

Confronting and Coping with Weight Stigma: An Investigation of Overweight and Obese Adults

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Abstract

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Objective: This study examined experiences of weight stigmatization, sources of stigma, coping strategies, psychological functioning, and eating behaviors in a sample of 2671 overweight and obese adults.

Research Methods and Procedures: The total sample was partitioned into two subsamples for investigation. Sample I was comprised of 2449 adult women, and Sample II was a matched sample of adult men and women ($N = 222$) that was disaggregated to investigate gender differences. Both samples completed an online battery of self-report questionnaires measuring frequency of weight stigmatization and coping responses to deal with bias, the most common sources of the bias, symptoms of depression, self-esteem, attitudes about weight and obesity, and binge eating behaviors.

Results: Experiences of weight stigmatization, in many forms and across multiple occasions, was common in both samples. A variety of coping strategies were used in response. More frequent exposure to stigma was related to more attempts to cope and higher BMI. Physicians and family members were the most frequent sources of weight bias reported. No gender differences were observed in types or frequency of stigmatization. Frequency of stigmatization was not related to current psychological functioning, al-

though coping responses were associated with emotional well-being.

Discussion: These findings raise questions about the relationship between stigma and psychological functioning and have important implications for obesity treatment and stigma reduction intervention efforts, both of which are discussed.

Key words: stigma, bias, coping, mental health, BMI

Introduction

As the focus on the obesity epidemic has intensified, there has been increasing recognition of the social consequences of being obese, which are serious and pervasive (1,2). Weight-based stigmatization has been documented in multiple areas, including work settings where obese persons have been treated poorly by coworkers and employees and denied jobs and promotions (3,4); educational settings in which obese students have been ridiculed by peers, viewed negatively by educators, and even dismissed from college because of their weight (5,6); and healthcare environments, where obese patients confront bias from health care professionals including doctors, nurses, dietitians, and mental health professionals (7–12).

Negative stereotypes include perceptions that obese people are mean, stupid, ugly, unhappy, less competent, sloppy, lazy, socially isolated, and lacking in self-discipline, motivation, and personal control (2,13–15). Research suggests that anti-fat attitudes begin early in childhood, as young as preschool age (13,16), and that weight bias may be worsening (17). Evidence indicates that negative attitudes in the form of stigma and bias are translated into discriminatory behaviors against obese persons (18).

Despite the apparent pervasiveness of weight bias, few studies have examined the relationship between weight-based stigmatization and psychological well-being. Only two published studies have addressed this relationship, both of which targeted obese treatment samples and found that greater frequency of stigma was positively related to BMI

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and poorer psychological functioning such as higher levels of depression, psychiatric symptoms, body image distress, and lower levels of self-esteem (19,20). Another study reported low self-acceptance levels among severely obese persons, which was largely explained by perceptions of being mistreated due to weight (18). These studies begin to clarify the impact of weight stigma, but more work is needed with larger and more diverse samples, including non-treatment samples and individuals of different weight categories.

In addition, little work has examined how experiences of weight stigma affect eating behaviors, which is important given that obese individuals are vulnerable to unhealthy eating patterns, unsuccessful dieting, and weight cycling. Recent prospective research on weight-based victimization examined eating behaviors among 2516 adolescents, showing that weight-based teasing predicted binge eating at 5 years of follow-up among both men and women, even after controlling for age, race/ethnicity, and socioeconomic status (21). Gender differences also emerged, where weight teasing predicted unhealthy weight control behaviors among men and frequent dieting among women. In addition, retrospective research suggests that a history of appearance-based teasing while growing up is related to a higher frequency of binge eating among obese women with binge eating disorder (BED)¹ (22). Experiences of weight bias could also impact eating behaviors by increasing stress, a commonly proposed antecedent to overeating in some obese individuals (23). Thus, it is critical to determine whether experiences of weight-based stigma may prompt individuals to modify their eating behaviors and to examine whether such changes reflect adaptive or unhealthy eating patterns.

It is also important to examine potential gender differences in experiences of weight stigma, coping responses to bias, and the impact of these variables on emotional well-being. The existing literature has reported mixed findings on gender, with some studies detecting gender differences in weight-based stigmatization (24–27), and other work finding no differences between men and women in levels of weight stigma (18,19). Thus, more work is needed to examine the role of gender in the context of weight bias in order to determine whether there are unique vulnerabilities of men and women in their exposure or responses to weight stigma and its consequences.

Finally, it is important to clarify the most common and frequent interpersonal sources of bias to better inform stigma reduction efforts and to identify ways that obese individuals cope with bias from these sources. Many unanswered questions remain about whether, and to what extent, coping efforts influence emotional well-being and are help-

ful in attenuating the impact of stigmatizing experiences. Coping efforts are complex and may have both positive and negative consequences (20,28). More work is needed to address the relationship between weight stigma and coping and how both of these experiences influence psychological and behavioral outcomes.

The purpose of this research was to address these issues in a large sample of adults by documenting and examining weight-based stigmatization, sources of weight bias, coping strategies to deal with bias, emotional functioning, and eating behaviors. The primary aim of this study was to explore the relationships among these variables and to test the hypothesis that increasing weight would be associated with more stigmatizing experiences and that individuals experiencing more stigmatization would report poorer outcomes on variables of emotional functioning. Although no specific predictions were made regarding the impact of different types of coping strategies to deal with bias, it was expected that coping responses would be related to emotional well-being.

Research Methods and Procedures

The total sample comprised 3304 adults recruited through their membership in a national non-profit, non-commercial, weight loss support group organization with active chapters across the country and a membership of over 200,000 adults. Recruitment involved advertising the study as a voluntary research project at the organization's Web site and in their monthly news magazine. Of the total sample that completed surveys, 633 participants were excluded due to missing data on three or more measures, typically the measures at the end of the battery. Of the remaining subjects, there were 2560 women and 111 men. Given the large gender discrepancy of the sample, the men were extracted, and 111 women from the larger sample were matched for age and BMI using random selection procedures so that meaningful gender comparisons could be analyzed. In cases where multiple women met the criteria for a match to a particular male participant, one woman was chosen using random selection procedures as the final match. This subsample of matched women was excluded from all analyses of the remaining larger sample of 2449 women. Results for the larger female sample (Sample 1, $N = 2449$) and matched sample (Sample 2, $N = 222$) are reported separately.

Measures

Participants completed a battery of self-report measures online to assess weight-based stigmatization, coping responses to stigmatizing situations, psychological functioning, eating behaviors, and beliefs and attitudes about weight. A Web site was constructed for this purpose, and completed surveys were submitted electronically and anon-

¹ Nonstandard abbreviations: BED, binge eating disorder; BAOP, Beliefs about Obese Persons; ATOP, Attitudes toward Obese People; BDI, Beck Depression Inventory; SD, standard deviation; MANOVA, multivariate analysis of the variance.

ymously. One hundred seven participants voluntarily printed the surveys from the Web site and mailed their completed batteries in paper format.

Demographic and Weight Information. Participants were asked to report their age, gender, ethnicity, height, weight, childhood weight status (using “underweight,” “average,” or “overweight” as response choices), and age of first dieting attempt. Two final items were included to assess present satisfaction with body weight and body shape, which used a Likert scale ranging from 1, very satisfied to 4, very dissatisfied.

Experiences of Weight Stigma. A modified version of Myers and Rosen’s Stigmatizing Situations Inventory (1999) was used to assess experiences of weight stigma (20). Pilot work revealed that respondents reported difficulty in estimating the frequency of specific stigmatizing encounters using the survey’s 10-point Likert scale. In addition, despite the broad scale of this measure, relatively low subscale means have been reported (19,20). Therefore, we modified the scale to a four-point scale (0, never; 1, once in your life; 2, more than once in your life; and 3, multiple times). Higher scores on this measure indicate increased frequency of stigmatizing experiences. As with previous research on this measure, the internal consistency was found to be high for the overall measure ($\alpha = 0.96$). There were 11 subscales in this questionnaire (see Table 2 for subscale categories). Subscale reliabilities ranged from 0.66 to 0.88.

Coping Responses to Weight Stigma. A modified version of Myers and Rosen’s Coping Responses Inventory (1999) was used to assess whether and how often participants used different strategies to cope with stigmatizing situations based on their weight (20). This survey provides a list of 99 specific coping strategies. The original measure used a 10-point Likert scale to assess frequency of coping strategies. After pilot work in which respondents reported difficulty estimating the frequency of specific coping responses to stigma using the survey’s 10-point Likert scale, we modified this to a four-point scale (0, never; 1, once in your life; 2, more than once in your life; and 3, multiple times). Higher scores reflect increased use of coping responses in response to stigmatizing experiences. This measure demonstrated very good overall reliability ($\alpha = 0.97$). There were 21 subscales in this questionnaire. Subscale reliabilities are similar to those reported by Myers and Rosen (1999); although most had acceptable or good reliability, several subscales with small numbers of items had lower alphas.

Interpersonal Sources of Weight Stigma. To identify common interpersonal sources of stigma against overweight people, participants were provided with a list of 22 individuals (e.g., family members, doctors, employers, educators, strangers) and asked to indicate whether and how often any of these people have been sources of stigmatization or discrimination toward them because of their weight. The same four-point Likert rating scale was used where 0, never,

and 3, multiple times. The α reliability for this scale was 0.90.

Beliefs about Obese Persons (BAOP) Scale. The BAOP is an eight-item Likert rating scale that assesses beliefs about the causes of obesity (29). Each question asks individuals to indicate the extent of agreement or disagreement (+3 to -3) to a specific statement, such as “obesity is really caused by a lack of willpower.” Higher scores indicate beliefs that obesity is not controllable. Coefficient α s from various samples ranged from 0.65 to 0.82. For the present sample, the α reliability was 0.63.

Attitudes toward Obese People (ATOP) Scale. The ATOP is a 20-item Likert rating scale that focuses on perceptions and attitudes about obese people (29). Higher scores reflect more positive attitudes toward obese people. It has acceptable reliability and validity in adult populations, and in the current sample, the α reliability was 0.76.

Rosenberg Self-Esteem Questionnaire. This 10-item measure assesses (on a scale from 0 to 3) general self-worth and global self-esteem (30). Lower scores indicate lower self-esteem. Considerable research has demonstrated validity and reliability of this measure. The α reliability for the current sample was 0.86.

Beck Depression Inventory (BDI). Depressive symptoms were measured using the 21-item BDI (31). The BDI assesses characteristic attitudes and symptoms of depression using a rating scale from 0 to 3, where higher scores reflect more severe depressive symptoms. This measure is widely used and has demonstrated good reliability and validity in adult populations. For the current sample, the α reliability was 0.94.

Questionnaire on Eating and Weight Patterns-Revised. Seven of the 28 questions from the Questionnaire on Eating and Weight Patterns-Revised (32,33) were included to assess binge eating behaviors of participants. These questions assessed overeating, loss of control during binge episodes, and behavioral markers of BED. The wording of these questions is specifically tied to the DSM diagnosis of BED, including the 6-month duration stipulation. Participants who endorsed positive responses for all seven questions only were assigned a BED status. This measure showed good reliability ($\alpha = 0.70$).

Results

Sample 1

Ninety-five percent of the female participants ($N = 2449$) were white, followed by 2% African-American, 1.5% Hispanic, and 1.5% Indian, Asian, or other ethnicities. Table 1 summarizes descriptive statistics for the primary variables. Continuous BMI scores were recoded into six categories based on guidelines of the National Heart, Lung, and Blood Institute (34), which include underweight (BMI of 18.5 or

Table 1. Descriptive statistics for primary variables in Sample 1 ($N = 2449$) and Sample 2 ($N = 222$)

Variable	Sample 1 Mean (SD)	Sample 2	
		Women Mean (SD)	Men Mean (SD)
BMI (kg/m ²)	37.6 (9.39)	39.73 (11.62)	38.05 (9.35)
Age	49.85 (13.79)	50.42 (13.87)	50.71 (13.54)
Age first dieted	20.23 (10.13)	20.33 (12.36)	29.29 (15.80)
BAOP	17.94 (7.72)	17.27 (7.61)	16.20 (7.00)
ATOP	59.68 (16.63)	59.41 (17.06)	56.02 (19.04)
Depression (BDI)	15.51 (12.10)	16.60 (13.59)	17.30 (12.37)
Self-esteem (RSE)*	18.28 (6.22)	18.22 (7.01)	19.06 (6.65)
Aggregated frequency of stigma† (across 11 subscales)	0.98 (0.62)	1.03 (0.58)	1.00 (0.57)
Aggregated frequency of coping with stigma† (across 21 subscales)	1.41 (0.36)	1.50 (.35)	1.44 (0.32)

SD, standard deviation; BAOP, Beliefs about Obese Persons; ATOP, Attitudes toward Obese People; BDI, Beck Depression Inventory; RSE, Rosenberg Self-Esteem scale.

* RSE was scored from 0 to 30.

† Stigma and Coping scales range from 0 to 3.

lower), normal (18.5 to 24.9), overweight (25 to 29.9), obese I (30 to 34.9), obese II (35 to 39.9), and obese III (40 or higher). No adults had BMIs in the underweight range. Of the total sample, 5% were normal weight, 17% were overweight, 22% were obese I, 20% were obese II, and 36% were obese III. With respect to childhood weight, 42% were overweight, 48% were average weight, and 10% were underweight. The average age of the sample was 49.85 [standard deviation (SD) = 13.70], with a range of 18 to 89 years of age.

Experiences of Stigma. The most common stigmatizing situations reported by participants were others making negative assumptions (e.g., others having low expectations of you because of your weight), receiving nasty comments from children, encountering physical barriers and obstacles (e.g., public accommodations being too small), encountering inappropriate comments from doctors, and receiving negative comments from family members. This is similar to recent findings of weight-based stigmatization in an obese treatment-seeking sample (19). On average, participants reported these stigmatizing experiences at least once in their lives. Frequency analyses showed that 40% of the stigmatizing situations were experienced by at least 50% of participants. Table 2 presents descriptive statistics on the stigma subscales.

Correlational analyses yielded several significant relationships between stigma experiences and primary variables

of interest, although it should be noted that most significant correlations were small. Experiencing stigma was positively correlated with BMI ($r = 0.06, p < 0.05$), suggesting that as weight increases, more stigma is experienced. Stigmatizing situations were also positively correlated with coping responses ($r = 0.11, p < 0.01$), indicating that greater frequency of stigma experienced was associated with increased use of coping responses. Individuals who began dieting earlier in life reported more stigmatizing situations than people who started dieting later ($r = -0.06, p < 0.05$). Age was negatively associated with stigma ($r = -0.08, p < 0.05$), indicating that younger individuals reported more stigma than older individuals, primarily in the following areas: nasty comments from children ($r = -0.07, p < 0.01$), negative assumptions from others ($r = -0.06, p < 0.05$), being stared at ($r = -0.07, p < 0.05$), being avoided or excluded ($r = -0.06, p < 0.05$), and confronting physical barriers and obstacles ($r = -0.07, p < 0.05$).

Coping Responses. Table 3 depicts descriptive statistics for subscales of the Coping Responses Inventory. The most frequent coping strategies to deal with stigma among participants were heading off negative comments, using positive self-talk, coping through faith, religion, or prayer, responding by eating more food, and seeking social support from others. These results share similarity to findings of coping strategies among a clinical sample of obese patients (20). Two-thirds of the coping strategies were endorsed by

Table 2. Mean scores of stigmatizing situations and the percentage of respondents experiencing each situation across both samples*

Stigmatizing situation (subscale)	Sample 2					
	Sample 1		Women		Men	
	Mean (SD)	%	Mean (SD)	%	Mean (SD)	%
Others making negative assumptions	1.58 (1.11)	68	1.67 (1.00)	74	1.59 (1.07)	70
Nasty comments from children	1.38 (1.00)	63	1.55 (0.98)	69	1.47 (0.98)	66
Physical barriers and obstacles	1.16 (0.91)	50	1.18 (0.91)	52	1.16 (0.87)	53
Inappropriate comments from doctors	1.12 (0.92)	53	1.21 (0.90)	62	1.11 (0.90)	54
Nasty comments from family	1.05 (0.74)	51	1.08 (0.69)	53	1.21 (0.72)	62
Nasty comments from others	1.04 (0.71)	48	1.12 (0.66)	49	1.07 (0.72)	49
Loved ones embarrassed by your size	0.98 (0.87)	50	0.99 (0.85)	50	1.01 (0.91)	52
Being avoided, excluded, ignored	0.87 (0.95)	48	0.83 (0.87)	50	0.96 (0.90)	54
Being stared at	0.81 (0.76)	37	0.88 (0.78)	46	0.81 (0.60)	40
Job discrimination	0.54 (0.79)	25	0.55 (0.74)	28	0.49 (0.73)	23
Being attacked	0.17 (0.62)	9	0.21 (0.68)	10	0.20 (0.64)	11

% refers to percentage of respondents who experienced the stigmatizing situation. SD, standard deviation.

* Scores for items in each subscale range from 0 (never) to 3 (multiple times).

at least 50% of participants, suggesting that a range of strategies are used to cope with stigmatizing encounters. There were no differences across weight categories or BMI with the types of coping strategies used. However, adults who were overweight as children endorsed less frequent coping responses ($r = -0.11, p < 0.01$) than those who were average or underweight as children. Compared with older individuals, younger people were more likely to report coping with stigma by using negative self-talk ($r = -0.06, p < 0.05$), avoidance ($r = -0.09, p < 0.05$), negative responses ($r = -0.06, p < 0.05$), eating more ($r = -0.06, p < 0.05$), and dieting ($r = -0.07, p < 0.05$).

Correlations also emerged between particular coping responses and certain types of stigmatizing situations. Receiving negative comments from children was positively related to coping by heading off negative comments ($r = 0.06, p < 0.05$), positive responses ($r = 0.06, p < 0.05$), and using negative self-talk ($r = 0.06, p < 0.05$). Experiencing negative assumptions from others was related to coping with negative self-talk ($r = 0.06, p < 0.05$), eating ($r = 0.06, p < 0.05$), positive responses ($r = 0.09, p < 0.01$), humor ($r = 0.06, p < 0.05$), crying ($r = 0.07, p < 0.05$), and avoidance ($r = 0.06, p < 0.05$). Encountering physical barriers/obstacles due to weight was associated with positive responses ($r = 0.09, p < 0.01$), negative responses ($r = 0.09, p < 0.01$), and viewing the situation as the other person's problem ($r = 0.07, p < 0.05$). Being stared at was correlated with viewing the situation as the other person's problem ($r = 0.07, p < 0.05$), using humor ($r = 0.07, p <$

0.05), ignoring the situation ($r = 0.09, p < 0.01$), positive responses ($r = 0.08, p < 0.05$), and negative responses ($r = 0.07, p < 0.05$). Being excluded due to weight was related to positive self-talk ($r = 0.07, p < 0.05$), ignoring the situation ($r = 0.07, p < 0.05$), and positive responses ($r = 0.07, p < 0.05$). Finally, job discrimination was correlated with ignoring the situation ($r = 0.06, p < 0.05$), positive responses ($r = 0.09, p < 0.01$), and dieting ($r = 0.08, p < 0.05$). No specific coping strategies were correlated with the following stigmatizing situations: negative comments from family members or doctors, embarrassment from loved ones, or being attacked.

Interpersonal Sources of Stigma. The most common and frequently reported sources of stigma were family members, followed by doctors, classmates, sales clerks at stores, friends, and coworkers (see Table 4). Increased frequency of interpersonal sources of stigma was not associated with BMI, with the exception of family members ($r = 0.06, p < 0.05$), suggesting that people may confront a range of sources of stigma at all levels of overweight but experience more stigma from family members as their weight increases. Being stigmatized by family members was also associated with coping strategies of eating more ($r = 0.06, p < 0.05$), avoidance ($r = 0.07, p < 0.05$), educating others about stigma ($r = 0.07, p < 0.05$), and ignoring the situation ($r = 0.07, p < 0.05$). Younger individuals were more likely to report being stigmatized by classmates ($r = -0.05, p < 0.05$), teachers ($r = -0.06, p < 0.05$), and nurses ($r = -0.05, p < 0.05$) than older individuals.

Table 3. Coping responses to stigma in descending order of mean scores in Sample 1*

	Mean	SD	% Respondents using strategy
Heading off negative remarks	1.99	0.73	93
Positive self-talk	1.94	0.66	91
Using faith, religion, prayer	1.92	0.85	86
Eating	1.87	1.15	79
Social support from non-overweight people	1.84	0.70	89
Seeing the situation as the other person's problem	1.73	0.83	82
Self-love, self-acceptance	1.71	0.77	86
Humor, witty comebacks, or joking	1.64	0.91	78
Ignoring situation, making no response	1.63	0.72	83
Crying, isolating myself	1.57	1.05	74
Refusing to hide, being visible	1.54	0.63	84
Social support from other overweight people	1.52	0.55	84
Negative self-talk	1.51	0.85	73
Refusing to diet	1.40	0.67	75
Responding positively, being nice	1.34	0.62	72
Dieting	1.02	0.68	63
Educating self or others about weight stigma	1.01	0.52	51
Avoiding or leaving situation	0.86	0.62	41
Responding negatively, insulting back	0.64	0.59	22
Seeking therapy	0.54	0.93	27
Physical violence	0.38	0.63	25

SD, standard deviation.

* Scores for items in subscales range from 0 (never) to 3 (multiple times).

Psychological Functioning. The mean depression scores across weight categories indicate that most participants reported depressive symptoms in the mild clinical range. Although the mean BDI score was slightly lower (and in the normal range) among normal-weight participants ($M = 12.60$, $SD = 9.46$), this was not significantly different than the mildly depressive symptoms found in all other weight categories. Self-esteem scores of the current sample (adjusted for scale valences) are comparable with other obese samples (19). In contrast to previous studies on stigma (19,20), results showed that self-esteem and depressive symptoms were not significantly related to stigmatizing situations. However, several coping responses to stigma were associated with self-esteem and depression. Specifically, coping with stigma by obtaining social support was positively related to self-esteem ($r = 0.08$, $p < 0.05$), and coping by engaging in positive self-talk was associated with lower levels of depression ($r = -0.07$, $p < 0.05$). In line with previous research, we expected to find some types of

coping responses that were maladaptive and related to lower levels of self-esteem (20), but no coping subscales emerged as significant correlates. Step-wise regressions were conducted to examine the predictive value of stigma and coping experiences on self-esteem and depression (controlling for age, BMI, childhood weight, and attitudes about obesity). These analyses did not yield significant results.

Eating Behaviors. Only 26% of the sample responded to enough questions about BED to classify their binge eating status using DSM criteria. This measure was the final measure of the battery, and it is likely that many participants stopped before completing this survey. Participants who responded to this measure were evenly distributed across each weight category (ranging from 25% to 27% of each sample), and rates of those individuals who received a BED status ranged from 30% to 40% across each weight category. There were no significant differences in these frequencies. Multivariate analyses of the variance (MANOVAs) revealed that individuals with a BED status did not report

Table 4. Descriptive statistics and frequency (%) of respondents in Sample 1 who experienced stigma from various interpersonal sources

Source of stigma	Mean	SD	Ever experienced	More than once and multiple times
Family members	1.66	1.20	72	62
Doctors	1.43	1.15	69	52
Classmates	1.57	1.31	64	56
Sales clerks at stores	1.30	1.21	60	47
Friends	1.15	1.11	60	42
Co-workers or colleagues	1.06	1.13	54	38
Mother	1.24	1.29	53	44
Spouse	0.97	1.17	47	32
Servers at restaurants	0.99	1.18	47	35
Nurses	0.93	1.13	46	34
General community members	0.96	1.15	46	35
Father	0.94	1.19	44	34
Employers, supervisors	0.78	1.04	43	26
Sister	0.77	1.12	37	28
Dieticians, nutritionists	0.73	1.06	37	26
Brother	0.77	1.14	36	28
Teachers, professors	0.59	0.97	32	21
Authority figures (e.g., police)	0.42	0.86	23	15
Mental health professionals	0.38	0.84	21	13
Son	0.38	0.83	20	13
Daughter	0.34	0.80	18	12
Other	0.39	0.94	17	13

SD, standard deviation.

* Scores for items range from 0 (never) to 3 (multiple times).

more stigma or perpetrators of stigma than those without. Coping responses, self-esteem, and depression were unrelated to BED status.

It is important to note that a frequent coping strategy reported by participants to deal with stigma was eating more food. Seventy-nine percent of the total sample reported using this strategy more than once or multiple times, and only 10% reported never using this strategy. Closer examination indicated that this coping response was reported among the top five most frequent coping responses to deal with stigma in each category of weight from normal weight to obese category III. In addition, 75% of participants reported that they coped with stigma on at least one occasion by refusing to diet.

Given the lack of differences in stigma reported among participants with and without a BED status and the finding that eating more food was reported as a frequent response to stigma, several additional analyses were conducted to try to reconcile these discrepant results. First, descriptive analyses

showed that the coping strategy of eating more food was not more common among participants with BED, indicating that these two groups did not differ. Second, it could be argued that our definition of BED status as a categorical variable was too stringent to detect an effect. Thus, we transformed the binge eating questions from the QWEP-R into a continuous variable (e.g., higher scores indicating endorsement of more symptoms of BED) to examine its association with stigma experiences. These correlations were not significant.

Attitudes about Obesity. Mean scores on the BAOP indicate that this sample expressed stronger beliefs that obesity is not within personal control compared with recent research with obese individuals (19), but mean scores were lower than those reported with non-obese undergraduates and members of the National Association to Advance Fat Acceptance (29). BAOP scores were positively correlated with stigmatizing situations ($r = 0.08, p < 0.05$) and the ATOP ($r = 0.08, p < 0.05$) but negatively correlated with BED

status ($r = -0.13, p < 0.01$). Attitudes toward obese persons (measured on the ATOP) were more favorable than those reported by Friedman et al. (19) but less favorable than attitudes expressed by non-obese undergraduates and members of the National Association to Advance Fat Acceptance (19,29).

Sample 2

Sample 2 consisted of 222 adults (50% men, 50% women) who were disaggregated from the total sample and then matched for age and BMI. Ninety-four percent of women and 87% of men were white. As a result of the matching process, 5% of both men and women were normal weight, 18% were overweight, 20% were obese I, 14% of women and 15% of men were obese II, and 43% of women and 41% of men were obese III. With respect to childhood weight, 45% of women and 41% of men were overweight, and 44% of women and 47% of men were average weight. The average age of the sample was 50.67 ($SD = 13.68$), with a range of 19 to 84 years of age. Table 1 summarizes descriptive statistics for the primary variables for both genders. On average, women began dieting earlier in life than men [$F(1,203) = 20.47, p < 0.01$]. We conducted univariate ANOVAs on the primary variables to directly test the effect of gender on total scores of measures assessing stigma, psychological functioning, and eating behaviors. No gender differences were observed on these primary variables.

Experiences of Stigma. The most frequent stigmatizing situations reported by women and men were others making negative assumptions and receiving negative comments from children. The next most frequent situations reported by women were inappropriate comments from doctors and encountering physical barriers and obstacles, whereas for men, it was negative comments from family members and encountering physical barriers and obstacles. Frequency of types of stigma experienced and descriptive statistics for men and women are presented in Table 2. MANOVAs showed that there were no significant gender differences with respect to types of stigma experienced. Regarding the number of stigmatizing situations experienced, 35% of the situations were experienced by at least 50% of women, whereas 48% of the situations were reported by at least 50% of the men.

Bivariate correlations revealed that childhood weight was positively related to stigma for women ($r = 0.26, p < 0.01$) but not for men. Unlike the larger sample, BMI was not related to increased stigmatizing situations in the matched sample. For women, but not men, younger individuals were more likely to report experiencing negative comments from children ($r = -0.26, p < 0.01$). No other gender differences emerged on correlates with stigma, with the exception of coping responses described below.

Coping Responses. Table 5 depicts descriptive statistics for subscales of the Coping Responses Inventory. The most

frequent coping strategies to deal with stigma among women were using positive self-talk, eating, heading off negative remarks, and seeking social support from others. For men, the most frequent strategies were heading off negative remarks, using positive self-talk, eating, and using faith, religion, or prayer. MANOVAs indicated that there were no significant gender differences concerning types of coping responses used or with the percentage of men and women reporting each type of coping response. Two-thirds of the coping strategies were endorsed by at least 50% of both women and men, suggesting that a range of strategies are used by both men and women.

Bivariate correlations were conducted to examine whether particular coping responses were related to certain types of stigmatizing encounters for each gender. Overall, there was little indication that certain coping strategies were selected for specific types of stigma experiences. However, a few gender differences emerged. For women, experiencing negative comments from children was significantly correlated with using negative self-talk to cope with stigma ($r = 0.20, p < 0.05$), as was experiencing weight-based job discrimination ($r = 0.20, p < 0.05$). Women were more likely to cope with stigma using faith, religion, and prayer if they reported experiencing negative assumptions from others ($r = 0.20, p < 0.05$). For men, experiencing inappropriate comments from doctors was negatively correlated with coping responses of humor ($r = -0.41, p < 0.01$) and seeking therapy ($r = -0.40, p < 0.01$), indicating that these coping responses were chosen less frequently in stigmatizing encounters.

Additional correlational analyses indicated several gender differences between various coping strategies and other primary variables. Although BMI was not related to coping responses, being overweight as a child for women was associated with more frequent attempts to cope by refusing to diet ($r = 0.20, p < 0.05$) and refusing to hide/being visible ($r = 0.19, p < 0.05$). Childhood weight was not related to coping responses for men. For women, earlier age at first dieting attempt was correlated with coping through physical violence ($r = 0.25, p < 0.05$) and negatively related to viewing the stigmatizing encounter as the other person's problem ($r = -0.21, p < 0.05$). For men, later age at first dieting attempt was associated with coping by ignoring the situation ($r = -0.30, p < 0.05$). Regarding age, compared with younger women, older women were more likely to report coping with stigma by using social support ($r = 0.19, p < 0.05$), positive responses ($r = 0.21, p < 0.05$), and negative responses ($r = 0.22, p < 0.05$), whereas being younger was associated with more frequent use of negative self-talk ($r = -0.20, p < 0.05$). For men, being younger was related to coping by ignoring the situation ($r = -0.31, p < 0.05$).

Interpersonal Sources of Stigma. Table 6 presents descriptive statistics and frequencies of sources of stigma

Table 5. Coping responses to stigma experienced by women and men in Sample 2*

	Women		Men	
	Mean (SD)	Mean (SD)	Women	Men
Positive self-talk	2.02 (0.67)	1.97 (0.71)	92	92
Eating	1.99 (1.16)	1.94 (1.20)	80	79
Heading off negative remarks	1.97 (0.77)	2.13 (0.70)	89	93
Social support from non-overweight people	1.93 (0.66)	1.80 (0.71)	90	85
Using faith, religion, prayer	1.85 (0.83)	1.88 (0.74)	86	89
Seeing the situation as the other person's problem	1.82 (0.85)	1.77 (0.88)	83	80
Self-love, self-acceptance	1.78 (0.85)	1.74 (0.85)	85	84
Ignoring situation, making no response	1.72 (0.72)	1.66 (0.65)	86	89
Humor, witty comebacks, or joking	1.68 (0.92)	1.85 (0.83)	79	91
Crying, isolating myself	1.65 (1.09)	1.60 (1.09)	76	75
Social support from other overweight people	1.61 (0.54)	1.62 (0.62)	86	87
Refusing to hide, being visible	1.57 (0.65)	1.52 (0.57)	84	85
Negative self-talk	1.54 (0.85)	1.51 (0.91)	75	69
Refusing to diet	1.44 (0.73)	1.42 (0.69)	77	76
Responding positively, being nice	1.37 (0.62)	1.39 (0.61)	76	77
Educating self or others about weight stigma	1.08 (0.67)	1.10 (0.66)	51	61
Dieting	1.07 (0.67)	1.13 (0.70)	69	68
Avoiding or leaving situation	0.98 (0.61)	0.89 (0.70)	53	46
Responding negatively, insulting back	0.67 (0.59)	0.59 (0.45)	26	12
Seeking therapy	0.53 (0.96)	0.52 (0.84)	23	28
Physical violence	0.34 (0.58)	0.25 (0.60)	20	15

SD, standard deviation.

* Scores for items in subscales range from 0 (never) to 3 (multiple times).

experienced by each gender. The most frequently reported sources of stigma for women were doctors, followed by family members, classmates, and sales clerks at stores. For men, the most frequent sources were classmates, followed by doctors, family members, and mothers. Increased frequency of interpersonal sources of stigma was not associated with BMI for men or women. A MANOVA showed that compared with men, women reported being stigmatized more frequently by members of the general community [$F(1,54) = 0.53, p = 0.003$] and by dietitians [$F(1,54) = 9.53, p = 0.04$]. A higher percentage of women also reported being stigmatized by community members “more than once” and “multiple times” than men [$F(1,54) = 6.46, p = 0.01$].

Psychological Functioning. Results from ANOVAs indicated that there were no gender differences in depressive symptoms or self-esteem; both men and women had mean BDI scores suggestive of mildly depressive symptoms and

relatively normative self-esteem scores. As with the larger sample, results showed that self-esteem and depressive symptoms were not significantly related to BMI or stigmatizing situations, with several exceptions. Women reported higher levels of depressive symptoms if they experienced loved ones being embarrassed by their weight ($r = 0.25, p < 0.05$) and being persecuted by their friends ($r = 0.29, p < 0.05$), and men reported lower levels of self-esteem if they were persecuted by their sons ($r = -0.43, p < 0.05$).

Several coping responses to stigma were associated with self-esteem and depression for men and women. Among women, coping with stigma with negative responses was related to higher levels of depression ($r = 0.43, p < 0.01$). For men, unexpected correlations emerged where depressive symptoms were positively correlated with positive self-talk ($r = 0.41, p < 0.05$) and using faith, religion, or prayer ($r = 0.38, p < 0.05$), and lower levels of depression were

Table 6. Descriptive statistics and reported frequency (%) of interpersonal sources of stigma experienced more than once and multiple times across gender in Sample 2

Source of stigma	Women	Men	Women	Men
	Mean (SD)	Mean (SD)	%	%
Doctors	1.56 (1.15)	1.67 (1.10)	67	64
Family members	1.70 (1.23)	1.68 (1.25)	63	61
Classmates	1.68 (1.30)	1.56 (1.33)	59	68
Sales clerks at stores	1.38 (1.23)	1.19 (1.20)	50	47
Mother	1.31 (1.29)	1.46 (1.36)	45	53
Friends	1.39 (1.36)	1.20 (1.10)	43	46
Co-workers or colleagues	1.21 (1.26)	1.25 (1.18)	40	45
Spouse	0.99 (1.20)	1.11 (1.20)	37	40
Servers at restaurants	1.02 (1.24)	0.91 (1.15)	32	35
Nurses	1.13 (1.26)	0.95 (1.17)	39	33
General community members	1.24 (1.24)	0.84 (1.19)	45	32
Father	1.02 (1.25)	0.98 (1.18)	33	34
Employers, supervisors	0.77 (1.08)	0.98 (1.16)	24	37
Sister	0.72 (1.10)	0.88 (1.13)	21	33
Dieticians, nutritionists	0.95 (1.89)	0.79 (1.17)	29	28
Brother	0.82 (1.19)	0.77 (1.07)	29	30
Teachers, professors	0.54 (0.95)	0.77 (1.11)	18	27
Authority figures (e.g., police)	0.44 (0.92)	0.57 (1.01)	13	23
Mental health professionals	0.44 (1.00)	0.38 (0.79)	13	12
Son	0.32 (0.80)	0.48 (0.94)	13	15
Daughter	0.34 (0.86)	0.38 (0.75)	7	23
Other	0.44 (1.02)	0.56 (1.16)	15	20

SD, standard deviation.

* Scores for items range from 0 (never) to 3 (multiple times).

associated with ignoring the situation ($r = -0.44, p < 0.05$) and “crying and then getting over it” ($r = -0.40, p < 0.05$). Regarding self-esteem, no specific coping responses were correlated for women, but men were more likely to report higher levels of self-esteem if they coped with self-acceptance/self-love strategies ($r = 0.34, p < 0.05$), and lower levels of self-esteem if they coped with avoidance ($r = -0.32, p < 0.05$), negative self-talk ($r = -0.48, p < 0.01$), and crying ($r = -0.31, p < 0.05$). Step-wise regressions were conducted with each gender to examine the predictive value of stigma and coping experiences on self-esteem and depression (controlling for age, BMI, childhood weight, and attitudes about obesity). These results were not significant for men, but for women, total scores on the Coping Responses Inventory emerged as being significantly related to self-esteem [$F(1,49) = 4.85, p = 0.03, \text{adjusted } R^2 = 0.07$].

Eating Behaviors. Only 34% of the sample (46 women and 30 men) responded to enough questions about BED to classify their binge eating status using the DSM criteria. Of

those who responded, 44% of women and 57% of men were classified as having a BED status, which were not significantly different. Separate MANOVAs for each gender indicated that for both men and women, BED status was unrelated to stigma, self-esteem, and depression.

Approximately 80% of both women and men reported coping with stigma by eating more food on at least one occasion, and this coping strategy was among the top three coping strategies reported by both genders. Three-quarters of both women and men also reported coping by refusing to diet in response to stigmatizing situations.

Attitudes about Obesity. Mean scores on the BAOP were similar to those of the larger female sample, and no gender differences occurred on this measure. For women, BAOP scores were negatively correlated with being persecuted by coworkers ($r = -0.24, p < 0.05$), classmates ($r = -0.32, p < 0.01$), teachers ($r = -0.28, p < 0.05$), and mental health professionals ($r = -0.28, p < 0.05$) and positively associated with the stigmatizing situation of loved ones

being embarrassed by their weight ($r = 0.28, p < 0.01$). For men, BAOP scores were positively correlated with being persecuted by one's father ($r = 0.34, p < 0.05$), spouse ($r = 0.35, p < 0.05$), and friends ($r = 0.33, p < 0.05$) and coping by seeking therapy ($r = 0.35, p < 0.05$). Regarding attitudes toward obese persons (measured on the ATOP), women who reported more favorable attitudes reported higher self-esteem ($r = 0.34, p < 0.01$) but were less likely to cope with stigma by making their body visible ($r = -0.24, p < 0.05$). For men, those with more favorable attitudes were more likely to report coping by attributing stigma to the other person's problem ($r = 0.35, p < 0.05$), and those with less favorable attitudes were more likely to report being persecuted by friends ($r = -0.37, p < 0.05$). No other gender differences occurred.

Discussion

Being the target of weight stigma, in a variety of forms and on multiple occasions, was a frequent experience reported by participants in this study. The most common types of stigma reported were encountering negative assumptions from others, receiving negative comments from children, encountering physical barriers and obstacles, and receiving inappropriate comments from doctors and family members. This was consistent for both women and men. As predicted, stigmatizing experiences were reported more frequently among individuals with a higher BMI, but this occurred in Sample 1 only. This is consistent with previous research (18–20). However, BMI was not associated with stigma in the matched sample, suggesting that some individuals, even at lower levels of overweight, experience as much stigma as more obese people. Thus, although it might be the case that vulnerability to stigma can increase as an individual becomes heavier, this may not be a necessary condition for being a frequent target of bias. Prior weight and dieting history in women was related to amount of stigma experienced because those who began struggling with weight earlier in life reported more stigma, suggesting that, perhaps, the duration of time that individuals struggle with their weight may be a risk factor that increases susceptibility to stigma.

Participants reported being stigmatized by a variety of interpersonal sources, the most frequent being family members, doctors, classmates, and sales clerks. This reaffirms that stigma reduction efforts need to target a range of individuals in multiple settings. This finding also supports previous research indicating that health care professionals are not immune to weight bias (11,35,36) because doctors were the most frequent source of stigma reported by women and the second most frequent source reported by men. Many other sources of bias were individuals with whom interpersonal interactions occur on a regular basis, such as family,

friends, coworkers, and classmates. This may have important implications for emotional well-being because women who were stigmatized by friends reported higher depressive symptoms, and men who were stigmatized by their sons reported lower self-esteem. The most frequent coping strategies used in response to weight stigma were heading off negative comments, using positive self-talk, coping through faith, eating more, and seeking social support, which were consistent among both men and women. This is similar to findings of Myers and Rosen (20) and suggests that a range of coping responses are used to deal with stigma. Coping efforts were more frequent among those who reported more stigma, suggesting that coping is primarily a function of the amount of stigma experienced.

Coping strategies to deal with stigma have important implications for emotional functioning. Among women, positive coping strategies, including positive self-talk and obtaining social support, were related to healthier psychological adjustment, whereas negative responses were associated with higher distress. This was also true with certain coping strategies for men, where coping through self-acceptance was associated with higher self-esteem, and coping with avoidance, negative self-talk, and crying were related to lower self-esteem. However, additional findings among men raise questions about the perceived adaptiveness of various coping strategies for depressive symptoms. For men, certain coping strategies that seem adaptive, such as positive self-talk and using religion or prayer, were related to higher depressive symptoms, and strategies that seem maladaptive, such as crying and ignoring the situation, were related to lower levels of depression. Although these findings seem counterintuitive, they are similar to results of Myers and Rosen (20), who also found that certain positive coping strategies were not clearly associated with positive mental health symptoms and that forms of disengaged coping, such as ignoring the situation, were unrelated to poorer emotional adjustment. Taken together, these findings highlight the need for further study to determine what factors constitute effective coping with weight stigma and whether positive vs. negative coping responses impact emotional adjustment differently across gender. In the broader literature on coping, several studies suggest that women and men perceive stressors differently and choose different types of coping strategies to deal with stress (37–39). More work is needed to determine whether these gender differences generalize to coping strategies used with weight stigma.

Contrary to predictions, and somewhat puzzling, is the lack of relationship observed between stigmatizing situations and psychological functioning. This finding was unexpected, especially given the large sample size, and is contrary to previous research (19,20). Several hypotheses may help account for these results. It is possible that stigma was unrelated to variables of self-esteem and depression due to a ceiling effect and selection bias. Participants in this

study knew that the topic of investigation was weight stigma and may have been more likely to participate if they had experienced bias. It is also possible that the modified range of the rating scale on the Stigmatizing Situations Inventory was constricted to a degree that did not allow for significant variance. However, the means on this measure observed with the current samples (which used very similar descriptors as the original measure) were similar to the means reported in recent studies using the original measure with its broader scale.

Another possibility is that the current sample may be buffered by several factors which protected their emotional well-being from negative effects of stigma. For example, participants in the sample belonged to an organization that endorses a caring and supportive approach to weight control, in which members attend weekly meetings that provide positive reinforcement and motivation while making healthy lifestyle changes. The social support and membership of this organization may have served a protective function in this regard. Second, it is possible that beliefs about weight controllability in this sample helped protect against negative effects of stigma by making self-blame and negative attributions less likely. However, this prediction was tested with partial correlations and regression analyses, neither of which yielded significant results.

Finally, it is plausible that what contributes more strongly to psychological well-being is not the stigmatizing situation itself but the ways in which an individual copes with these experiences. The present findings show that particular coping strategies are related to both higher self-esteem and lower depressive symptoms. In addition, among women in the matched sample, coping strategies emerged as the only significant predictor of self-esteem, even after controlling for current and previous weight, age, and beliefs about obesity. Clearly, more work is needed to examine the relationship among stigma, coping, and emotional functioning, and it remains to be seen whether certain types of coping strategies are more effective than others in dealing with specific stigmatizing situations.

This research adds to the literature regarding the role that gender plays with weight stigma. According to the present findings, men and women do not differ with respect to the types or amount of stigma they experience, nor with the types or amount of coping strategies they use to deal with stigma. Although some literature has suggested gender differences for certain forms of weight stigma (25–27), the present findings parallel more recent work that did not observe differences between men and women in reported levels of stigma and discrimination (18,19). At the same time, correlational analyses suggest that men and women may choose different strategies to cope with specific stigmatizing encounters and that certain coping strategies may impact their psychological functioning differently. More work is needed to clarify the nature of these gender differ-

ences and to determine how this information can be used to help obese individuals adopt specific coping tools to improve their well-being.

There are several limitations of this research. The sample was comprised primarily of white women, making it unclear whether the current findings will generalize to overweight and obese individuals of different ethnic backgrounds and to larger samples of men. In addition, participants were recruited from a supportive weight control organization, and those who volunteered to participate were a self-selected sample of adults who were aware that the topic of the study was weight stigmatization. Thus, the origin of this sample places additional limits on the generalization to other populations of obese persons, including those seeking treatment for weight loss. The cross-sectional nature of the data also prevents conclusions about causal relationships among stigma, coping, and emotional functioning or eating behaviors. The reliance on self-reports of participants about their stigma experiences and coping responses is also a limitation of the data. Perceptions of stigma may be different than factual circumstances, and recollection of coping responses used may be influenced by contemporaneous attitudes. Another drawback of the study is the high number of participants who did not complete all of the measures, making it difficult to examine variables such as symptoms of BED and their relationship to stigma. At the time of data collection, the Web site responsible for hosting the surveys did not have the capability to generate random orders of the questionnaires for participants, which likely contributed to low levels of responses on the final questionnaires in the battery. This problem can be remedied in future research using online assessment tools.

Finally, this work has several implications for obesity treatment and stigma reduction interventions. First, it is important for health care providers to be sensitive to the considerable amount and range of stigmatizing experiences faced by obese individuals and to recognize that many of these encounters occur within valued social relationships and with health care professionals themselves. In addition to providing support and empathy, clinicians should assess coping skills to deal with stigma and identify the perceived success of various strategies among their patients. Discussing with patients their emotional experiences after implementation of various coping strategies may be one way to facilitate this assessment. In cases where patients are struggling in their attempts to cope with stigma, providers may be able to assist by offering suggestions for alternative strategies (e.g., obtaining social support to cope with stigma) to help improve their daily functioning in stigmatizing environments. It is also important for treatment providers to consider the implications of coping with stigma for eating behaviors. The frequency with which both women and men reported coping with stigma by eating more food and refusing to diet suggests that this should be attended to

as part of weight loss treatment and psychotherapy with overweight and obese patients. Although binge eating symptoms were not related to stigma experiences in the present sample, the lack of association between stigmatizing experiences and psychological functioning could account for the lack of differences observed regarding BED status. This is an important area for future research.

Several targets for stigma reduction intervention efforts should also be considered based on the findings of this research. The frequency and prevalence with which participants reported bias by physicians underscore the importance of targeting health care professionals through education. This is especially important considering that obese patients may experience poorer care or be reluctant to seek care due to perceived anti-fat bias among physicians and other professionals (35,40,41). Intervention efforts should target both those in practice and in training so that current and future generations can offer compassionate help free of bias.

Given that coping responses for weight stigma may influence emotional well-being, it is important to consider this information in stigma reduction efforts. It may be beneficial to educate targets of stigma reduction interventions (such as health care professionals, educators, or family members) about the diverse range of coping strategies that obese individuals employ in their reactions to stigma and that these may have both positive and negative implications for psychological adjustment. Because more work is conducted to determine the effectiveness of various coping strategies, targets of stigma reduction efforts can be trained not only to improve their own attitudes toward obese persons but to help obese individuals implement coping strategies that will reduce future stigmatizing encounters and negative emotional consequences associated with bias.

Although the limited research on stigma reduction interventions has primarily focused on improving weight tolerance in educational and medical settings (42,43), the current findings indicate another, more private, domain that requires attention. Family members were among the most commonly reported sources of stigma, which is indicative of the complexity and normative acceptability of weight bias and creates new challenges for intervention. Identifying ways to improve attitudes among parents, spouses, and other relatives of obese individuals is imperative in efforts to reduce bias, especially for obese children for whom familial influences may be predominant and who may be particularly vulnerable to the personal consequences of weight stigma (44).

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