate whether patients satisfied with their weight at the end of treatment have a better weight maintenance than those who are unsatisfied by their final weight. Finally, more research is needed to determine how unrealistic weight loss expectations may be changed to achievable ones (e.g., 10% weight loss) and whether modifications of the unrealistic goals have an impact on weight loss maintenance.

Acknowledgment

The QUOVADIS study is supported by an unrestricted grant from BRACCO Imaging, Milano, Italy.

References

1. **Metropolitan Life Insurance Company.** Metropolitan Height and Weight Standards. *Stat Bulletin Metrop Insur Co*. 1983;64:2–9.
2. **National Heart Lung and Blood Institute, National Institutes of Health.** Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults—The Evidence Report. *Obes Res.* 1998;6:51S–209S.
3. **Blackburn G.** Effect of degree of weight loss on health benefits. *Obes Res*. 1995;3(Suppl 2):211S–6S.
4. **Goldstein DJ.** Beneficial health effects of modest weight loss. *Int J Obes Relat Metab Disord*. 1992;16:397–415.
5. **Kanders BS, Blackburn G.** Reducing primary risk factors by therapeutic weight loss. In: Wadden TA, VanItallie TB, eds. *Treatment of Seriously Obese Patients*. New York: Guilford Press; 1992, pp. 213–30.
6. **Foster GD.** Reasonable weights: determinants, definitions, and directions. In: Allison DB, Pi-Sunjer FX, eds. *Obesity Treatment: Establish Goals, Improving Outcomes, and Reviewing the Research Agenda*. New York: Plenum Press; 1995, pp. 35–44.
7. **Wadden TA, Anderson DA, Foster GD.** Two-year changes in lipids and lipoproteins associated with the maintenance of a 5% to 10% reduction in initial weight: some findings and some questions. *Obes Res*. 1999;7:170–8.
8. **Foster GD, Wadden TA, Vogt RA, Brewer G.** What is a reasonable weight loss? Patients' expectations and evaluations of obesity treatment outcomes. *J Consult Clin Psychol*. 1997; 65:79–85.
9. **Foster GD, Wadden TA, Phelan S, Sarwer DB, Sanderson RS.** Obese patients' perceptions of treatment outcomes and the factors that influence them. *Arch Intern Med*. 2001;161:2133–9.
10. **Masheb RM, Grilo CM.** Weight loss expectations in patients with binge-eating disorder. *Obes Res*. 2002;10:309–14.
11. **Wicklund RA, Gollwitzer PM.** *Symbolic Self-Completion.* Hillsdale, NJ: Lawrence Erlbaum Associates; 1982.
12. **Carver CS, Sheier MF.** Origins and functions of positive and negative affect: a control-process view. *Psychol Rev*. 1990;97: 19–35.
13. **Cervone D, Jiwani N, Wood R.** Goal setting and the differential influence of self-regulatory processes on complex decision-making performance. *J Pers Soc Psychol*. 1991;61:257–66.
14. **Klinger E.** Consequnces of committment to and disengament from incentives. *Psychol Rev*. 1975;82:223–31.
15. **Cooper Z, Fairburn CG.** A new cognitive behavioural approach to the treatment of obesity. *Behav Res Ther*. 2001;39: 499–511.
16. **Melchionda N, Marchesini G, Apolone G, et al.** The QUOVADIS study. Features of obese Italian patients seeking treatment at specialist centers. *Diabetes Nutr Metab*. 2003;16: 115–24.
17. **Derogatis LR, Rickels K, Rock AF.** The S.C.L. 90 and the M.M.P.I.: a step in the validation of a new self-report scale. *Br J Psychiatry*. 1976;128:280–9.
18. **Derogatis LR, Cleary PA.** Confirmation of the dimensional structure of the SCL-90: a study in construct validity. *J Clin Psychol*. 1977;33:981–9.
19. **Gormally J, Block S, Daston S, Rardin D.** The assessment of binge eating severity among obese persons. *Addict Behav*. 1982;7:47–55.
20. **Cuzzolaro M, Vetrone G, Marano G, Battacchi M.** Body uneasiness test. In: Conti L, ed. *Repertorio delle Scale di Valutazione in Psichiatria,* vol. 3. Firenze, Italy: Società Editrice Universo; 2000, pp. 1759–61.
21. **Duncan DB.** Multiple range test for correlated and heteroscedastic means. *Biometrics*. 1957;13:164–204.
22. **Wadden TA, Foster GD.** Behavioral treatment of obesity. *Med Clin North Am*. 2000;84:441–61.
23. **Yanovski SZ, Yanovski JA.** Obesity. *N Engl J Med*. 2002; 346:591–602.
24. **Bray GA.** Pharmacological treatment of obesity. In: Bray GA, Bouchard C, James WPT, eds. *Handbook of Obesity.* New York: Marcel Decker; 1998, pp. 953–76.
25. **Wadden TA, Womble LG, Sarwer DB, Berkowitz RI, Clark VL, Foster GD.** Great expectations: I'm losing 25% of my weight no matter what you say. *J Consult Clin Psychol*. 2003;71:1084–9.
26. **Colvin RH, Olson SB.** A descriptive analysis of men and women who have lost significant weight and are highly successful at maintaining the loss. *Addict Behav*. 1983;8:287–95.
27. **Marston AR, Criss J.** Maintenance of successful weight loss: incidence and prediction. *Int J Obes Relat Metab Disord*. 1984;8:435–9.
28. **Klem ML, Wing RR, McGuire MT, Seagle HM, Hill JO.** A descriptive study of individuals successful at long-term maintenance of substantial weight loss. *Am J Clin Nutr*. 1997;66: 239–46.
29. **Byrne S, Cooper Z, Fairburn C.** Weight maintenance and relapse in obesity: a qualitative study. *Int J Obes Relat Metab Disord*. 2003;27:955–62.