

# Primary Care Physicians' Attitudes about Obesity and Its Treatment

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## Abstract

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**Objective:** This study was designed to assess physicians' attitudes toward obese patients and the causes and treatment of obesity.

**Research Methods and Procedures:** A questionnaire assessed attitudes in 2 geographically representative national random samples of 5000 primary care physicians. In one sample ( $N = 2500$ ), obesity was defined as a BMI of 30 to 40 kg/m<sup>2</sup>, and in the other ( $N = 2500$ ), obesity was defined as a BMI > 40.

**Results:** Six hundred twenty physicians responded. They rated physical inactivity as significantly more important than any other cause of obesity ( $p < 0.0009$ ). Two other behavioral factors—overeating and a high-fat diet—received the next highest mean ratings. More than 50% of physicians viewed obese patients as awkward, unattractive, ugly, and noncompliant. The treatment of obesity was rated as significantly less effective ( $p < 0.001$ ) than therapies for 9 of 10 chronic conditions. Most respondents (75%), however, agreed with the consensus recommendations that a 10% reduction in weight is sufficient to improve obesity-related health complications and viewed a 14% weight loss (i.e.,  $78 \pm 5$  kg from an initial weight of 91 kg) as an acceptable treatment outcome. More than one-half (54%) would spend more time working on weight management

issues if their time was reimbursed appropriately.

**Discussion:** Primary care physicians view obesity as largely a behavioral problem and share our broader society's negative stereotypes about the personal attributes of obese persons. Practitioners are realistic about treatment outcomes but view obesity treatment as less effective than treatment of most other chronic conditions.

## Introduction

Two-thirds of Americans are either overweight or obese (1), prompting calls from the National Institutes of Health (2), the U.S. Surgeon General (3), and the World Health Organization (4) to treat obesity seriously. Despite these calls, patient surveys indicate that less than one-half of obese (BMI  $\geq 30$ ) individuals are advised by their physicians to lose weight (5,6). Physician surveys also suggest that doctors are reluctant to address weight management issues, especially among those who are not extremely overweight (7,8). The factors responsible for this reluctance are unknown.

It is possible that practitioners' hesitation to treat obesity is caused by their negative attitudes about this disorder. Physicians, like the rest of our society, hold critical views of obese patients, often stereotyping them as "weak-willed, ugly, and awkward" (9), "lack[ing in] self-control," and "lazy" (10). These attitudes likely lead to avoiding interactions with obese patients regarding weight management (8,11). The heavier the patient, the more negative the attitudes and distancing behaviors of physicians (8,12).

Physicians' reluctance to treat obesity might also be influenced by their beliefs about the causes of this condition. In a survey of experts, genetic factors were rated an important cause of obesity (13), but in larger studies of general practitioners, behavioral factors were rated as more important (12,14). Finally, it is possible that physicians feel ill-equipped to provide treatment or that the available treatments for obesity are ineffective (7,15). Frank (16) has hypothesized that the treatment of obesity is viewed by

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**Table 1.** Causes of obesity

Causes	Mean $\pm$ SD	1	2	3	4	5	1 and 2	4 and 5
Physical inactivity <sup>a</sup>	4.3 $\pm$ 0.8	0.0	2.6	13.1	40.3	44.0	2.6	84.3
Overeating <sup>b</sup>	3.9 $\pm$ 1.0	1.0	7.6	22.4	39.9	29.2	8.6	69.0
High fat diet <sup>b,c</sup>	3.8 $\pm$ 0.9	1.6	6.2	24.4	44.9	22.9	7.8	67.8
Genetic factors <sup>d</sup>	3.5 $\pm$ 1.0	1.9	16.5	30.6	33.2	17.5	18.5	50.7
Poor nutritional knowledge <sup>d,e</sup>	3.4 $\pm$ 1.0	2.1	16.7	34.7	34.5	11.8	18.8	46.4
Psychological problems <sup>d,e,f</sup>	3.3 $\pm$ 1.0	2.1	19.2	34.3	32	12.5	21.3	44.5
Repeated dieting (weight cycling) <sup>g</sup>	3.1 $\pm$ 1.0	4.1	21.9	38.2	27.2	8.4	25.9	35.7
Restaurant eating <sup>h</sup>	3.0 $\pm$ 1.0	6.2	26.7	36.3	25.2	5.7	32.8	30.9
Lack of willpower <sup>h,i</sup>	2.9 $\pm$ 1.1	6.8	35.6	25.0	22.4	10.2	42.3	32.6
Metabolic defect <sup>j</sup>	2.5 $\pm$ 1.1	13.5	48.3	18.5	13.7	5.9	61.8	19.5
Endocrine disorder <sup>k</sup>	2.3 $\pm$ 0.9	15.7	56.4	16.2	8.5	3.1	72.1	11.6

Factors are listed in order of mean ratings; this was not the order displayed in the questionnaire. Values, other than the mean, represent the percentage of respondents who endorsed each category (1, not at all important; 2, somewhat important; 3, moderately important; 4, very important; 5, extremely important). Items sharing the same superscript do not differ significantly from each other as determined by a paired sample Student's *t* test. Significant differences at  $p < 0.0009$  (adjusted for 55 comparisons).

many physicians as futile. Surprisingly few data have been collected about physicians' expectations about obesity treatment outcomes.

To better understand potential barriers to treating obese individuals and the condition of obesity, we assessed physicians' attitudes about obese patients and the causes and treatment of obesity. In addition, we examined the factors that influence these attitudes, including physician characteristics and how obesity was defined.

## Research Methods and Procedures

### Survey

The survey assessed five different domains (described below) concerning physicians' attitudes toward obesity and its treatment. The items had been piloted in a smaller survey of members of the New Jersey Academy of Family Physicians. The purpose of the pilot was to resolve any logistical issues (e.g., mailing, confusing questions) before distributing the survey to a larger sample. Minor modifications were made (e.g., deleting confusing questions, rewording some items) before distribution to the larger sample, described below. The survey required <10 minutes to complete. The study was approved by the Institutional Review Board of the University of Pennsylvania.

### Causes of Obesity

Beliefs about the causes of obesity were assessed by having physicians rate the importance of 11 factors in

contributing to this disorder. These items included both biological (e.g., genetic factors) and behavioral (e.g., overeating) causes (see Table 1). Items were rated using a 1-to-5 scale (1, not at all important; 2, somewhat important; 3, moderately important; 4, very important; 5, extremely important). Several items (i.e., lack of will power, physical inactivity, genetic factors, metabolic defect, and repeated dieting-weight cycling) had been used in a previous study (13).

### Attributes of Obese Individuals

Nine semantic differential items assessed physicians' attitudes about the personal characteristics of obese individuals (Table 2). A Likert-type scale was anchored at each end by two opposing personal characteristics, such as "neat" vs. "sloppy." For each of the nine items, respondents used a seven-point scale to indicate where they placed obese individuals along the continuum. The adjectives were randomly ordered, as was the placement (first or last) of the negative attributes. Some of these semantic differential items had appeared in previous studies, either as single adjectives (i.e., weak-willed, ugly) (9) or as a set of opposing adjectives (i.e., honest vs. dishonest, pleasant vs. unpleasant, graceful vs. awkward) (17).

### Beliefs about Treatment

A five-point Likert-type scale (1, strongly disagree; 2, disagree; 3, neutral; 4, agree; 5, strongly agree) was used to

**Table 2.** Physicians' beliefs about the personal characteristics of obese individuals

Adjectives	Mean $\pm$ SD	1	2	3	4	5	6	7	1 to 3	5 to 7
Awkward . . . Graceful	4.8 $\pm$ 1.0	0.5	0.9	3.1	33.9	37.3	20.3	4.1	4.4	61.7
Unattractive . . . Attractive	4.7 $\pm$ 1.0	0.5	1.0	6.3	38.9	31.6	16.9	4.8	7.8	53.2
Ugly . . . Handsome	4.6 $\pm$ 0.9	0.5	1.7	1.7	46.6	33.6	12.6	3.2	3.9	49.5
Noncompliant . . . Compliant	4.6 $\pm$ 1.1	0.5	2.5	8.1	38.0	28.4	18.5	3.9	11.2	50.8
Weak-Willed . . . Strong-Willed	4.5 $\pm$ 1.0	0.7	2.0	5.1	48.0	27.0	14.1	2.9	7.8	44.0
Lazy . . . Industrious	4.2 $\pm$ 1.0	1.0	3.6	7.7	58.0	21.2	6.3	2.2	12.3	29.7
Sloppy . . . Neat	4.2 $\pm$ 1.0	1.2	4.3	7.7	52.2	25.0	7.1	2.6	13.1	34.7
Unpleasant . . . Pleasant	3.4 $\pm$ 1.1	3.9	18.5	22.1	46.4	6.1	2.2	0.7	44.6	9.0
Dishonest . . . Honest	3.4 $\pm$ 1.0	6.0	16.2	13.9	60.5	2.0	0.9	0.5	36.1	3.4

All values, other than the mean, represent the percentage of respondents who endorsed each category (1 to 7). The higher the mean score, the more the first adjective of the pair was endorsed by physicians. Adjective pairs are listed in order of mean ratings; adjectives were not displayed in this order on the questionnaire nor were all negative attributes listed first.

determine attitudes toward obesity treatment. This series of 20 items examined physicians' agreement or disagreement with statements regarding the nature of obesity as a medical condition, the long-term prognosis for this disorder, and attitudes about treatment (i.e., patients' ability to succeed in weight management, physicians' feeling of competency in prescribing weight loss programs) (Table 3).

### Weight Loss Outcomes

To determine attitudes regarding various weight loss outcomes, three questions were presented based on a hypothetical obese patient [a 42-year-old woman with type 2 diabetes who is 5 feet 5 inches (1.7 m) and weighs 200 pounds (91 kg)]. Physicians were asked to provide a weight (in pounds) that, after treatment, would represent an ideal weight, a successful weight, and an acceptable weight (Table 4). These actual weights were then transformed to yield weight loss and percentage weight loss (based on the initial weight of 91 kg).

### Relative Efficacy of Obesity Treatment

Beliefs about the relative efficacy of obesity treatment were examined using a three-point Likert-type scale (1, more effective; 2, equally effective; 3, less effective). Respondents compared the efficacy of obesity treatment with therapies for 10 other chronic conditions (Table 5). Demographic information, including the respondent's gender, ethnicity, age, weight, and height, was also obtained.

### Sample Selection and Mailing

To assess the effect of the degree of obesity on physicians' attitudes and treatment, questionnaires were mailed to two geographically representative, national random samples of members of the American Medical Association who

specialized in family practice (PPS Medical Marketing, Fairfield, NJ). Each sample consisted of 2500 physicians (1250 men and 1250 women). To assess any effects of the degree of obesity on physicians' attitudes, one sample of 2500 received a questionnaire that defined obesity as a BMI of 30 to 40 kg/m<sup>2</sup>, whereas the other sample of 2500 received a questionnaire in which obesity was characterized by a BMI > 40 kg/m<sup>2</sup>. To help physicians better understand the BMI categories, each questionnaire provided three examples of weights [based on heights of 5 feet 4 inches (1.63 m), 5 feet 7 inches (1.70 m), and 6 feet (1.83 m)] that corresponded to the particular BMI category (i.e., BMI of 30 to 40 kg/m<sup>2</sup> or BMI > 40 kg/m<sup>2</sup>). Otherwise, questionnaires were identical. Questionnaires were mailed with cover letters explaining that responses were confidential and anonymous. A self-addressed, stamped envelope was provided. Seventy-four questionnaires (1.5%) were returned as undeliverable.

### Participant Characteristics

Six hundred twenty physicians responded, resulting in a 13% response rate. Approximately equal numbers of physicians completed the two questionnaires [i.e., the questionnaire that defined obesity as a BMI of 30 to 40 kg/m<sup>2</sup> ( $n = 316$ ) and the one that defined obesity as a BMI of >40 kg/m<sup>2</sup> ( $n = 304$ )]. There were no significant differences in response rate, BMI, age, or sex between physicians in these two groups. Therefore, the data were collapsed and analyzed together for all findings except those related to how obesity was defined (i.e., 30 to 40 kg/m<sup>2</sup> vs. >40 kg/m<sup>2</sup>).

Physicians had a mean age of 44.0  $\pm$  11.8 years, weight of 77.0  $\pm$  15.8 kg, and a BMI of 25.5  $\pm$  15.8 kg/m<sup>2</sup>. Overall, 63% of respondents were male, 81% were white, and 12% had a BMI  $\geq$  30 kg/m<sup>2</sup>. Men were significantly older and heavier than women (Table 6).

**Table 3.** Physicians' attitudes towards obesity treatment

Items	Mean $\pm$ SD	1 (Strongly disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly agree)	1 and 2	4 and 5
I believe it's necessary to educate obese patients on the health risks of obesity	4.5 $\pm$ 0.6	0.3	0.6	3.9	37.1	57.9	1.0	95.0
Obesity is a chronic disease	4.5 $\pm$ 0.9	2.5	2.6	2.9	30.6	61.4	5.1	92.0
I make accommodations for obese patients <sup>a</sup>	4.4 $\pm$ 0.7	1.1	1.6	2.9	40.8	53.5	2.8	94.3
Obesity is associated with serious medical conditions	4.4 $\pm$ 0.8	0.8	2.3	5.5	38.1	53.3	3.1	91.4
Physicians should be role models by maintaining a normal weight	4.1 $\pm$ 0.8	0.6	1.6	12.8	52.5	32.4	2.3	84.9
A 10% reduction in body weight is sufficient to significantly improve obesity-related health complications	3.8 $\pm$ 0.9	0.5	10.5	13.8	55.4	19.6	11.0	75.0
I would spend more time working on weight management issues if my time was reimbursed appropriately	3.5 $\pm$ 1.1	4.5	15.7	25.8	32.0	21.9	20.3	53.9
I feel competent in prescribing weight loss programs for obese patients	3.4 $\pm$ 1.0	3.1	19.2	28.4	38.6	10.7	22.2	49.4
Most obese patients are well aware of the health risks of obesity	3.2 $\pm$ 1.0	4.7	26.9	19.8	43.0	5.5	31.7	48.5
Medications to treat obesity should be limited to short-term (<3 months) use	3.2 $\pm$ 1.2	8.3	24.0	24.3	28.4	15.0	32.3	43.4
Most obese patients could reach a normal weight (for height) if they were motivated to do so	3.1 $\pm$ 1.1	6.2	27.4	25.3	32.9	8.3	33.5	41.2
Most obese patients will not lose a significant amount of weight	3.1 $\pm$ 1.0	6.2	28.6	22.7	39.0	3.6	34.7	42.5
I have negative reactions towards the appearance of obese patients	3.0 $\pm$ 1.1	11.7	22.8	28.1	33.5	3.9	34.5	37.4
If a patient meets the appropriate criteria for obesity surgery, I would recommend an evaluation by a surgeon <sup>b</sup>	2.7 $\pm$ 1.1	13.2	31.9	31.2	19.2	4.6	45.1	23.8
Medications to treat obesity should be used chronically	2.6 $\pm$ 1.2	23.3	29.2	21.4	19.0	7.1	52.5	26.1
I am usually successful in helping obese patients lose weight	2.6 $\pm$ 0.9	8.9	42.1	34.7	12.6	1.6	51.1	14.3
For most obese patients, long-term maintenance of weight loss is impossible	2.5 $\pm$ 1.1	18.2	40.5	19.6	17.5	4.2	58.7	21.7
It is acceptable to use "scare tactics" to obtain compliance of the obese patient	2.3 $\pm$ 1.0	19.0	42.7	24.8	11.9	1.6	61.7	13.5
I feel uncomfortable when examining an obese patient	2.1 $\pm$ 1.0	29.4	45.1	16.4	8.0	1.1	74.5	9.1
It is difficult for me to feel empathy for an obese patient	2.0 $\pm$ 0.9	32.1	48.1	12.3	6.8	0.6	80.2	7.5

Items are listed in order of mean rating; this was not the order displayed in the questionnaire. Values, other than the mean, represent the percent of respondents who endorsed each category (1 to 5).

<sup>a</sup> Accommodations include: large blood pressure cuffs, large examination gowns, or armless chairs.

<sup>b</sup> Appropriate criteria for obesity surgery was described as: BMI greater than 40, significant comorbidities.

**Table 4.** Weight loss outcomes<sup>a</sup>

Weight outcome	Mean weight (kg)	Mean BMI (kg/m <sup>2</sup> )	Mean weight loss <sup>e</sup> (kg)	Percent weight loss <sup>f</sup>
Ideal weight <sup>b</sup>	63 ± 5	23 ± 2	28 ± 5	31%
Successful weight <sup>c</sup>	73 ± 6	27 ± 2	18 ± 6	20%
Acceptable weight <sup>d</sup>	78 ± 5	29 ± 2	12 ± 5	14%

<sup>a</sup> Based on an obese, female patient with type 2 diabetes who is 1.7 m (5 feet 5 inches), 91 kg (200 lbs), with a body mass index of 33 kg/m<sup>2</sup>.

<sup>b</sup> Ideal weight = What would you consider an ideal weight for this patient to achieve?

<sup>c</sup> Successful weight = What weight would be less than ideal, but still one that you would consider a very successful outcome?

<sup>d</sup> Acceptable weight = What would be the highest weight, that is still less than her current weight, that you could view as an acceptable outcome?

<sup>e</sup> Mean weight loss = Mean difference in weight based on an initial weight of 91 kg and selected weight outcome (i.e., mean weight loss = initial weight – weight outcome).

<sup>f</sup> Percentage weight loss = percentage reduction in initial weight required to achieve the weight selected.

### Statistical Analysis

Each item of the survey was analyzed using descriptive statistics including the mean, SD, and frequency distributions (18). ANOVA was employed to assess the effects of how obesity was defined (BMI = 30 to 40 vs. > 40 kg/m<sup>2</sup>), physician sex (men vs. women), age (<44 years vs. ≥44 years), and physician's BMI (<25 kg/m<sup>2</sup> vs. ≥25 kg/m<sup>2</sup>). Given the large number ( $n = 55$ ) of items in the questionnaire, significance levels were adjusted for multiple comparisons. Each section of the questionnaire (i.e., causes of obesity, attributes of obese individuals, beliefs about treat-

ment, etc.) was treated as a family of items. For each family of items,  $\alpha$  was set at 0.05. The per test  $\alpha$  level for any specific item was set at  $0.05/k$ , where  $k$  was the number of items in that family. For example, the per test  $\alpha$  level for the section on causes (11 items) was  $0.05/11 = 0.005$ , whereas that for attitudes (20 items) was  $0.05/20 = 0.003$ .

## Results

### Causes of Obesity

Ratings for each of the 11 causes are listed in Table 1. Physical inactivity (mean rating of 4.3) was rated signifi-

**Table 5.** Relative efficacy of obesity treatment compared with that for ten chronic disorders

Obesity treatment effectiveness	Mean ± SD	1 (More effective)	2 (Equally effective)	3 (Less effective)
Hypertension	2.9 ± 0.4	2.3	6.7	91.0
Asthma	2.9 ± 0.3	1.1	8.3	90.5
Coronary artery disease	2.8 ± 0.5	2.3	14.9	82.8
Hyperlipidemia	2.8 ± 0.5	2.6	16.7	80.6
Diabetes	2.8 ± 0.5	1.6	19.6	78.7
Depression	2.7 ± 0.5	2.5	21.9	75.6
Osteoarthritis	2.6 ± 0.6	6.7	31.7	61.6
Cigarette smoking	2.2 ± 0.6	11.6	56.1	32.2
Alcoholism	2.1 ± 0.6	13.6	63.7	22.7
Drug addiction*	2.0 ± 0.7	19.4	57.4	23.0

Note: values, other than the mean, represent the percent of respondents who endorsed each category (1 to 3). Mean ratings of 2 are equally effective as obesity treatment, whereas mean ratings greater than 2 are less effective than obesity treatment.

\* Treatment for all conditions is perceived to be significantly different (i.e., different from 2.0 at  $p < 0.001$  level) from the perceived efficacy of obesity treatment, except drug addiction, which is rated as equally effective to obesity treatment.

**Table 6.** Participant characteristics

Characteristic	Females	Males	ALL
<i>N</i>	232 (37.4%)	388 (62.6%)	620
Age*	38.7 ± 9.1	47.2 ± 12.1	44 ± 11.8
Year medical degree received	1987.6 ± 9.0	1978.9 ± 12.4	1982.2 ± 12.0
BMI*	24.6 ± 5.2	26.1 ± 3.6	25.5 ± 4.3
BMI ≥ 30	11.2%	12.1%	12.0%
White	80.9%	81.5%	81.3%
Asian	9.1%	6.5%	7.5%
Hispanic	3.0%	4.7%	4.1%
African American	6.5%	3.2%	4.4%
Other ethnic categories	0.4%	3.9%	2.6%

\* Significantly different ( $p < 0.001$ ) between females and males.

cantly more important than any other cause of obesity ( $p < 0.0009$ ). Two other behavioral factors—overeating and a high-fat diet—received the next highest mean ratings (3.9 and 3.8, respectively; 3, moderately important; 4, very important; 5, extremely important). Genetic factors, poor nutritional knowledge, and psychological problems were the next highest rated group of variables (3.3 to 3.5). Metabolic defect (2.5) and endocrine disorder (2.3) were rated as the least important causes (2, somewhat important).

More than two-thirds of physicians viewed physical inactivity, overeating, and high-fat diet as very or extremely important (Table 1). Approximately fifty percent rated genetic factors, poor nutritional knowledge, and psychological problems as very or extremely important. Only one-third of respondents rated lack of willpower as a very or extremely important cause of obesity.

#### **Attributes of Obese Individuals**

As seen in Table 2, mean ratings across all adjectives were neutral (3.4 to 4.8 on a seven-point scale on which 4 = neutral). However, 50% or more of physicians viewed obese patients as awkward, unattractive, ugly, and noncompliant (scores of 5, 6, or 7 on the seven-point scale). Approximately one-third (30% to 45%) characterized them as weak-willed, sloppy, or lazy. In contrast, only 9% and 3% of respondents indicated that obese individuals were unpleasant and dishonest, respectively.

#### **Beliefs about Treatment**

Table 3 presents physicians' attitudes toward the treatment of obesity. Nearly all (85% or more) agreed (i.e., score of 4, agree or 5, strongly agree) that: they felt obligated to educate on health risks, obesity is a chronic disease, obesity is associated with serious medical conditions, they make

accommodations (e.g., large blood pressure cuffs) for obese patients, and physicians should be role models by maintaining a normal weight. Most (75%) also agreed with the consensus recommendations that a 10% reduction in weight is sufficient to improve obesity-related health complications. Approximately one-half (49%) felt competent in prescribing weight loss, and 54% would spend more time working on weight management issues if their time was reimbursed appropriately.

Regarding medication use, 43% of respondents felt that weight loss medications should be limited to short-term (i.e., 12 weeks) use; similarly, only 26% felt that obesity medications should be used chronically. Regarding expectations about weight loss treatment, ~40% felt that obese patients would not lose a significant amount of weight, and one-third did not believe that patients could reach normal weight. Similarly, only 22% felt that maintaining weight loss in the long term was possible.

Regarding interactions with obese patients, 37% of respondents reported having negative reactions toward the appearance of obese patients, but <10% felt uncomfortable examining obese patients or found it difficult to feel empathy. Less than one-half of physicians felt that patients were aware of the health risks of obesity. Most (61%) disagreed with the use of scare tactics.

#### **Weight Loss Outcomes**

For an obese woman (1.7 m, 91 kg) with type 2 diabetes, physicians selected ideal, successful, and acceptable weight outcomes of  $63 \pm 5$ ,  $73 \pm 6$ , and  $78 \pm 5$  kg, respectively. These weights represented BMIs of 23, 27, and 29 kg/m<sup>2</sup>, respectively. To achieve these weights, the patient would have to reduce her initial weight by 31%, 20%, and 14%, respectively (Table 4).

### ***Relative Efficacy of Obesity Treatment***

The efficacy of obesity treatment was compared with that for 10 other chronic conditions. Nine of the 10 mean ratings were significantly ( $p < 0.0001$ ) higher than 2.0 (1, more effective; 2, equally effective; 3, less effective). Thus, physicians rated the therapies for all chronic conditions, except drug addiction, as significantly more effective than the treatment of obesity (Table 5).

### ***Effect of Physician Characteristics and BMI Definition***

Table 7 lists items for which there were significant effects for physician BMI, age, and gender. Most differences were based on gender, with women attributing fewer negative attributes to obese persons. These differences persisted when controlling for the lower BMIs and younger ages in women. However, the actual differences in means score were quite small (0.2 to 0.5 on five- to seven-point scales). Compared with those who received the survey with obesity defined as a BMI of 30 to 40 kg/m<sup>2</sup>, physicians for whom obesity was defined as a BMI > 40 were significantly less likely to believe that ideal weight could be achieved. In addition, they were more likely to believe that obesity is attributable to a metabolic defect or genetic factors ( $p < 0.005$ ), although the mean differences, again, were quite small (Table 7).

## **Discussion**

This study revealed several principal findings about the factors that may affect physicians' reluctance to treat obesity. The first is that physicians view obesity largely as a behavioral problem, with physical inactivity as the most important cause. A survey of 255 general practitioners in the United Kingdom also found that physical inactivity was rated as the most important cause of obesity (12). In our sample, obesity also seemed to be attributed to negative stereotypes. Nearly one-half of physicians rated "psychological problems" as very or extremely important causes of obesity. These data suggest that obesity will be seen as a matter of behavioral management or psychological disturbance. Traditional medical training has placed a greater emphasis on the biological basis of disease rather than on the principles of behavioral science. As such, physicians may not feel fully equipped to address behavioral issues.

These beliefs about the etiology of obesity likely influence physicians' beliefs about the personal characteristics of obese patients. Mean ratings (3.4 to 4.8) of the nine bipolar adjectives (Table 2) clustered around a neutral score (i.e., 4 on a 1-to-7 scale), which may be accounted for by a social desirability bias (19,20). However, an examination of the frequency distributions (scores of 5, 6, or 7 on a 1-to-7 scale) revealed that more than 50% of physicians viewed obese patients as awkward, unattractive, ugly, and noncompliant. More than one-third (35% to 45%) characterized

obese individuals as weak-willed, sloppy, or lazy. Studies using similar items, conducted decades ago, found remarkably similar results. For example, Maddox and Liederman, in 1969, reported that obese individuals were characterized as weak-willed by 60% of physicians, ugly by 54%, and awkward by 55% (9). This compares with 44%, 50%, and 62%, respectively, in our sample. Similarly, Price et al. in 1987 (10) found that 39% of physicians characterized obese persons as lazy, compared with 30% in this sample. Although there is some improvement over time, the persistence of these negative attitudes is likely to adversely affect physicians' interest in treating obesity.

Our data about physicians' attitudes toward obesity treatment (Table 3) suggest that practitioners are well educated about the medical consequences of excess weight and the benefits of modest amounts (10%) of weight loss. They are less inclined to use more aggressive treatments such as pharmacotherapy and surgery in carefully selected patients (21,22). It is surprising that, although 92% viewed obesity as a chronic condition, only 26% thought anti-obesity agents should be used chronically. This could be due to the history of safety concerns with some medications (e.g., fenfluramine) (21) or the fact that obesity is viewed as a matter of behavior and willpower that does not merit long-term pharmacological treatment. It was also striking that only 23% of physicians would recommend evaluation by a surgeon for bariatric surgery in patients who met criteria. Even more striking was the lack of difference in physicians' likelihood of recommending surgical evaluation in patients who had BMIs of 30 to 40 vs. >40 kg/m<sup>2</sup>. It may be that physicians are less informed about the potential benefits of surgery, believe the risks associated with surgery outweigh the potential benefits in this population, or do not have access to qualified bariatric surgeons. Surgical treatment, although not without risk, is the most effective long-term treatment for extreme obesity and is likely to be used more widely given that the number of Americans with BMIs >40 has nearly tripled in the last decade (23).

Our data seem to support Frank's (16) hypothesis that physicians feel ill-equipped to treat obesity or believe that treatment is futile. Less than 50% of our respondents felt competent in prescribing weight loss programs, and only 14% believed that they are usually successful in helping obese patients lose weight. Less than one-half felt that it is possible for obese patients to lose a significant amount of weight. The notion of futility is underscored by the data on relative efficacy (Table 5). The treatment of nine of 10 chronic conditions was rated as significantly more effective than the treatment of obesity. Weight management was judged to be only as effective as the treatment of drug addiction. It is unclear whether these attitudes result from beliefs regarding short- and long-term efficacy of treatment, from actual experience with treatment, or instead from reading the literature on the difficulty of long-term weight

**Table 7.** Effects of physicians' characteristics and definition of obesity

Physician characteristics	Mean ± SD	Mean ± SD	p Value
BMI	<25	≥25	–
Medications used to treat obesity should be used chronically <sup>2</sup>	2.4 ± 1.2	2.7 ± 1.2	0.0007
I would spend more time working on weight management issues with patients if my time was reimbursed appropriately <sup>2</sup>	3.4 ± 1.1	3.7 ± 1.1	0.002
I believe it's necessary to educate obese patients on the health risks of obesity <sup>2</sup>	4.6 ± 0.6	4.4 ± 0.7	0.006
Age	<44 years	≥44 years	
Obesity is associated with serious medical conditions <sup>2</sup>	4.5 ± 0.7	4.3 ± 0.8	0.0007
Obesity is due to a lack of willpower <sup>1</sup>	2.8 ± 1.1	3.1 ± 1.2	0.001
Obesity is due to overeating <sup>1</sup>	3.8 ± 0.9	4.0 ± 1.0	0.006
Sex	Males	Females	
Most obese patients could reach a normal weight (for height) if motivated to do so <sup>2</sup>	3.2 ± 1.1	2.9 ± 1.0	0.004
Obesity is due to repeated dieting <sup>1</sup>	4.2 ± 0.6	4.1 ± 0.6	0.000
Obesity is due to a lack of willpower <sup>1</sup>	3.1 ± 1.1	2.7 ± 1.0	0.000
Obesity is due to a lack of physical activity <sup>1</sup>	4.2 ± 0.8	4.4 ± 0.7	0.001
It is difficult for me to feel empathy for an obese patient <sup>1</sup>	2.1 ± 0.9	1.8 ± 0.8	0.000
Describe obese patients as ugly <sup>3</sup>	4.7 ± 0.9	4.4 ± 0.9	0.000
Describe obese patients as noncompliant <sup>3</sup>	4.7 ± 1.1	4.4 ± 1.0	0.001
Describe obese patients as unattractive <sup>3</sup>	4.9 ± 1.1	4.4 ± 1.0	0.000
Describe obese patients as neat <sup>3</sup>	3.6 ± 1.1	3.9 ± 1.0	0.005
Describe obese patients as strong-willed <sup>3</sup>	3.3 ± 1.0	3.7 ± 1.0	0.000
Definition of obesity	BMI 30–40	BMI 40+	
Most obese patients could reach a normal weight (for height) if motivated to do so <sup>2</sup>	3.2 ± 1.1	2.9 ± 1.1	0.000
Obesity is due to a metabolic defect <sup>1</sup>	2.4 ± 1.0	2.6 ± 1.1	0.003
Obesity is due to genetic factors <sup>1</sup>	3.4 ± 1.0	3.6 ± 1.0	0.005

The items listed in the table are associated with different scales.

<sup>1</sup> Items regarding the causes of obesity were measured on a 5 point scale (1—Not at all important, 2—Somewhat important, 3—Moderately important, 4—Very important, 5—Extremely important).

<sup>2</sup> Items regarding physicians' beliefs about treatment were measured on a 5 point scale (1—Strongly disagree, 2—Disagree, 3—Neutral, 4—Agree, 5—Strongly agree).

<sup>3</sup> Items describing physicians' ratings regarding the attributes of obese individuals were rated on a seven-point scale. The higher the mean score, the more the second adjective of the pair listed on the questionnaire was endorsed by physicians, as illustrated below.

handsome	⋯⋯⋯⋯⋯	ugly
compliant	⋯⋯⋯⋯⋯	noncompliant
attractive	⋯⋯⋯⋯⋯	unattractive
sloppy	⋯⋯⋯⋯⋯	neat
weak-willed	⋯⋯⋯⋯⋯	strong-willed

control, even in university-based specialty centers (24). Moreover, any inclination to treat obesity is likely to be dampened by the lack of reimbursement. More than one-

half of physicians indicated they would spend more time treating obesity if they were appropriately reimbursed. However, ~42% had neutral attitudes or disagreed with the



statement. Given the wording of the statement, it is unclear whether physicians are indifferent to the issue of reimbursement or whether they would avoid treating obesity regardless of reimbursement. It has been suggested that the structure of the health care system in the U.S. not only impacts reimbursement but also effects the physician-patient relationship, making it more difficult for physicians to treat this chronic condition (25).

It is encouraging that over 90% of the sample made special accommodations (including large blood pressure cuffs, large gowns, and armless chairs) for obese patients because the lack of these accommodations can create practical problems (26) that deter obese patients from obtaining preventive care and treatment for conditions other than obesity (27–29). The small number (<10%) of physicians who felt uncomfortable when examining obese patients, or found it difficult to feel empathy, compares favorably with a 1992 study (30) in which 51% of nurses felt uncomfortable examining obese patients, and 43% found it difficult to feel empathy.

The data on weight loss outcomes suggest that physicians have more reasonable expectations about treatment than do obese patients. For example, an acceptable treatment outcome for physicians was a 14% weight loss, which approximates the 10% weight loss produced by most behavioral and/or pharmacological treatments (21,24). In contrast, obese patients view as acceptable a loss of no less than 25% of initial weight (31,32). These findings suggest that unrealistic patient expectations are not driven by physicians' expectations.

Surprisingly, we found few differences based on physician characteristics (including BMI and gender) or how obesity was defined in the survey. Among those that were detected, the mean differences were very small, raising doubts about their clinical significance.

Our study had several limitations. The most significant was a relatively low response rate of 13%. It is likely that this sample may be overrepresented by physicians with an interest in obesity. If so, the negative characteristics attributed to obese individuals and the underutilization of effective treatments may be even more concerning. Studies with higher response rates (7) used multiple follow-up techniques (reminder postcards, repeated mailings). In our pilot study, a second mailing of the questionnaire increased response rate by only 2%; therefore, follow-up letters or questionnaires were not mailed because it appeared unlikely that they would significantly increase response rate in this population. In addition, our study did not assess any potential effects of the gender of the patient because the one clinical example (i.e., weight loss outcomes) was based on a woman. A study by Anderson et al. found an interaction between BMI and gender that suggested that, among patients with BMIs of 25 kg/m<sup>2</sup>, women were more likely to

be encouraged to lose weight. Among those with BMIs of 32 kg/m<sup>2</sup>, men were more likely to be advised to lose weight (33).

The data from this study have several implications. The first is that physicians need to be made more aware of the nonbehavioral underpinnings of obesity. The heritability of obesity has been estimated to be as high as 50% to 70% in modern developed populations (34,35). Although behavioral factors are likely to be partly responsible for the increased prevalence of obesity over time, other factors such as the interaction between genetics and the environment also play important roles. Accurately conceptualizing obesity as both a biological and behavioral condition may help ameliorate some of the negative attitudes physicians (and our broader culture) have about obese individuals. Physicians may also benefit from greater education about pharmacological and surgical treatments that seem to be underutilized. These treatments, in carefully selected patients, can have significant effects on weight- and obesity-related comorbidities (36–39).

Primary care physicians can play a variety of roles in responding to the nation's epidemic of obesity. Options range from providing treatment for obesity-related comorbidities (regardless of an individual's ability to lose weight), to referring patients to appropriate weight management programs, to treating patients directly for weight loss or the prevention of weight gain. Although further research is needed to identify the most appropriate use of their time and resources, primary care physicians can no longer afford to overlook the problem of obesity. When working with obese patients, it will be important to be conscious of any negative or erroneous stereotypes about obesity. As Stunkard suggests, "As with any chronic illness, we rarely have an opportunity to cure, but we do have an opportunity to treat the patient with respect. Such an experience may be the greatest gift that a doctor can give an obese patient" (40).

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